

MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

Department of Obstetrics and Gynaecology

APPROVED

Vice-rector for scientific and pedagogical work

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METHODOLOGICAL RECOMMENDATIONS
FOR PRACTICAL CLASSES
ON THE ACADEMIC DISCIPLINE
“OBSTETRICS AND GYNECOLOGY”
for 5th year students

Level of higher education: second (master's)

Field of knowledge: 22 "Healthcare"

Specialty: 222 "Medicine"


Specialization: "Obstetrics and Gynecology"

Educational and professional program: Medicine

Approved:

Meeting of the Department of Obstetrics and Gynecology of Odesa National Medical University

Protocol No. 1 dated August 27, 2025.

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Practical class № 11.
MATERNAL PELVIS. THE FETUS AS AN OBJECT OF LABOR.

LEARNING OBJECTIVE is to gain basic knowledge about structure of bony pelvis and soft tissues of female pelvis, their physiological changes during pregnancy and labor, formation of birth canal, peculiarities of fetal skull. In addition, in order to make recommendations for management of labor, it is important to understand how they can impact on the course of labor.

BASIC CONCEPTS: Pelvis from anatomical and obstetric points of view. Pelvic floor. The structure of the fetal head. The dimensions of the fetal head and body. Signs of fetal maturity. Measurement and evaluation of the pelvis.

1. ORGANIZATIONAL STAGE

1. Greetings,
2. checking attendees,
3. defining of educational goals,
4. providing of positive motivation.

The reproductive organs in female are those which are concerned with copulation, fertilization, growth and development of the fetus and its subsequent exit to the outer world. Knowledge about their physiological changes during pregnancy and labor, formation of birth canal is the basic one in obstetrics. Unless well studied, this can make impossible to master physiological and pathological obstetrics at all.

- 5. CONTROL OF BASIC KNOWLEDGE** (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

1. Communication and clinical examination skills.
2. Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
3. Ability to make a preliminary and clinical diagnosis of the disease
4. Ability to perform medical manipulations
5. Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
6. Ability to keep medical records.

List of didactic units:

1. Pelvis from anatomical and obstetric points of view.
2. Pelvic floor.
3. The structure of the fetal head.
4. The dimensions of the fetal head and body.
5. Signs of fetal maturity.
6. Measurement and evaluation of the pelvis.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

1. The anatomy of bony pelvis.
2. The boundaries of a true and a false pelvis, their obstetric functions.
3. Measurements of the pelvic diameters, measurement of diagonal conjugate.
4. The anatomy of the muscular pelvic floor and the perineum, their functions and changes during pregnancy and parturition.
5. Three parts of uterus, their obstetric functions.
6. Formation of the birth canal during labor.
7. Peculiarities of fetal skull, the importance of sutures and fontanelles.
8. The diameters of the skull.
9. Mechanism and importance of moulding.
10. The mechanism of formation of caput succedaneum.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. The posterior rectus fascia (sheath) ends at the
 - (A) insertion of the rectus muscles
 - (B) insertion of the anterior rectus sheath
 - (C) arcuate line (semicircular line, linea semicircularis, line of Douglas)
 - (D) area approximately 3-4 cm below the umbilicus
 - (E) area approximately 2-3 cm above the pubic symphysis
2. Sacrospinous ligament
 - (A) a thick band of fibers filling the angle created by the pubic rami
 - (B) passes from the anterior superior iliac spine to the pubic tubercle
 - (C) triangular and extends from the lateral border of the sacrum to the ischial spine
 - (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
 - (E) passes over the anterior surface of the sacrum
3. Sacrotuberous ligament
 - (A) a thick band of fibers filling the angle created by the pubic rami
 - (B) passes from the anterior superior iliac spine to the pubic tubercle
 - (C) triangular and extends from the lateral border of the sacrum to the ischial spine
 - (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
 - (E) passes over the anterior surface of the sacrum
4. Ilioinguinal ligament
 - (A) a thick band of fibers filling the angle created by the pubic rami
 - (B) passes from the anterior superior iliac spine to the pubic tubercle
 - (C) triangular and extends from the lateral border of the sacrum to the ischial spine

- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

5. Arcuate ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

6. Formed by the superior and inferior pubic rami and covered by a central membrane through which a nerve, artery, and vein pass

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

7. The internal pudendal vessels and pudendal nerve exit the pelvis but then reenter through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

8. Divides and demarcates the greater and lesser sciatic foramen

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

9. The piriformis muscle, gluteal vessels, and posterior femoral cutaneous nerves pass through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

10. Four anterior and four posterior openings through which pass small nerves

- (A) obturator foramen
- (B) greater sciatic foramen

- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

11. Which of the following statements is FALSE?

- (A) The ischium has a body and two rami
- (B) The internal surface of the body of the ischium provides attachments for the levator ani muscle and coccygeus muscle
- (C) The superior ramus is located cephalad to the inferior ramus in the standing position
- (D) The superior ramus forms the dorsolateral portion of the obturator canal
- (E) The ischial tuberosity is the lowest portion of the pelvis in the erect or sitting posture and bears the weight of the human frame in the sitting position

12. Regarding the pubis, which of the following statements is FALSE?

- (A) The pubis has a body and two rami
- (B) The superior edge of the body of the pubis, lateral to the midline, has a raised area called the anterior iliac crest a common landmark
- (C) The inferior ramus is the attachment of the adductor magnus and brevis, and obturator internus muscles
- (D) The inferior rami form the lower portion of the pubic arch
- (E) Inferiorly, the pubic bone is the attachment for the urogenital diaphragm

13. The sacrum

- (A) is formed from 11 or 12 small fused vertebrae
- (B) has an uppermost anterior portion called the obstetrical conjugate
- (C) in women has a concave pelvic surface
- (D) is separated from the vertebrae that make up the coccyx by the sacrococcygeal joint
- (E) most often is the limiting factor in determining the size of the pelvic outlet

14. Which of the following is a muscle of the external genitalia?

- (A) the gluteus
- (B) the sartorius
- (C) the superficial transverse perineal
- (D) the deep transverse perineal
- (E) the levator ani

15. The term pudenda includes the

- (A) mons pubis
- (B) vulva
- (C) labia
- (D) external genitalia
- (E) all the above

16. The term perineum describes

- (A) the entire area between the thighs from the symphysis to the coccyx, bounded inferiorly by the skin and superiorly by the levator muscles of the pelvic diaphragm
- (B) the anus and perianal area
- (C) the superficial skin layer of the vulva
- (D) the tendon joining the muscles deep to the external genitalia
- (E) bulbocavernosus, ischiocavernosus, and transverse perineal muscles as a complex

17. The clitoris

- (A) consists of a single crurum, a short body, and the glans clitoris, with overlying skin called the prepuce
- (B) is attached to the pubic bone by a suspensory ligament
- (C) contains within the shaft the corpora cavernosa, a collection of dense connective tissue that serves as support for the anterior-inferior portion of the vagina
- (D) is supplied very sparsely with nerves originating primarily from the terminal branch of the ilioinguinal nerve in most women
- (E) plays a secondary role in erotic stimulation in most women when compared to the role of the vagina

18. Which of the following statements regarding the muscles of the external genitalia is TRUE?

- (A) The bulbocavernosus muscle surrounds the distal vagina and vestibule on each side as a single continuous strip of muscle, much like other sphincters
- (B) The ischiocavernosus muscle takes origin from the ischial tuberosity and inferior ischial ramus and inserts upon the inferior pubic ramus on each side of the pelvis
- (C) The superficial transverse perineal muscle arises from the ischial tuberosity and inferior ischial ramus and inserts between the posterior vagina and anterior rectum
- (D) The perineal body serves as a central connection for all the superficial muscles of the external genitalia except the transverse perineal muscle which inserts directly on the external anal sphincter
- (E) The muscles of the external genitalia are usually spared at the time of episiotomy when the levator ani muscle is routinely divided

19. Which of the following statements about the vagina is FALSE?

- (A) The vagina is a 7-10 cm canal connecting the internal and external genitalia from the vestibule to the uterine cervix
- (B) It is a hollow, distensible, fibromuscular tube with the apex (vault) having an H-shaped lumen and the external opening being flattened in the dorsal-ventral dimension
- (C) The body of the vaginal tube is flattened in its normal resting state
- (D) The mid-portion of the vaginal axis is nearly perpendicular to the lower sacrum in the adult human female in a standing position

(E) The posterior fornix (back wall of the vagina) is approximately 2 cm longer than the front wall and is directly connected to the peritoneal pouch (posterior cul de sac, retrouterine space, or pouch of Douglas) directly behind the uterus

20. When the infantile uterus is examined, one finds that

- (A) the cervix is larger than the corpus (body of the uterus)
- (B) the position is always anteflexed
- (C) the cervix is the same size as the corpus
- (D) the body is larger than the cervix
- (E) it is as large as the adult organ in the immediate newborn period

21. The portio vaginalis of the cervix is that part which

- (A) extends cephalad from the vagina
- (B) protrudes into the vagina
- (C) forms an internal isthmus
- (D) is normally covered with endocervical epithelium
- (E) all the above

22. Which of the following statements regarding the uterus is FALSE?

- (A) The uterus has a body (corpus), composed mainly of smooth muscle, and a cervix, composed mainly of connective and elastic tissues, that are joined by a transitional portion (isthmus)
- (B) It is an estrogen-dependent organ measuring about 7.5 cm long by 5 cm in width, and 4 cm anterior to posterior diameter in an adult female
- (C) After puberty the uterus weighs about 50 grams in the nullipara and 70 grams in the multipara
- (D) It lies between the bladder anteriorly and the pouch of Douglas in front of the rectum posteriorly, with the cervical portion extending into the abdomen and into the vagina
- (E) The opening at the distal tip of the cervix is called the internal os

23. The uterus and adnexa are normally mobile structures, but they do have some relatively fixed anatomic characteristics. Which, if any, of the following statements about their relationship and/or positions is FALSE?

- (A) Anteflexion means that the uterus is bent forward on itself
- (B) The ovaries can be normally found caudad to the cervix
- (C) The round ligaments are normally attached to the uterus anterior to the insertion of the fallopian tubes
- (D) Adnexa refers to the tube, ovary, and their connecting structures
- (E) All statements are true

24. Regarding the anatomy of the fallopian tube, which of the following statements is FALSE?

- (A) Fallopian tubes are a conduit from the peritoneal to the uterine cavity
- (B) Each fallopian tube traverses the superior portion of the broad ligament attached by a mesentery (mesosalpinx)

- (C) The fallopian tube has four distinct areas in its 8-12 cm length: the portion that runs through the uterine wall (interstitial or cornual portion), the part immediately adjacent to the uterus (isthmic portion), the mid-portion of the tube (ampulla), and the distal portion containing the finger-like fimbria that expels the ovum (infundibular portion) to begin its passage toward the ovary
- (D) The longest of the fimbriae (fimbria ovarica) is attached to the ovary
- (E) Each tube is covered by peritoneum and consists of three layers: serosa, muscularis, and a nonciliated mucosa

25. Which of the following statements about the ovary is FALSE?

- (A) The ovaries normally change in size through-out a woman's lifetime
- (B) The ovary is supported in its normal anatomic position by the infundibulopelvic ligament and the ovarian ligament
- (C) The ovary produces both hormones and germ cells
- (D) The ovary lies in the ovarian fossa of the true pelvis, overlying the iliac vessels
- (E) The ovary produces the estrogens and androgens that regulate sexual desire in the human female

26. The pelvic peritoneum covers all of the following pelvic structures EXCEPT the

- (A) fimbria of the fallopian tube
- (B) uterine fundus
- (C) round ligament
- (D) uterorectal pouch of Douglas
- (E) uterosacral ligament

27. Which of the following statements regarding the female urethra is FALSE?

- (A) The urethra is a hollow, multi-layered tube 2.5 to 5 cm long, connecting the bladder with the outside world
- (B) The urethral-vesical junction is located at the level of the mid-trigone
- (C) There is no true anatomic sphincter within the urethra
- (D) The lower two-thirds of the urethra is contiguous with the anterior vaginal wall
- (E) The intrinsic "increased" resting tone of the urethra provides part of the continence mechanism for urinary control

28. The nerve supply to the vulva may be characterized as being

- (A) mediated via the pudendal nerve
- (B) a complex arrangement of Meissner's corpuscles
- (C) most dense of the prepuce of the clitoris
- (D) derived mainly from the nerves of spinal cord segments S-2,3,4
- (E) all the above

29. Which of the following statements regarding the innervation of the vagina is true?

- (A) The upper two-thirds of the vagina is largely innervated by sympathetic fibers from the presacral nerve
- (B) The vagina receives only parasympathetic fibers from the hypogastric plexus and pelvic splanchnic nerves. It is one of the few organs without sympathetic innervation
- (C) The upper vagina has more touch and pain fibers than the lower vagina
- (D) The vagina has more nerve endings per surface area than the clitoris, and therefore is probably the major organ involved in achievement of female orgasm

30. Branches of the internal iliac artery include all of the following EXCEPT the

- (A) pudendal artery
- (B) obturator artery
- (C) superior gluteal artery
- (D) ovarian artery
- (E) inferior vesical artery

31. Which of the following statements regarding the vessels of the vagina is FALSE?

- (A) The arterial supply of the vagina comes from the cervicovaginal branch of the uterine artery, inferior vesical, middle hemorrhoidal, and internal pudendal arteries
- (B) Venous drainage of the vagina is accomplished through an extensive plexus rather than through well-defined channels
- (C) The lymphatic drainage is such that the superior portion of the vagina (along with the cervix) drains into the external iliac nodes, the middle portion into the internal iliac nodes, and the lower third mainly into the superficial inguinal nodes and internal iliac nodes
- (D) Being a relatively avascular organ, the vagina is predisposed to atrophic changes in older patients

32. Opens the abdomen through the linea alba and can be extended from symphysis pubis to xiphoid without dividing the muscles of the abdomen

- (A) midline incision
- (B) Pfannenstiel incision
- (C) Maylard incision
- (D) Cherny incision
- (E) paramedian incision

33. A low transverse incision extended downward and through the anterior rectus fascia, with the anterior rectus sheath separated from the underlying muscles, from the pubis to near the level of the umbilicus

- (A) midline incision
- (B) Pfannenstiel incision
- (C) Maylard incision
- (D) Cherny incision
- (E) paramedian incision

Answer key

1.	A	12.	B	23.	B
2.	C	13.	C	24.	C
3.	D	14.	C	25.	E
4.	B	15.	E	26.	A
5.	A	16.	A	27.	B
6.	A	17.	B	28.	E
7.	C	18.	C	29.	A
8.	D	19.	D	30.	D
9.	B	20.	A	31.	D
10.	E	21.	B	32.	A
11.	B	22.	E	33.	B

11. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

1. Subgroup I - to perform external pelviometry, measuring of diagonal conjugate, calculation of true conjugate, to assess measurements of the true and the false pelvis.
2. Subgroup II - to assess grade and type of moulding in cephalic presentations.
3. Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A healthy 167 cm tall, adult female is most likely to have a pelvic inlet that would be classified as which of the following Caldwell-Moloy types?

- (A) android
- (B) platypelloid
- (C) anthropoid
- (D) gynecoid
- (E) triangular

2. The human pelvis is a complex structure that permits upright posture and being capable with childbirth despite the relatively large fetal head. Which option includes all of the bones that make up the pelvis?

- (A) trochanter, hip socket, ischium, sacrum, and pubis
- (B) ilium, ischium, pubis, sacrum, and coccyx
- (C) ilium, ischium, and pubis
- (D) sacrum, ischium, ilium, and pubis
- (E) trochanter, sacrum, coccyx, ilium, and pubis

3. During normal delivery, an infant must pass through the mater

Which of the following most accurately describes the characteristics of the true pelvis?

- (A) It has an oval outlet.
- (B) It has four defining planes: an inlet, a cavity, a midplane, and an outlet.
- (C) It has an inlet made up of a double triangle.
- (D) It is completely formed by two fused bones.
- (E) It lies between the wings of the paired ilium.

4. The part of the pelvis lying above the linea terminalis has little effect on a woman's ability to deliver a baby vaginally. What is the name of this portion of the pelvis?

- (A) true pelvis
- (B) midplane
- (C) outlet
- (D) false pelvis
- (E) sacrum

5. The plane from the sacral promontory to the inner posterior surface of the pubic symphysis is an important dimension of the pelvis for normal delivery. What is the name of this plane?

- (A) true conjugate
- (B) obstetric conjugate
- (C) diagonal conjugate
- (D) bi-ischial diameter
- (E) oblique diameter

6. Under the influence of relaxin and the pressure of pregnancy the junction between the two pubic bones may become unstable near the time of delivery. This will result in a waddling gait in the woman to minimize discomfort. What is this junction called?

- (A) sacroiliac joint
- (B) symphysis
- (C) sacrococcygeal joint
- (D) piriformis
- (E) intervertebral joint

Answer key

- | | |
|----|---|
| 1. | D |
| 2. | B |
| 3. | B |
| 4. | D |
| 5. | B |
| 6. | B |

3.2. Educational materials, recommendations (instructions) for performing tasks

External pelvimetry

Assessment of the false pelvis can be done using external calipers.

Time: The assessment is done at any gestational age or at the beginning of labor.

Procedures: The patient should empty the bladder. The examination is done with the patient in dorsal position. To measure external conjugate ask patient to turn to her right side with flexed right thigh and knee and extended left leg.

Steps: Following pelvic measurements should be taken (Fig. 1):

4. the interspinous diameter– the distance between antero-superior spines of iliac bones, 25-26 cm,
5. the intercrystal diameter – the distance between the furthest points of iliac crests, 27-28 cm,
6. the intertrochanteric diameter – the distance between the greater trochanters of femoral bone, 30-31 cm
7. the external conjugate – the distance between suprasacral fossa beneath the spinous process of L5 and upper edge of symphysis pubis, 20-21 cm

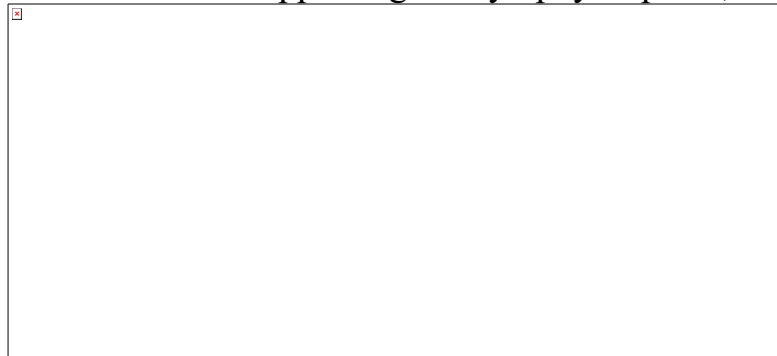


Fig.1: External pelvimetry

Measurement of diagonal conjugate

Time: It is measured clinically during pelvic assessment in late pregnancy or in labor.

Procedures: The patient is to empty the bladder and placed in dorsal position.

Steps: Two fingers are introduced into the vagina taking aseptic precautions. The fingers are to follow the anterior sacral curvature. In normal pelvis, it is difficult to feel the sacral promontory or at best can be felt with difficulty. However, in order to reach the promontory, the elbow and the wrist are to be depressed sufficiently while the fingers are mobilized in upward direction. The point at which the bone recedes from the fingers is the sacral promontory. The fingers are then mobilized under the symphysis pubis and a marking is placed over the gloved index finger by the index finger of the left hand.

The internal fingers are removed and the distance between the marking and the tip of the middle finger gives the measurement of diagonal conjugate. For practical purpose, if the middle finger fails to reach the promontory or touches it with difficulty, it is likely that the conjugate is adequate for an average size head to pass through.



Fig.2: Measurement of diagonal conjugate

Internal pelvimetry

Assessment of the pelvis can be done by bimanual examination.

Time: In vertex presentation, the assessment is done at any time beyond 37th week but better at the beginning of labor. Because of softening of the tissues, assessment can be done effectively during this time.

Procedures: The patient is to empty the bladder. The pelvic examination is done with the patient in dorsal position taking aseptic preparations.

Steps: The internal examination should be gentle, thorough, methodical and purposeful. It should be emphasized that the sterilized gloved fingers once taken out should not be reintroduced.

Sacrum — The sacrum is smooth, well curved and usually inaccessible beyond lower three pieces. The length, breadth and its curvature from above down and side to side are to be noted.

Sacrosciatic notch — The notch is sufficiently wide so that two fingers can be easily placed over the sacrospinous ligament covering the notch. The configuration of the notch denotes the capacity of the posterior segment of the pelvis and the side walls of the lower pelvis.

Ischial spines — Spines are usually smooth (everted) and difficult to palpate. They may be prominent and encroach to the cavity thereby diminishing the available space in the mid pelvis.

Ilio-pectineal lines — To note for any beaking suggestive of narrow fore pelvis (android feature).

Sidewalls — Normally they are not easily palpable by the sweeping fingers unless convergent.

Posterior surface of the symphysis pubis — It normally forms a smooth rounded curve. Presence of angulation or beaking suggests abnormality.

Sacrococcygeal joint — Its mobility and presence of hooked coccyx, if any, are noted.

Pubic arch — Normally, the pubic arch is rounded and should accommodate the palmar aspect of three fingers. Configuration of the arch is more important than pubic angle.

Diagonal conjugate — After the procedure, the fingers are now taken out (see above).

Pubic angle: The inferior pubic rami are defined and in female, the angle roughly corresponds to the fully abducted thumb and index fingers. In narrow angle, it roughly corresponds to the fully abducted middle and index fingers.

Transverse diameter of the outlet (TDO) — It is measured by placing the knuckles of the first interphalangeal joints or knuckles of the clinched fist between the ischial tuberosities.

Anteroposterior diameter of the outlet—The distance between the inferior margin of the symphysis pubis and the skin over the sacrococcygeal joint can be measured either with the method employed for diagonal conjugate or by external calipers.

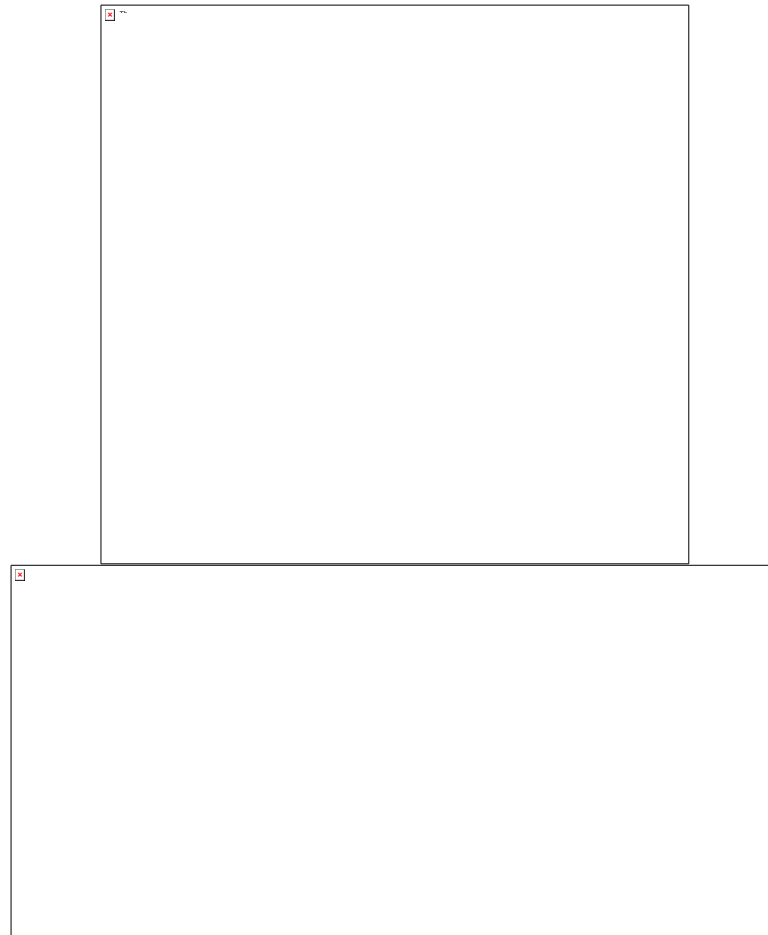


Fig. 3. Internal pelvimetry

DIAMETERS OF SKULL: The engaging diameter of the fetal skull depends on the degree of flexion present. The anteroposterior diameters of the head which may engage are:

Diameters	Measurement in cm	Attitude of the head	Presentation
1. Suboccipito-bregmatic — extends from the nape of the neck to the center of the bregma	9.5 cm	Complete flexion	Vertex
2. Suboccipito-frontal — extends from the nape of the neck to the anterior end of the anterior fontanelle or center of the sinciput	10 cm	Incomplete flexion	Vertex

3. Occipito-frontal — extends from the occipital eminence to the root of the nose (Glabella)	11,5 cm	Marked deflexion	Vertex
4. Mento-vertical — extends from the midpoint of the chin to the highest point on the sagittal suture	14 cm	Partial extension	Brow
5. Submento-bregmatic — extends from junction of floor of the mouth and neck to the center of the bregma	9.5 cm	Complete extension	Face

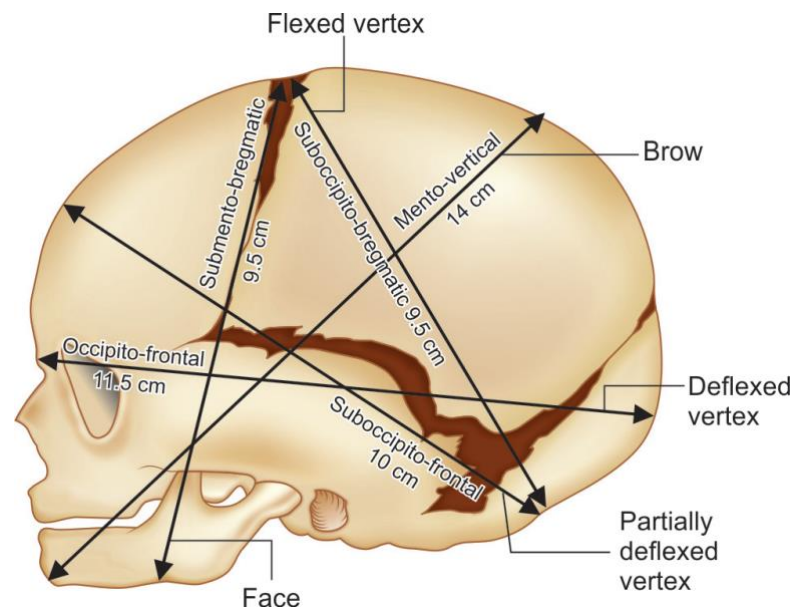


Fig. 4: The important landmarks of fetal skull

MOULDING: It is the alteration of the shape of the forehead head while passing through the resistant birth passage during labor. There is, however, very little alteration in size of the head, as volume of the content inside the skull is incompressible although small amount of cerebrospinal fluid and blood escape out in the process. During normal delivery, an alteration of 4 mm in skull diameter commonly occurs.

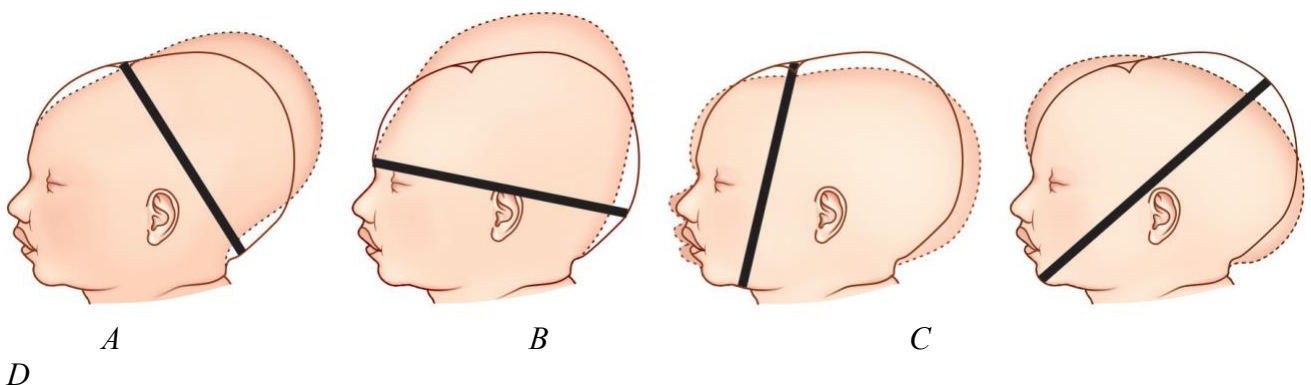


Fig. 5: Types of moulding in cephalic presentations (shown by dotted line: (A) Vertex presentation with well flexed head; (B) Vertex presentation with deflexed head (sugar loaf head); (C) Face presentation; (D) Brow presentation

Grading : There are three gradings. Grade-1 — the bones touching but not overlapping, Grade-2 — overlapping but easily separated and Grade-3 — fixed overlapping.

Importance:

- Slight moulding is inevitable and beneficial. It enables the head to pass more easily, through the birth canal.
- Extreme moulding as met in disproportion may produce severe intracranial disturbance in the form of tearing of tentorium cerebelli or subdural hemorrhage.
- Shape of the moulding can be an useful information about the position of the head occupied in the pelvis.

CAPUT SUCCEDANEUM: It is the formation of swelling due to stagnation of fluid in the layers of the scalp beneath the girdle of contact. The girdle of contact is either bony or the dilating cervix or vulval ring.

The swelling is diffuse, boggy and is not limited by the suture line. It may be confused with cephalhematoma. It disappears spontaneously within 24 hours after birth.

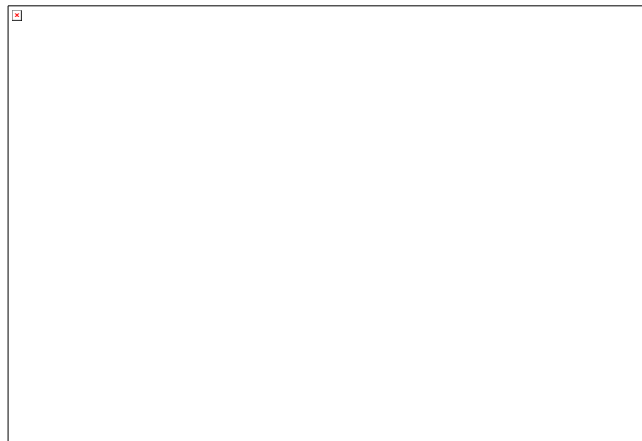


Fig. 6: Formation of caput succedaneum

3.3. Requirements for the results of work.

8. To perform external pelvimetry, measuring of diagonal conjugate, calculation of true conjugate.
9. To assess measurements of the true and the false pelvis,
10. To predict the likelihood of a successful vaginal delivery and make recommendations for management of labor based on their findings,
11. To assess grade and type of moulding in cephalic presentations.
12. To prepare an oral report on the thematic patient.
13. Analysis and discussion of the results of the patient's examination.
14. Multimedia presentation on the topic of the class (review of literature using modern sources; videos, etc.).

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. What is the uterine corpus mainly composed of?
 - (A) fibrous tissue
 - (B) estrogen receptors
 - (C) smooth muscle
 - (D) elastic tissue
 - (E) endometrium

2. The levator ani is the major component of the pelvic diaphragm, which is commonly compromised during pregnancy and delivery with resulting prolapse of uterus, bladder/urethra, and /or rectum. This is especially true if obstetric lacerations are not repaired keeping the normal anatomical relationships in mind. Which of the following is the best description of the levator ani?

- (A) a superficial muscular sling of the pelvis
- (B) a tripartite muscle of the pelvic floor penetrated by the urethra, vagina, and rectum
- (C) is made up of the bulbocavernosus, the ischiocavernosus, and the superficial transverse perineal muscle
- (D) a muscle that abducts the thighs
- (E) is part of the deep transverse perineal muscle

3. Which of the following is the best description of the pelvic diaphragm?

- (A) made up mainly by the coccygeus
- (B) covered on one side by fascia and on the other by peritoneum
- (C) a muscle innervated by L2, L3, and L4
- (D) an extension of the sacrococcygeal ligament
- (E) synonymous with the pelvic floor

4. During delivery, which of the following muscles is most likely to be obviously torn?

- (A) ischiocavernosus muscle
- (B) bulbocavernosus muscle
- (C) superficial transverse perineal muscle
- (D) levator ani muscle
- (E) coccygeus

5. When performing clinical pelvimetry in a normal gynecoid pelvis, the diagonal conjugate should be at least how many centimeters?

- (A) 7.5
- (B) 9.5
- (C) 10.5
- (D) 12.5
- (E) 14.5

6. A newborn is noted to have a darkened swelling of the scalp that does not cross the midline. This is most likely which of the following?

- (A) caput succedaneum
- (B) cephalhematoma
- (C) subarachnoid hemorrhage
- (D) subdural hemorrhage
- (E) moulding

7. In a female, which of the following best describes the urogenital diaphragm?

- (A) includes the fascial covering of the deep transverse perineal muscle
- (B) encloses the ischiorectal fossa
- (C) is synonymous with the pelvic diaphragm
- (D) is located in the anal triangle
- (E) envelops the Bartholin's gland

8. Regarding the female pelvis in comparison with male pelvis, which of the following statements is FALSE?

- (A) Parallel sidewalls and a round inlet
- (B) The bones are comparatively lighter, shorter, less dense, more pliable, and less tightly connected
- (C) The joints are larger and less mobile
- (D) The sacrum is wider and shorter and the pubic arch broader
- (E) The internal diameters are generally 0.5-2.5 cm larger

9. A 153 cm woman has an estimated fetal weight by ultrasound of 4,000 g. To estimate the pelvic capacity, you perform clinical pelvimetry. Which of the following does this procedure measure?

- (A) true conjugate
- (B) transverse diameter of the inlet
- (C) shape of the pubic arch
- (D) flare of the iliac crests
- (E) elasticity of the levator muscles

10. You estimate that the pelvic outlet is adequate, but there may be a problem in the midpelvis. The interspinous diameter of a normal pelvis should be at least how many centimeters?

- (A) 5
- (B) 6–8
- (C) 9–10
- (D) 11-12
- (E) The interspinous diameter is not a clinically important assessment

11. To appreciate how different positioning of the presenting part can impact the second stage of labor, one needs to understand the pelvic axis. During the delivery, the fetal head follows the pelvic axis. What is the best way to describe this axis?

- (A) a straight line in parallel to the vaginal canal
- (B) a curve first directed anteriorly and then caudad
- (C) a curve first directed posteriorly and then caudad
- (D) a curve first directed posteriorly and then cephalad
- (E) a straight line perpendicular to the vaginal canal

12. A 21-year-old G1P0 patient has made it to second stage after a slightly prolonged active phase. She has been pushing effectively for 2 hours without descent from 0 station. As you evaluate for reasons that are preventing descent you check for the positioning of the vertex presentation. This is important since there is great variation in the diameter of the vertex depending on the positioning and in turn the fetal ability to negotiate the pelvic axis and descend in second stage. The greatest diameter of the normal fetal head is which of the following?

- (A) occipito-frontal
- (B) mento-vertical (occipito-mental)
- (C) suboccipito-bregmatic
- (D) bitemporal
- (E) biparietal

Answer key

- | | | | |
|----|---|----|---|
| 1. | C | 7. | A |
| 2. | B | 8. | C |

3.	E	9.	C
4.	C	10.	C
5.	D	11.	C
6.	B	12.	B

15. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
16. methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
17. the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
18. methods: assessment of the solution of situational tasks (including calculation) on the theme;
19. the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
20. the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
21. the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №12.

“PHYSIOLOGY OF PREGNANCY. METHODS OF EXAMINATION OF PREGNANT WOMEN. PERINATAL CARE”

LEARNING OBJECTIVE is to gain basic knowledge about anatomical, physiological and biochemical changes during pregnancy, be familiar with the physiologic adaptations associated with a normal pregnancy, be able to differentiate between certain signs and symptoms that can be common to both disease processes and to physiologic adaptations of pregnancy, obtain knowledge about methods of obstetrical examination, appropriate prenatal counseling and supervision in order to provide successful obstetric outcome.

BASIC CONCEPTS: Fertilization and development of a fertilized egg. Placenta, its structure and function. Critical periods of embryo and fetal development. Influence of harmful factors on the embryo and fetus. Physiological changes in a woman's body during pregnancy. Hygiene and nutrition of a pregnant woman. Methods of examination of pregnant women: diagnosis of early and late pregnancy. Orientation of baby in the uterus. Management of physiological pregnancy. Laboratory diagnosis of HIV infection. Counseling in the context of HIV infection. The concept of counseling and its ethical principles. Counseling skills. Determination of maternity leave date and date of birth.

EQUIPMENT

- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

1. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

During pregnancy there are progressive anatomical, physiological and biochemical changes not only confined to the genital organs but also to all systems of the body. This is principally a phenomenon of maternal adaptation to the increasing demands of the growing fetus. Unless well understood, these physiological adaptations of normal pregnancy can be misinterpreted as pathological.

Systematic supervision (examination and advice) of a woman during pregnancy is called antenatal (prenatal) care. The supervision should be regular and periodic in nature according to the need of the individual. Actually, prenatal care is the care in continuum that starts before pregnancy and ends at delivery and the postpartum period. Antenatal care comprises of careful history taking and examinations (general and obstetrical), advice given to the pregnant woman. Deep theoretical and practical knowledge of physiology of pregnancy and methods of obstetrical examination are

needed for assessment of mother's health status, appropriate prenatal counseling and ensure successful obstetric outcome.

A. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Fertilization and development of a fertilized egg.
- Placenta, its structure and function.
- Critical periods of embryo and fetal development.
- Influence of harmful factors on the embryo and fetus.
- Physiological changes in a woman's body during pregnancy.
- Hygiene and nutrition of a pregnant woman.
- Methods of examination of pregnant women: diagnosis of early and late pregnancy. Orientation of baby in the uterus.
- Management of physiological pregnancy.
- Laboratory diagnosis of HIV infection.
- Counseling in the context of HIV infection.
- The concept of counseling and its ethical principles.
- Counseling skills.
- Determination of maternity leave date and date of birth.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Fundamentals of reproduction: gametogenesis, ovulation, fertilization, implantation.
- Principal events in embryonic and fetal development.
- Development, structure and function of the placenta and fetal membranes.
- Genital tract changes during pregnancy, endocrinology of pregnancy.
- Duration of pregnancy, presumptive, probable and definitive symptoms of pregnancy, chronological appearance of specific signs and symptoms of pregnancy.
- Signs of previous child birth.

- Methods of estimation of gestational age and due date of labor.
- Methods of estimation of fetal weight.
- Obstetrics terminology: lie, presentation, position and attitude of the fetus in the uterus.
- Methods of obstetrical abdominal examination: inspection, palpation, auscultation.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. Worldwide, which of the following is the most common problem during pregnancy?

- (A) diabetes
- (B) preeclampsia
- (C) heart disease
- (D) urinary tract infection (UTI)
- (E) iron-deficiency anemia

2. A patient presents with a positive pregnancy test, the exact date of the start of her last normal menses, and the date of her luteinizing hormone (LH) surge from a urine kit. Her expected date of delivery can most correctly be calculated by which of the following?

- (A) adding 254 to the date of the start of the last menstrual period (LMP)
- (B) counting 10 lunar months from the time of ovulation
- (C) counting 280 from the first day of the LMP
- (D) counting 40 weeks from the last day of the LMP
- (E) adding 256 to the date of the elevated urinary LH when detected by home testing

3. A friend mentions to you she just had a positive pregnancy test and wonders if you can tell her when she is likely due. The LMP was June 30. Her expected date of labor is approximately which of the following?

- (A) March 23
- (B) April 7
- (C) March 28
- (D) April 23
- (E) March 7

4. A patient presents to your clinic complaining of nausea and vomiting. She is currently ingesting combined oral contraceptive pills (OCP) and has used them for over a year. When you tell her she has a positive pregnancy test, she reports that her last bleeding on the OCPs was 8 weeks ago. In such a situation, determination of the most accurate estimated date of delivery can then be made by which of the following?

- (A) eliciting when breast tenderness or morning sickness began
- (B) assessing uterine size by physical examination
- (C) counting 280 days from the first positive serum pregnancy test
- (D) asking the patient when she first felt pregnant

(E) obtaining fetal biometry by ultrasound prior to 20 weeks' gestation

5. Fundal height, part of the obstetric examination, is taken from the top of the symphysis pubis to the top of the fundus. How is it measured?

(A) by calipers, approximating the week of gestation

(B) in inches, approximating the lunar month of gestation

(C) in centimeters and divided by 3.5, approximating the lunar months of gestation

(D) in centimeters, approximating the weeks of gestation beyond 22 weeks

(E) by calipers in centimeters, prognosticating the fetal weight

6. Using your knowledge of normal maternal physiology, which of the following would you employ if a patient at 38 weeks became faint while lying supine on your examination table?

(A) aromatic ammonia spirit (smelling salts)

(B) turning the patient on her side

(C) oxygen by face mask

(D) intravenous (IV) drugs to increase blood pressure

(E) IV saline solution

7. A 19-year-old primigravida with unsure LMP presents to initiate prenatal care. You attempt to estimate gestational age. The uterine fundus is palpable at the level of the pubic symphysis, and fetal heart tones are audible by electronic Doppler. On the basis of this information, what is the approximate gestational age?

(A) 8 weeks

(B) 12 weeks

(C) 16 weeks

(D) 20 weeks

(E) 24 weeks

8. Which of the following nutrients is most likely to be deficient during pregnancy?

(A) iron

(B) vitamin D

(C) vitamin A

(D) calcium

(E) folic acid

9. The relation of the fetal parts to one another determines which of the following?

(A) presentation of the fetus

(B) lie of the fetus

(C) attitude of the fetus

(D) position of the fetus

(E) intention of the fetus

10. A healthy 30-year-old primigravida presents at 34 weeks' gestation. She reports that she has been experiencing abdominal discomfort that increases after eating,

especially when in the recumbent position. A series of tests is performed. She has normal vital signs, an unremarkable examination, a fundal height of 33 cm, and a negative urinalysis. Which one of the following represents abnormal test results?

- (A) alkaline phosphatase double that of the reference range
- (B) hemoglobin of 90 g/L
- (C) serum albumin of 35 g/L
- (D) serum creatinine level of 80 mmol/L
- (E) WBC count of 11, 000/mL

Answer key

- | | |
|----|---|
| 1 | E |
| 2 | C |
| 3 | B |
| 4 | E |
| 5 | D |
| 6 | B |
| 7 | B |
| 8 | A |
| 9 | C |
| 10 | B |

B. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, women's outpatient clinic, reception department of the maternity hospital, labor & delivery ward with pregnant women.

Tasks:

- Subgroup I - to assess general condition of pregnant woman, determine the duration of pregnancy, determine due date of birth and estimated fetal weight.
- Subgroup II - to determine orientation baby in the uterus performing external (Leopold's maneuvers) and internal obstetric exam, to perform auscultation of the fetus.
- Subgroup III – to develop a plan of the management of pregnancy, prescribe rational nutrition to pregnant women.

In 30 minutes the groups exchange tasks with each other. Finally students assess results of their classmates.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. Cessation of menses is regarded as a presumptive sign of pregnancy in a menstrual-age female. In what percentage of cases does macroscopic vaginal bleeding occur during an otherwise normal pregnancy that does not abort?

- (A) never
- (B) approximately 1 %
- (C) approximately 10%
- (D) approximately 20%
- (E) approximately 50%

2. Probable signs of pregnancy include

- (A) detection of fetal movements by the physician
- (B) enlargement of the abdomen
- (C) an X-ray demonstrating the fetus
- (D) lower abdominal cramping
- (E) nausea in the morning

3. Absolute signs of pregnancy include

- (A) enlargement of the uterus
- (B) changes in the cervix
- (C) positive hormonal pregnancy test
- (D) ballottement of the fetus
- (E) none of the above

4. Changes of the vagina that occur during pregnancy include

- (A) decreased vascularity
- (B) decreased secretions
- (C) hypertrophy of the smooth muscle
- (D) vaginal cells appear similar microscopically to those, in the follicular phase of the cycle
- (E) decrease in the thickness of the vaginal mucosa

5. Changes occur in the cervix during pregnancy. They include

- (A) progressive hypertrophy and enlargement of the entire cervix
- (B) retraction of the squamocolumnar junction into the cervical canal
- (C) generalized erythema
- (D) normal small amounts of bleeding
- (E) shortening and thinning

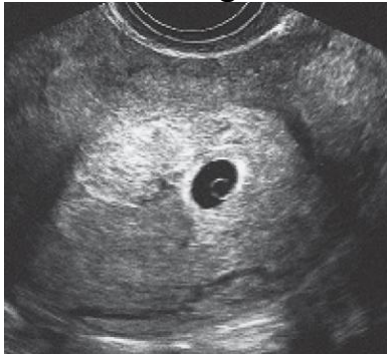
- | | |
|----|---|
| 1. | D |
| 2. | B |
| 3. | E |
| 4. | C |
| 5. | E |

Case

A woman is referred from the general practitioner for pregnancy dating. She had a positive pregnancy test 3 days ago after she realized that she had missed a period. In the past she had had regular cycles bleeding for 5 days every 28 days. However, she

had been taking the combined oral contraceptive pill (COCP) for the last 6 years and stopped only 10 weeks ago. She had a withdrawal bleed at the end of the last packet, followed by an apparently normal period 5 weeks later. She has had no other irregular bleeding or any abdominal pain. She has had regular intercourse throughout the time since she stopped her COCP and is pleased now to be pregnant.

Transvaginal ultrasound findings are shown in Fig.



1. How can pregnancies be dated and what is the approximate gestational age for this pregnancy?
2. What further investigations would you like to do to confirm this?
3. Why is correct early pregnancy dating important?

Answer

1. Pregnancy dating methods

- Dating by last menstrual period: in women with certain last menstrual period dates (LMP) and a regular cycle, Naegle's rule may be applied, whereby the estimated delivery date is calculated by (LMP date – 3 months +7 days+1 year). Naegle's rule cannot be applied where the cycle is not regular or there has been a pregnancy or hormonal contraception within the last 3 months.
- Dating by bimanual examination: pregnancy dating by bimanual examination is very rarely performed as it is unnecessarily invasive and inaccurate.
- Dating by crown-rump length: from 6 weeks and 2 days an estimate of gestational age can be made by crown–rump length of the fetus according to published reference values.

Transvaginal markers in early pregnancy:

- 4–5 weeks: appearance of gestation sac (anechoic area asymmetrically located within the endometrium towards the fundus of the uterus),
- 5 weeks: appearance of yolk sac (a small round structure within the gestation sac supporting the fetus until the placenta develops, then disappears by 11 weeks),
- 6 weeks: appearance of a fetal pole with a visible fetal heart pulsation within the gestation sac, separate from the yolk sac,
- 7–8 weeks: appearance of the amniotic sac, which later fuses to the chorionic membrane to become invisible on scan by 12 weeks,
- 8 weeks: appearance of fetal limb buds and fetal movements.

The ultrasound shows an intrauterine gestation sac and a yolk sac, so in this case the pregnancy is approximately 5 weeks' gestation.

2. This should be confirmed by re-scan (after at least 2 weeks) when a fetal pole will be visible and crown–rump length can be measured.

3.The importance of accurate dating is:

- timing of Down's syndrome screening,
- accurate gestational age estimation for cases of delivery at the borderline of viability (e.g. preterm delivery at 22–24 weeks),
- timing of induction of labor for post-term pregnancy.

3.2. Educational materials, recommendations (instructions) for performing tasks

CHRONOLOGICAL APPEARANCE OF SPECIFIC SYMPTOMS AND SIGNS OF PREGNANCY

AT 6–8 WEEKS: Symptoms — Amenorrhea, morning sickness, frequency of micturition, fatigue, breast discomfort. Signs: Breast enlargement, engorged veins visible under the skin; nipples and areola more pigmented. Internal examination reveals — positive Jacquemier's sign, softening of the cervix, bluish discoloration of the cervix and Oslander's sign; positive Hegar's and Palmer's sign. Uterine enlargement varies from hen's egg to medium size orange. Immunological tests will be positive. Sonographic evidence of gestational ring.

AT 16TH WEEK: Symptoms — Except amenorrhea, all the previous symptoms disappear. Signs: Breast changes — pigmentation of primary areola and prominence of Montgomery's tubercles, colostrum. Uterus midway between pubis and umbilicus, Braxton-Hicks contractions, uterine souffle, internal ballottement. Sonographic diagnosis.

AT 20TH WEEK: Symptoms — Amenorrhea, quickening (18th week). Signs: Appearance of secondary areola (20th week), linea nigra (20 weeks), uterus at the level of umbilicus at 24 weeks, Braxton-Hicks contractions, external ballottement (20th week), fetal parts (20 weeks), fetal movements (20 weeks), FHS (20 weeks), internal ballottement (16–28 weeks). Sonographic diagnosis.

SIGNS OF PREVIOUS CHILD BIRTH

The following are the features which are to be considered in arriving at a diagnosis of having a previous birth.

- ✓ Breasts become flabbier; nipples are prominent whoever breast-fed their infant; primary areolar pigmentation still remains and so also the white striae.
- ✓ Abdominal wall is laxer and looser. There may be presence of silvery white striae and linea alba.
- ✓ Uterine wall is less rigid and the contour of the uterus is broad and round, rather than ovoid.
- ✓ Perineum is lax and evidence of old scarring from previous perineal laceration or episiotomy may be found.
- ✓ Introitus is gaping and there is presence of carunculae myrtiformes.
- ✓ Vagina is roomier.
- ✓ Cervix: Nulliparous cervix is conical with a round external os. In parous women, it becomes cylindrical and the external os is a transverse patulous slit and may admit

the tip of the finger. However, as a result of operative manipulation even a nulliparous cervix may be torn and resembles a multiparous cervix.

ESTIMATION OF GESTATIONAL AGE AND PREDICTION OF EXPECTED DATE OF DELIVERY

Gestational age is about 280 days calculated from the first day of the last normal menstrual period (LMP). Accurate LMP is the most reliable parameter for estimation of gestational age. But in significant number of cases (20–30%), the patients either fail to remember the LMP or report inaccurately. The matter becomes complicated when the conception occurs during lactation amenorrhea or soon following withdrawal of contraceptive pills (ovulation may be delayed for 4–6 weeks) or in cases with bleeding in early part of pregnancy. The following parameters either singly or in combination are useful in predicting the gestational age with fair degree of accuracy.

PATIENT'S STATEMENT

— Date of fruitful coitus: If the patient can remember the date of the single fruitful coitus with certainty, it is quite reliable to predict the expected date of delivery with accuracy of 50% within 7 days on either side. 266 days are to be added to the date of the single fruitful coitus to calculate the expected date.

— Naegele's formula: Provided the periods are regular, it is very useful and commonly practiced means to calculate the expected date. Its prediction range is about 50% with 7 days on either side of EDD. If the interval of cycles is longer, the extra days are to be added and if the interval is shorter, the lesser days are to be subtracted to get the EDD.

❖ Practical skill

Calculation of the expected date of delivery (EDD)

This is done according to Naegele's formula (1812) by adding 9 calendar months and 7 days to the first day of the last normal (28 day cycle) period. Alternatively, one can count back 3 calendar months from the first day of the last period and then add 7 days to get the expected date of delivery; the former method is commonly employed.

Example: The patient had her first day of last menstrual period on 1st January. By adding 9 calendar months it comes to 1st October and then add 7 days, i.e. 8th October, which becomes the expected date of delivery. For IVF pregnancy date of LMP is 14 days prior to date of embryo transfers (266 days).

— Date of quickening: A rough idea about the probable date of delivery can be deduced by adding 20 weeks in primigravidae and 22 weeks in multiparae to the date of quickening.

PREVIOUS RECORDS: The required weeks are to be added to make it 40 weeks.

— Size of the uterus prior to 12 weeks more precisely corresponds with the period of amenorrhea.

— Height of the uterus above the symphysis pubis in relation to the landmarks on the abdominal wall.

— Auscultation of FHR at the earliest by 18–20 weeks using ordinary stethoscope and that using Doppler principle at 10th week. Palpation of fetal parts at the earliest by 20th week.

— Recording of positive pregnancy test using immunological principle at first missed period by earliest.

— Ultrasonographic findings at the earliest are: (a) Gestation sac — at 5 weeks. (b) Measurement of crown rump length (CRL) detected at 7 weeks, approximates 10 mm; at 10 weeks – 34 mm (CRL in cm + 6.5 = weeks of pregnancy). Crown — Rump Length (CRL) is most accurate. (Variation \pm 5 days). Second trimester by BPD, HC, AC and FL measurement. Most accurate when done between 12 and 20 weeks (variation \pm 8 days). Third trimester — Less reliable, variation \pm 16 days.

— Lightening: Following the appearance of the features suggestive of lightening, the labor is likely to commence within 3 weeks.

ESTIMATION OF FETAL WEIGHT

- Height of the uterus above the symphysis pubis in centimeters multiplied by abdomen circumference measured on the level of umbilicus in either case gives the weight of the fetus in grams. Example — Height of the uterus above the symphysis pubis = 34 cm and the abdomen circumference = 95 cm. The weight of the fetus will be $34 \times 95 = 3230$ g. However, the approximate size of the fetus is modified by the amount of liquor amnii and thickness of the abdominal wall.
- Sonography: Fetal weight has been estimated by combining a number of biometric data, e.g. BPD, HC, AC and FL. Tables (Hadlock, Shepard) are currently in use (computer software). Estimated fetal weight likely to be within 10 percent of actual weight.

METHODS OF OBSTETRICAL EXAMINATION

ABDOMINAL EXAMINATION: A thorough and systemic abdominal examination beyond 28 weeks of pregnancy can reasonably diagnose the lie, presentation, position and the attitude of the fetus. It is not unlikely that the lie and presentation of the fetus might change, specially in association with excess liquor amnii and hence periodic checkup is essential.

❖ Practical skill

Abdominal examination

Preliminaries: Verbal consent for examination is taken. The patient is asked to evacuate the bladder. She is then made to lie in dorsal position with the thighs slightly flexed. Abdomen is fully exposed. The examiner stands on the right side of the patient.

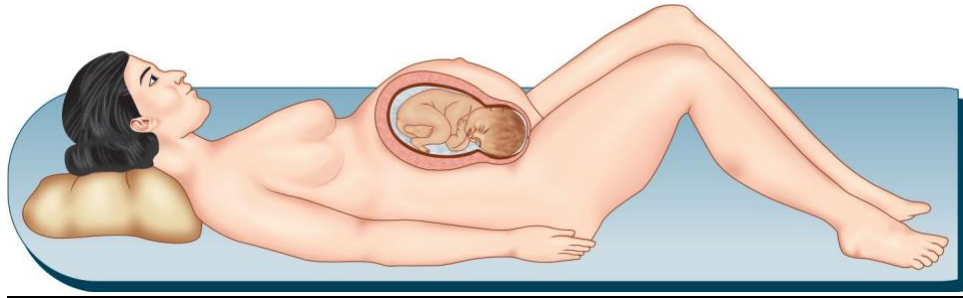


Fig.1: Position of the woman during obstetric examination

Inspection: To note (1) whether the uterine ovoid is longitudinal or transverse or oblique (2) contour of the uterus—fundal notching, convex or flattened anterior wall, cylindrical or spherical shape (3) undue enlargement of the uterus (4) skin condition of abdomen for evidence of ringworm or scabies and (5) any incisional scar mark on the abdomen.

Palpation: *Symphysis fundal height (SFH):* The uterus is to be centralized if it is deviated. The upper border of the fundus is located by the ulnar border of the left hand and this point is marked. The distance between the upper border of the symphysis pubis upto the marked point is measured by a tape in centimeter. After 24 weeks, the SFH measured in cm corresponds to the number of weeks up to 36 weeks. A variation of ± 2 cm is accepted as normal.



Fig. 2: Symphysis fundal height (SFH)

There are conditions where the height of the uterus may not correspond with the period of amenorrhea. The conditions where the height of the uterus is more than the period of amenorrhea are: (1) mistaken date of the last menstrual period (2) twins (3) polyhydramnios (4) big baby (5) pelvic tumors— ovarian or fibroid (6) hydatidiform mole and (7) concealed accidental hemorrhage. The condition where the height of the uterus is less than the period of amenorrhea are: (1) mistaken date of the last menstrual period (2) scanty liquor amnii (3) fetal growth retardation and (4) intrauterine fetal death.

❖ Practical skill

Obstetric grips (Leopold maneuvers)

Palpation should be conducted with utmost gentleness. Clumsy and purposeless palpation is not only uninformative but may cause undue uterine irritability. During Braxton-Hicks contraction or uterine contraction in labor, palpation should be suspended.

Fundal grip (First Leopold): The palpation is done facing the patient's face. The whole of the fundal area is palpated using both hands laid flat on it to find out which pole of the fetus is lying in the fundus: (a) broad, soft and irregular mass suggestive of breech, or (b) smooth, hard and globular mass suggestive of head. In transverse lie, neither of the fetal poles are palpated in the fundal area.

Lateral or umbilical grip (Second Leopold): The palpation is done facing the patient's face. The hands are to be placed flat on either side of the umbilicus to palpate one after the other, the sides and front of the uterus to find out the position of the back, limbs and the anterior shoulder. The back is suggested by smooth curved and resistant feel. The 'limb side' is comparatively empty and there are small knob like irregular parts. After the identification of the back, it is essential to note its position whether placed anteriorly or towards the flank or placed transversely. Similarly, the disposition of the small parts, whether placed to one side or placed anteriorly occupying both the sides, is to be noted. The position of the anterior shoulder is to be sought for. It forms a well marked prominence in the lower part of the uterus above the head. It may be placed near the midline or well away from the midline.

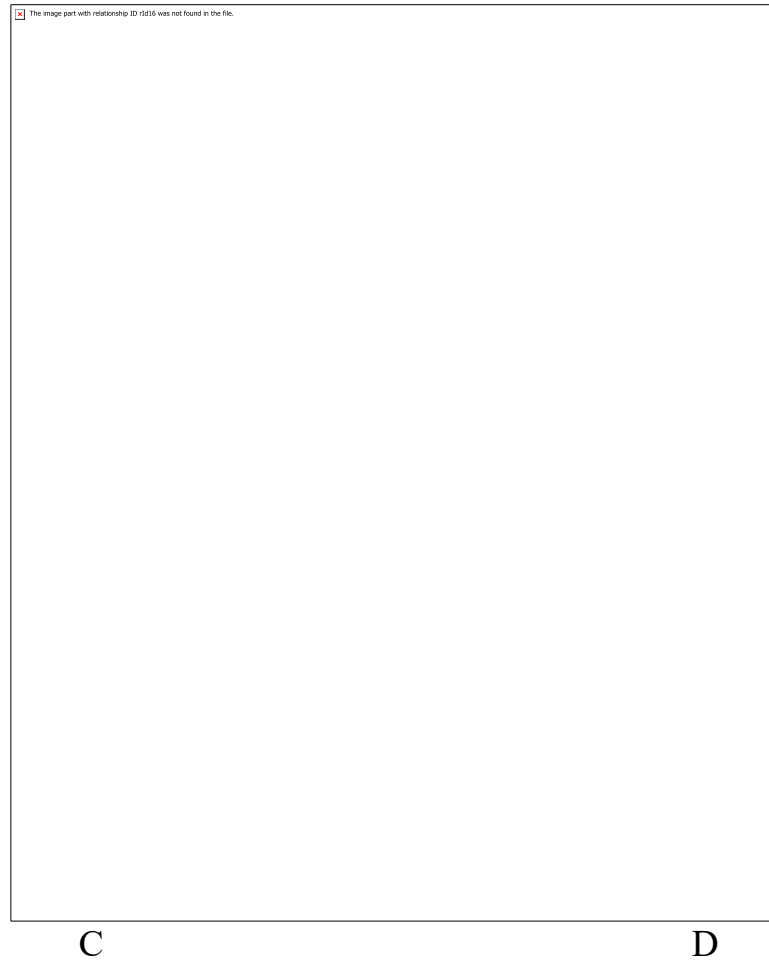
Pawlik's grip (Third Leopold): The examination is done facing towards the patient's face. The overstretched thumb and four fingers of the right hand are placed over the lower pole of the uterus keeping the ulnar border of the palm on the upper border of the symphysis pubis. When the fingers and the thumb are approximated, the presenting part is grasped distinctly (if not engaged) and also the mobility from side to side is tested. In transverse lie, Pawlik's grip is empty.

Pelvic grip (Fourth Leopold): The examination is done facing the patient's feet. Four fingers of both the hands are placed on either side of the midline in the lower pole of the uterus and parallel to the inguinal ligament. The fingers are pressed downwards and backwards in a manner of approximation of finger tips to palpate the part occupying the lower pole of the uterus (presentation). If it is head, the characteristics to note are: (1) precise presenting area (2) attitude and (3) engagement.

To ascertain the presenting part, the greater mass of the head (cephalic prominence) is carefully palpated and its relation to the limbs and back is noted. The attitude of the head is inferred by noting the relative position of the sincipital and occipital poles. The engagement is ascertained noting the presence or absence of the sincipital and occipital poles or whether there is convergence or divergence of the finger tips during palpation. This pelvic grip using both the hands is favored as it is most comfortable for the woman and gives most information.

A

B



C

D

Fig.3: Obstetric grips (Leopold maneuvers): (A) Fundal grip (first Leopold); (B) Lateral grip (second Leopold); (C) Pawlik's grip (third Leopold); (D) Pelvic grip (fourth Leopold)

❖ Practical skill

Auscultation

Auscultation of distinct fetal heart sounds (FHS) not only helps in the diagnosis of a live baby but its location of maximum intensity can resolve doubt about the presentation of the fetus. The fetal heart sounds are best audible through the back (left scapular region) in vertex and breech presentation where the convex portion of the back is in contact with the uterine wall. However, in face presentation, the heart sounds are heard through the fetal chest.

As a rule, the maximum intensity of the FHS is below the umbilicus in cephalic presentation and around the umbilicus in breech. In different positions of the vertex, the location of the FHS depends on the position of the back and the degree of descent of the head. In occipitoanterior position, the FHS is located in the middle of the spinoumbilical line of the same side. In occipitolateral position, it is heard more laterally and in occipitoposterior position, well back towards the mother's flank on the same side.

INTERNAL EXAMINATION: The diagnosis of the presentation and position of the fetus may not be accurate by internal examination during pregnancy when the cervix remains closed. However, during labor, accurate information may be obtained

by palpation of the sagittal suture and fontanelles through the open cervix. Stress for strict aseptic precautions during vaginal examination needs no emphasis.

ULTRASONOGRAPHY: The diagnosis of the lie, presentation and position may be difficult in the presence of marked obesity, irritable uterus, excessive liquor amnii and deeply engaged head, especially in primigravidae. Ultrasonography can locate the head and the body.

❖ Practical skill

Vaginal examination

Time: Vaginal examination is done in the antenatal clinic when the patient attends the clinic for the first time before 12 weeks. It is done (1) to diagnose the pregnancy (2) to corroborate the size of the uterus with the period of amenorrhea and (3) to exclude any pelvic pathology. Internal examination is, however, omitted in cases with previous history of abortion, occasional vaginal bleeding in present pregnancy. Ultrasound examination has replaced routine internal examination. It is more informative and without any known adverse effect.

Procedures: Vaginal examination is done in the antenatal clinic. The patient must empty her bladder

prior to examination and is placed in the dorsal position with the thighs flexed along with the buttocks placed on the footend of the table. Hands are washed with soap and a sterile glove is put on the examining hand (usually right).

Steps:

Inspection: By separating the labia—using the left two fingers (thumb and index), the character of the vaginal discharge, if any, is noted. Presence of cystocele or uterine prolapse or rectocele is to be elicited.

Speculum examination: This should be done prior to bimanual examination especially when the smear for exfoliative cytology or vaginal swab is to be taken. A bivalve speculum is used. The cervix and the vault of the vagina are inspected with the help of good light source placed behind. Cervical smear for exfoliative cytology or a vaginal swab from the upper vagina, in presence of discharge, may be taken.

Bimanual: Two fingers (index and middle) of the right hand are introduced deep into the vagina while separating the labia by left hand. The left hand is now placed suprapubically. Gentle and systematic examination are to be done to note:

(1) **Cervix:** Consistency, direction and any pathology.

(2) **Uterus:** Size, shape, position and consistency. Early pregnancy is the best time to correlate accurately uterine size and duration of gestation.

(3) **Adnexae:** Any mass felt through the fornix. If the introitus is narrow, one finger may be introduced for examination. No attempt should be made to assess the pelvis at this stage.

3.3. Requirements for the results of work.

- To take a medical history (general and specific, such as menstrual, obstetrics) and record information in a standardized proforma (antenatal record book),
- to perform general examination, assess the health status of the mother,
- to determine signs and symptoms of pregnancy, assess their diagnostic value,
- to calculate gestational age and due date of labor,

- to perform abdominal inspection and assess abdominal enlargement, pregnancy marks-linea nigra, striae, surgical scars (midline or suprapubic),
- to perform abdominal palpation and note the height of the fundus above the symphysis and girth of abdomen at the level of umbilicus, calculate estimated fetal weight,
- to identify fetal lie, presentation, position, growth pattern, volume of liquor and also any abnormality, detect whether the presenting part is engaged or not,
- to perform auscultation of fetal heart sounds,
- to assess complaints of pregnant women, explain the origins of minor ailments in pregnancy, give advice how to reduce the problem,
- to assess results of clinical general and obstetrical examinations, lab tests in normal pregnancy,
- to develop a plan of prenatal care in normal pregnancy,
- to counsel the women about signs and symptoms to expect during a normal pregnancy, the importance of regular checkup, give judicious advice regarding diet, drugs and hygiene.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. The softening of the cervical isthmus that occurs early in gestation is called
 - (A) Hegar's sign
 - (B) Chadwick's sign
 - (C) Braxton Hick's contraction
 - (D) Von Fernwald's sign
 - (E) Cullen's sign

2. Which of the following cervical changes may be found more frequently in the pregnant than in the nonpregnant state?
 - (A) atypical glandular hyperplasia
 - (B) dysplasia
 - (C) metaplasia
 - (D) neoplasia
 - (E) vaginal adenosis

3. Which of the following is/are characteristic of the uterine muscle?
 - (A) surrounds blood vessels
 - (B) forms interlacing bundles
 - (C) hypertrophy during gestation
 - (D) is nonstriated
 - (E) all of the above

4. At the 5th lunar month, the uterus in a normal pregnancy is
 - (A) not palpable abdominally
 - (B) palpable just over the symphysis pubis
 - (C) palpable at the level of the umbilicus
 - (D) palpable midway between the umbilicus and the sternum

(E) palpable at the level of the xiphoid

5. A soft, blowing sound that is synchronous with the maternal pulse and heard over the uterus is

- (A) borborygmus
- (B) uterine souffle
- (C) umbilical cord souffle
- (D) fetal movement
- (E) maternal femoral vessel bruit

6. The hemostatic mechanism most important in combating postpartum hemorrhage is

- (A) increased blood clotting factors in pregnancy
- (B) intramyometrial vascular coagulation due to vasoconstriction
- (C) contraction of interlacing uterine muscle bundles
- (D) markedly decreased blood pressure in the uterine venules
- (E) fibrinolysis inhibition

7. Which of the following situations generally applies to the uterus during pregnancy?

- (A) rotates to the right because of the sacral promontory
- (B) exhibits no rotation
- (C) rotates to the right because of the rectosigmoid
- (D) rotates to the left because of the sacral promontory
- (E) rotates to the left because of the sigmoid colon

8. During pregnancy, the total intrauterine volume at term averages about

- (A) 0,5 L
- (B) 1,0 L
- (C) 2,0 L
- (D) 5,0 L
- (E) 10,0L

9. The uterine muscle mass enlarges during pregnancy because of

- (A) atypical hyperplasia
- (B) anaplasia
- (C) hypertrophy and hyperplasia
- (D) involution
- (E) none of the above; the total muscle mass actually does not change

10. During pregnancy, several ovarian changes can occur which are normal but can be disturbing if not understood. These changes include all of the following EXCEPT

- (A) luteoma of pregnancy
- (B) decidual reaction on the ovarian surface
- (C) corpus luteum of pregnancy
- (D) dermoid cysts

(E) none of the above

Answer key

1.	D	6.	A
2.	B	7.	C
3.	E	8.	E
4.	C	9.	C
5.	E	10.	B

Case

A 22-year-old primigravida is seen in your office at 28 weeks' gestation for a routine prenatal visit. Her pregnancy has been uneventful to date. She expresses her concern about several moles on her back, which have been enlarging over the past several weeks and for increasing difficulty with constipation. She also relates less energy to complete her job-related responsibilities at work and feels it may be related to the 18-lb weight gain she has experienced since becoming pregnant. She also has noted some gradual shortness of breath over the past 4 to 6 weeks especially when she climbs the three flights of stairs to her office at work. She wears contact lenses and relates that her visual acuity is not as good as before she became pregnant.

Physical examination reveals her height to be 162 cm, her weight to be 68 kg, and her blood pressure to be 90/60 mm Hg. She has several pigmented nevi over her shoulders and back. She has a darkened line on her skin from her xiphoid process to her symphysis. Examination of her heart reveals a 2/6 systolic ejection murmur heard best over the second left intercostal space. Her lungs are clear to auscultation and percussion.

Abdominal examination reveals a 28 cm fundal height with normal bowel sounds, and she has trace pretibial pitting edema. Laboratory values reveal a hemoglobin level of 120 g/L and a platelet count of 125000/mm³. Urinalysis reveals no nitrites or leukocyte esterase, 2+ glucose, and no albuminuria. Fasting glucose level was 4,2 mmol/L.

1. Does this patient have any metabolic or physiologic changes not associated with a normal pregnancy?
2. What is your next step in her evaluation?

Answer

1. Metabolic or physiologic changes not associated with a normal pregnancy: No, all the symptoms, signs, and laboratory values are consistent with the physiologic adaptations of pregnancy.

2. Next step in evaluation: The following are indicated in this patient: (1) Careful dermatological evaluation of her pigmented nevi to rule out the presence of malignant melanoma. (2) Thyroid function studies should be drawn to evaluate her "lack of energy," and (3) This patient should be advised to report any worsening of her shortness of breath.

C. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

- methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
- methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

PHYSIOLOGY OF LABOUR. ANALGESIA OF LABOUR.

LEARNING OBJECTIVE. Labour is a sequence of uterine contractions that results in effacement and dilatation of the cervix and voluntary bearing-down efforts leading to the expulsion per vagina of the products of conception. Delivery is the mode of expulsion of the fetus and placenta. Labour and delivery is a normal physiologic process that most women experience without complications. The goal of the management of this process is to foster a safe birth for mothers and their newborns. Additionally, the staff should attempt to make the patient and her support person(s) feel welcome, comfortable, and informed throughout the labour and delivery process. Physical contact between the newborn and the parents in the delivery room should be encouraged. Every effort should be made to foster family interaction and to support the desire of the family to be together. The role of the obstetrician/midwife and the labour and delivery staff is to anticipate and manage complications that may occur that could harm the mother or the fetus. When a decision is made to intervene, it must be considered carefully, because each intervention carries both potential benefits and potential risks. The best management in the majority of cases may be close observation and, when necessary, cautious intervention.

Obstetric analgesia or anesthesia refers to the multiple techniques useful for the alleviation of pain associated with labour, delivery, or surgery. The choice of an appropriate analgesic technique must be made by the patient, the obstetrician, and the anesthesiologist and should take into consideration the patient's anatomy and physiology, the status of her fetus, the obstetric plan for delivery, and the pharmacology of the drugs to be employed.

BASIC CONCEPTS: Labour is a sequence of uterine contractions that results in effacement and dilatation of the cervix and voluntary bearing-down efforts leading to the expulsion per vagina of the products of conception.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

D. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Delivery is the mode of expulsion of the fetus and placenta. Labour and delivery is a normal physiologic process that most women experience without complications. The goal of the management of this process is to foster a safe birth for mothers and their newborns. Additionally, the staff should attempt to make the patient and her support person(s) feel welcome, comfortable, and informed throughout the labour and

delivery process. Physical contact between the newborn and the parents in the delivery room should be encouraged.

E. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the labour
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labour and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Pelvis from anatomical and obstetric points of view.
- Pelvic floor.
- The structure of the fetal head.
- The dimensions of the fetal head and body.
- Signs of fetal maturity.
- Measurement and evaluation of the pelvis
- Determination of the stage of labour, period and phase of labour.
- Signs of placenta separation in the third period of labour

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Evaluation of the cervical status (scale Bishop),
- How to determine the beginning of the first period of delivery, objectively assess the character of labour activity (degree of cervical effacement, frequency, strength and duration of the contractions),
- How to fill in a partogram,
- How to identify and assess fetal heart (auscultation, cardiotocogram),
- Obstetric analgesia and anesthesia,
- Active management of the third stage of labour (demonstration on the phantom),
- Expectant management of the third stage of labour (demonstration on the phantom),
- Examination of the placenta,
- Determination of the total blood loss during delivery,
- Essentials of normal newborn assessment (Apgar scores).

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. One of the planes of the pelvis is limited behind sacral promontory, in front – crista iliaca and superior edge of the pubis symphysis, on each side - lin. terminalis.

What moment of the biomechanism of birth does the fetus make in the given pelvic plane?

- A. It does not make any of the moments.
- B. External turn of the head and internal turn of the shoulders.
- C. Extension of the head.
- D. Internal turn of the head.
- E. Flexion of the head.

2. On the occipital area of the head of a newborn, having a dolichocephalic form, there is a patrimonial tumour with the centre at the area of the small fontanel. What head presentation did the birth occur in?

- A. Frontal.
- B. Anterior type, occipital presentation.
- C. Facial.
- D. Posterior type, occipital presentation.
- E. Frontoparietal.

3. During vaginal examination 6 hours after the beginning of patrimonial activity the following was revealed: the cervix is open 5 cm, the fetal head is presented and is pressed to the input of the pelvis. The sagittal suture is in the right diagonal diameter, the small fontanel is to the left, to the side. What moment of the biomechanism of birth is being described?

- A. Flexion of the head.
- B. Extension of the head.
- C. Internal turn of the head.
- D. Additional flexion of the head.
- E. Internal turn the shoulders.

4. During vaginal examination, the fetal head is determined; it fills the posterior surface of the symphysis pubis and hollow of the sacrum, a inferior edge of the symphysis pubis, spines of the ischiadic bones, sacrococcygeal joints are accessible with palpation. In what plane of the small pelvis is the head located?

- A. Plane of the narrow part of the pelvic cavity.
- B. Plane of the wide part of the pelvic cavity.
- C. On the input to the pelvis.
- D. In the input to the pelvis.
- E. In the exit of the pelvis.

5. Secundipara has been in childbirth for 8 hours. Light amniotic fluid was discharged. The fetal position is longitudinal, the fetal head is not determined over the input to the pelvis. Fetal palpitation is clear, rhythmical, 140 b.p.m., over the pubis. Internal obstetrical examination: the cervix is smooth, fully open, the fetal sac is absent. The hollow of the sacrum is completely filled with the head. Spina ischiadica is not reached. The sagittal suture is in the direct diameter of the pelvis. The large fontanel is at the pubis. Contractions have begun. What period of birth is being described?

- A I period.
- B. End of the I period.

- C. Beginning of the II period.
- D. End of the II period.
- E. Beginning of the III period.

6. A woman in her first pregnancy had a live baby boy, weight 3200 g, length 50 cm. The umbilical cord was transected after pulsation of the vessels stopped. When the edge of the palm is pressed on the symphysis, the umbilical cord retreats into the vagina. What sign is used for determining whether the placenta has separated from the uterus?

- A. Alfelda.
- B. Kustner-Chukalova.
- C. Schröder.
- D. Dovjenko.
- E. Rogovina.

7. Primipara gave birth to a live mature baby boy with an estimation by the Apgar scale of 9 points. At the present moment, the umbilical cord vessels are not pulsating, the umbilical cord was cut. Bloody discharge from the genital tract are absent. Specify the period of birth:

- A. Early postnatal period.
- B. Opening.
- C. Expulsion of fetus.
- D. Placental stage.
- E. Late postnatal period.

8. Data from the internal obstetrical examination of a parturient woman: the cervix uterus is smooth, open 6 cm. The fetal sac is intact. The fetal head is presented, when pressed on, it does not make push back. During palpation of the pelvic, the pubis symphysis, innominate lines, promontory are free. The sagittal suture is in the transverse diameter, the small fontanel is to the right at the pubis. In what plane is the fetal head?

- A. Pressed to the input of the pelvis.
- B. On the input of the pelvis.
- C. Wide part of the pelvic cavity.
- D. Narrow part of the pelvic cavity.
- E. Exit of the pelvis.

9. I period of I due labour. Fetal position - longitudinal, the small segment of the head is in the input to the pelvis. Fetal palpitation is clear, rhythmical, 140 b.p.m., to the left below the navel. During internal obstetrical examination, the cervix is smooth, open 6 cm, the small segment of the fetal head is in the input to the pelvis. The sagittal suture is in the right diagonal diameter, the small fontanel is to the left closer to the pubis. Specify the position and type of position:

- A. High direct standing of the sagittal suture.
- B. I position, posterior type of position.
- C. II position, anterior type of position.
- D. II position, posterior type of position.
- E. I position, anterior type of position.

10. Secundipara was delivered to the maternity hospital 6 hours after the beginning of labour. Contractions are 30-35 seconds, every 4 minutes, good force. BP is 120/80 mm hg. Pulse is 80 b.p.m., rhythmical, of satisfactory properties. The fetal heart beat is 146 b.p.m. The fetal position is longitudinal, head presentation, I position, anterior type of position. The small segment of the fetal head is in the input to the pelvis. The height of the contraction ring is 5 cm over the pubis. When should internal obstetrical examination be performed?

- A. Upon arrival and after amniotic discharge.
- B. Every 2 hours.
- C. At the beginning of the II period of birth.
- D. When transferred to the postnatal ward.
- E. At the end of the I period of birth.

11. In what size of the plane of the input to the pelvis is the sagittal suture during anterior position, occipital presentation, I position after performing flexion of the head?

- A. Direct.
- B. Left diagonal or direct.
- C. Right diagonal or direct.
- D. Right diagonal or transverse.
- E. Left diagonal or transverse.

12. What size of the plane of the input to the pelvis is the sagittal suture in during posterior type of position, occipital presentation, I position after flexion of the head?

- A. Direct.
- B. Left diagonal or direct.
- C. Right diagonal or direct.
- D. Right diagonal or transverse.
- E. Left diagonal or transverse.

13. In what plane of the pelvis does the fetus finishing making the internal turn of its head during anterior type of position, occipital presentation, II position?

- A. Input to the pelvis.
- B. The wide part of the pelvic cavity.
- C. The narrow part of the pelvic cavity.
- D. When going from the wide part of the cavity to the narrow part of the pelvic cavity.
- E. The exit of the pelvis.

14. In what diameter of the plane of the exit from the pelvis is the sagittal suture during extension of the head during posterior type of position, occipital presentation, I position?

- A. Direct.
- B. Left diagonal or direct.
- C. Right diagonal or direct.
- D. Right diagonal or transverse.
- E. Left diagonal or transverse.

15. In what diameter of the plane of the exit from the pelvis does the fetal shoulders cut through and are born during the anterior type of position, occipital presentation?

- A. Direct.
- B. Right diagonal.
- C. Left diagonal.
- D. Transverse.
- E. Direct and transverse.

16. The head of a newborn has a dolichocephalic form, extended from the front to the back. At the occipital area, there is a patrimonial tumour located in the middle between the large and small fontanel. What head presentation did the birth occur in?

- A. Frontoparietal.
- B. Anterior type, occipital presentation.
- C. Posterior type, occipital presentation.
- D. Facial.
- E. Frontal.

17. Primipara, 20 years old, is in the beginning of the I period of physiological birth. Contractions are 15-20 sec., every 10-15 min., weak. Fetal palpitation is not suffering. How much in cm should the cervix be open for the amniotic discharge to be timely?

- A. 6-8.
- B. 8-10.
- C. 4-6.
- D. 2-4.
- E. 1,5-2.

18. During internal obstetrical examination of a secundipara, the cervix is open 4-5 cm, when pressing with a finger on the fetal head, it pushes away and again returns to its initial position, the pelvis is free. How long is the fetal head permitted to be in this plane, in hours?

- A. 5.
- B. 6.
- C. 4.
- D. 3.
- E. 2.

19. You are observing a parturient woman in the 1 period of birth. During internal obstetrical examination, the sagittal suture is in the right diagonal diameter, the small fontanel is closer to the pubis. How should the parturient woman lay in bed, so that the fetal head would be insert correctly?

- A. On her left side.
- B. On her back.
- C. On her right side.
- D. It make do difference.
- E. She is only allowed to walk.

20. Secundipara with a weight of 80 kg. What is the acceptable amount of blood loss, ml:

- A. 400.
- B. 500.
- C. 600.
- D. 700.
- E. 800.

Answer key

1.	E	12.	E	23.
2.	D	13.	E	24.
3.	A	14.	A	25.
4.	A	15.	A	26.
5.	C	16.	B	27.
6.	B	17.	B	28.
7.	D	18.	B	29.
8.	A	19.	A	30.
9.	E	20.	A	31.
10.	A	21.		32.
11.	D	22.		33.

F. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

Subgroup I - to perform maneuvers of external obstetrical examination, (Leopold's maneuvers). Define presentation, position, type of fetus. Demonstrate on the phantom active tactics III stage of labour. Demonstrate by the phantom expectant tactics III stage of labour.

Subgroup II - Compare and contrast the advantages and disadvantages of external and internal fetal monitoring, including the appropriate use for each. Estimated date of birth, to determine if term or preterm. Fetal movement (frequency in the past few days)

- to assess progress and stage of labour provided by partogram.
- the status of the newborn Apgar scores (in case of demonstrations delivery) grade

Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. In what size of the plane of the input to the pelvis is the sagittal suture during anterior position, occipital presentation, I position after performing flexion of the head?
 - A. Direct.
 - B. Left diagonal or direct.
 - C. Right diagonal or direct.
 - D. Right diagonal or transverse.
 - E. Left diagonal or transverse.
2. What size of the plane of the input to the pelvis is the sagittal suture in during posterior type of position, occipital presentation, I position after flexion of the head?
 - A. Direct.
 - B. Left diagonal or direct.
 - C. Right diagonal or direct.
 - D. Right diagonal or transverse.
 - E. Left diagonal or transverse.
3. In what plane of the pelvis does the fetus finishing making the internal turn of its head during anterior type of position, occipital presentation, II position?
 - A. Input to the pelvis.
 - B. The wide part of the pelvic cavity.
 - C. The narrow part of the pelvic cavity.
 - D. When going from the wide part of the cavity to the narrow part of the pelvic cavity.
 - E. The exit of the pelvis.
4. In what diameter of the plane of the exit from the pelvis is the sagittal suture during extension of the head during posterior type of position, occipital presentation, I position?
 - A. Direct.
 - B. Left diagonal or direct.
 - C. Right diagonal or direct.
 - D. Right diagonal or transverse.
 - E. Left diagonal or transverse.
5. In what diameter of the plane of the exit from the pelvis does the fetal shoulders cut through and are born during the anterior type of position, occipital presentation?
 - A. Direct.
 - B. Right diagonal.
 - C. Left diagonal.
 - D. Transverse.
 - E. Direct and transverse.

Answer key

- | | |
|----|---|
| 1. | D |
| 2. | E |
| 3. | E |
| 4. | A |
| 5. | A |

3.2. Educational materials, recommendations (instructions) for performing tasks

The course of physiology normal labour and delivery comprises a complex relationship between several dynamic parameters, including uterine contractions, cervical dilation, fetal descent, and elapsed time. The onset of labour in humans occurs around 280 days, or 37-42 weeks, from the first day of a patient's last menstrual period (LMP).

1. Precursors of birth:

- 1.1.the lower the bottom of the uterus,
 - 1.2.increase response of the uterine to mechanical stimuli,
 - 1.3.going out mucus plug of the cervical canal,
 - 1.4.loss of women weight 1-1,5 kg,
 - 1.5.reduce the amount of amniotic fluid,
 - 1.6.fetal position; the orientation of the presenting vertex within the maternal pelvis.
2. Physiological preliminary period lasts about 6 hours and is characterized by irregular increasing in frequency, duration and intensity bouts of pain of cramping nature, mostly in the abdomen and in the groin. Pregnant women do not feel tired, their sleep is not disturbed. Irregular uterine contractions get intensified and gradually turn into regular maternity activity (contractions). In the intervals between contractions the uterine tone is not intensified, the fetal heart beat is clear and smooth, the cervix is mature, vaginal discharge is "mucous plug" mixed with blood.

3. Readiness for labour.

Labour is the physiological process by which the fetus and the placenta are expelled from the uterus through the birth canal.

Beginning of labour is an appearing of 2 contractions during 10 min. Duration of each contraction 20 seconds or more. Labour is not an even process. Within the first 4 – 5 h complex structural changes in cervix occur: it becomes shorter, smoothes, merges with lower segment of the uterus. The general length of I stage of labour during the management of labour act is 10 – 12 h in nulliparous women and 6 – 8 h in multiparous women.

4. Identifying readiness of the organism of a woman for childbirth.

Readiness of the female organism for childbirth is determined by examining the characteristic changes occurring in the cervix.

- 4.1. cervical conditon,
- 4.2. length of cervix (cm),
- 4.3. cervical dilatation (cm),
- 4.4. position of cervix,
- 4.5. station of presenting part.

There are 3 grades of cervical state: immature, not fully mature and mature cervix. Bishop Scoring System

Factor		Points		
		0	1	2
1.	Position of cervix	Directed toward the symphysis	Middle	The pelvic axis
2.	Length of cervix (cm)	> 2 cm	1-2 cm	< 1 cm

3.	Consistency of cervix	Dense	Moderate	Soft
4.	Cervical dilatation (cm)	close	1-2	> 2
5.	Station of presenting part	above the pelvic inlet plane	Between the superior and posterior margin of the symphysis	posterior margin of the symphysis and below.

0-2 points – «immature» cervix;

3-5 points – «not fully mature» cervix;

> 6 points – «mature» cervix.

5. Cardinal Movements of Labour

From the perspective of the fetus, labour involves movement progressively downward through the pelvis by the following cardinal movements.

5. 1. Mechanisms of labour with occiput anterior presentation. There are four moments.

First moment – flexion of the fetus head,

Second moment – descent and internal rotation,

Third moment – extension of the fetus head,

Fourth moment – external rotation.

5.2. Mechanisms of labour with occiput posterior presentation. It consists of five moments.

First moment – flexion of the fetus head,

Second moment – descent and internal rotation,

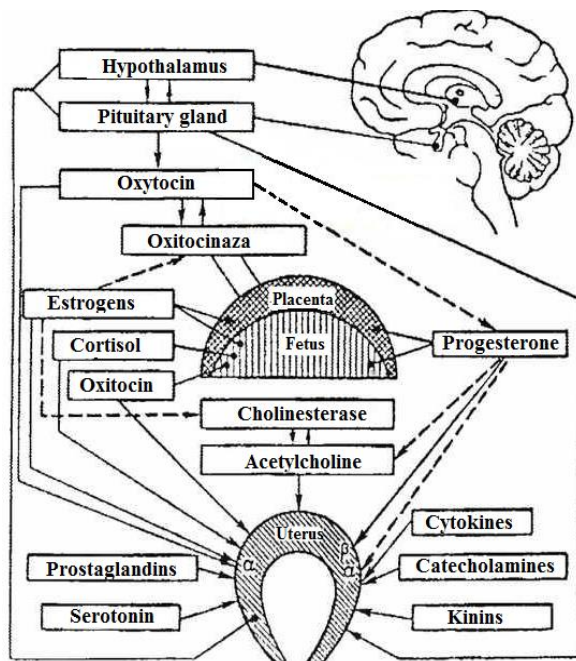
Third moment – additional flexion of the fetal head,

Fourth moment – extension of the fetus head,

Fifth moment – external rotation.

6. Regulation of labour activity

In late pregnancy and early childbirth a woman body is dominated by processes of inhibition of the cerebral cortex and increase in the excitability of the subcortical structures of the spinal cord. By this time a pregnant woman has shaped structure of the childbirth dominant, which is characterized by increased reaction to interoceptive stimuli of the cervix uteri and the weakening or complete absence of reaction to extraceptive stimuli, which is the prerequisite for a normal, uncomplicated course of the generic process.



The diagram of regulation of uterine activity. solid arrows - activation (stimulation), dashed – suppression.

7. The clinical course of childbirth

There are 3 stages of labour:

I—dilation of the cervix,

II—expulsion of the fetus,

III—postnatal stage.

Diagnosis periods and phases of delivery:

Symptoms and signs	Period	Phase
Cervix not opened	False labour / Absence of labour activity /	
Cervix opened less than 3 cm in primipara, 4 cm for multiparous	First	Latent
Cervix is opened at 3-9 cm.	The rate of opening of the cervix least (or more) - 1 cm / hour.	
Start descent the fetal head	First	Active
Full of cervical effacement (10 cm).	The head of the fetus is in the pelvic cavity.	
No urge to bearing-down	Second	Early
Full of cervical effacement (10 cm).	The presenting part of fetus reaching the pelvic bottom (plane of the pelvic outlet).	
To start to have bearing-down	Second	Late (bearing-down pains)

The third stage of labour begins after delivery of the newborn and ends with the expulsion of placenta.	Third	
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7.1. The first stage of labour consists of the time between the onset of regular contractions associated with cervical change and the occurrence of complete cervical dilation (10 cm).

The first stage is further divided into latent and active phases. Although the distinction between the two phases can be difficult to make, the latent phase of labour is characterized by a slower rate of cervical dilation despite strong, regular uterine contractions.

7.1.1. *The latent phase* can normally last up to 4-5 hours in multigravid patients and up to 6-8 hours in nulligravidas. In the active phase of labour, there is a more rapid change in cervical dilation. Patients may move extremely rapidly through active labour, although the lower limit of normal for cervical change is about 1 cm per hour for nulliparous women.

7.1.2. *Active phases.* In the majority of patients, the transition between the latent and active phases occurs at some time between 3 and 5 cm of cervical dilation, although it is possible, particularly in multigravid patients, to see a patient who is 5-cm dilated and still in the latent phase of labour. It is also critical for the clinician to accurately distinguish between latent phase labour, during which incremental cervical change is occurring (although slowly), and dysfunctional uterine contractions, a condition characterized by no change in cervical dilation despite strong, painful uterine contractions. Such dysfunctional contractions do not constitute labour, and treating them as such may lead to unnecessary intervention.

Characteristics contractions the active phase I period of labour:

- strength - moderate,
- lasting - 45-50 seconds
- frequency - 3-5 contractions in 10 minutes.

7.2. The second stage of labour (expulsion of the fetus).

The second stage of labour is defined as the interval between complete cervical dilation and delivery of the baby. This stage is characterized by descent of the fetal presenting part; maternal sensation of pelvic pressure as this descent progresses; and maternal expulsive efforts, which in concert with uterine contractions effect delivery of the baby. The duration of the second stage varies with parity, ethnicity, fetal size, and the presence or absence of regional anesthesia and can range from only minutes to as much as 2 hours.

Characteristics of attempts in the second stage of labour:

- strength of contractions - moderate (strong),
- duration of contractions - 55-60 seconds,
- frequency - in 1-1,5 minutes.

When the fetus passing through the labour canal its presenting part performs not only translational, but rotational motions. A presenting part of the fetus stretches the pudendal slit, perineum protrudes. In the moment of the highest strain of prelum muscles contractions insertion point of the fetal head – small fontanel is seen from the

pubenadal slit; between labour pains the head hides in the pudendal slit, and during the next prelum muscles contractions it appears again (*insertion of the head*).

Insertion of the fetal head begins after finishing its internal turn. During each prelum muscles contractions the greater part of the head inserts, and in some time it does not disappear in the pudendal slit in the pause between the prelum muscles contractions.

Disengagement of the fetal head corresponds to the fifth moment of labour's biomechanism — extension of the head. Occipital part of the head disengages for the first time, then — parietal tubers do. Tension of the perineum in the moment of disengagement of the parietal tubers is maximal.

After disengagement of the occiput and parietal tubers forehead and face of the fetus disengage, i. e. the whole head is delivered; during the anterior kind it is turned by its face to the back. During the next strain the internal rotation of the trunk, which corresponds with the external rotation of the head by the face, turned to the mother's hip (in the first position - to the right, in the second - to the left), occurs.

7.3. The third stage of labour comprises that time period between delivery of the baby and delivery of the placenta and may take up to 30 minutes, although usually is much shorter.

The placenta can discharge by fetal (by Schultz) or maternal (by Duncan) surface.

Active management of the postnatal period is used when bleeding occurred and the blood loss is 250 – 300 ml (0,5 % of body weight) while the signs of placental detachment are absent. Active means (manual separation and expulsion of the afterbirth) are used during inconsiderable external blood loss and in connection with the aggravation of the woman's condition. Attempts to intensify the process of expulsion of the afterbirth by the massage of the uterus, pulling the umbilical cord are excluded, because they break the physiological process of placental detachment from the uterine wall, change the rhythm of its contractions and intensify the bleeding.

8. Management of Normal Labour:

- initial patient evaluation;
- evaluation the risk of maternal and perinatal pathology;
- determine the plan of delivery;
- monitoring of mother and fetus during labour with driving partogram;
- free position of women of the first stage of labour;
- obstetric analgesia and anesthesia;
- newborn care.

8.1. Management of the first stage of labour

8.1.1. External methods for assessing the degree of opening of the cervix.

The speed of moving of the fetal head increases as the result of extension of the dilation of cervix and is usually 1 cm/h in nulliparous women and 2 cm/h - in multiparous, and after the complete cervical dilation - 4 cm/h at the I stage of labour. During the

physiological course of labour till the moment of complete cervical dilation inferior pole of the fetal head locates, as a rule, in the narrow part of the pelvic cavity. According to the data of foreign literature, the position of the fetal head is determined by its correlation to the interspinal line (level of the ischiac spines) - position "0"

8.1.2. Internal methods of assessing the degree of opening of the cervix.

To determine the dynamics of the opening of the cervix and the location of the head of the fetus during labour performed internal obstetrical examination every 4 hours during the first stage of labour and after rupture of membranes.

Indications internal obstetrical examination:

1. Every 4 hours during the first stage of labour and every hour in the second stage of labour;
2. After ruptured of membranes;
3. Pathologic rate of the fetal heart (less than 100 and more than 180 beats / min) to determine the causes that might explain the signs of his condition;
4. Loss umbilical cord;
5. In multiple pregnancies after birth first fetus;
6. Malposition of the fetus;
7. Operative vaginal delivery;
8. Bleeding after 22 weeks gestation (in the operating conditions).

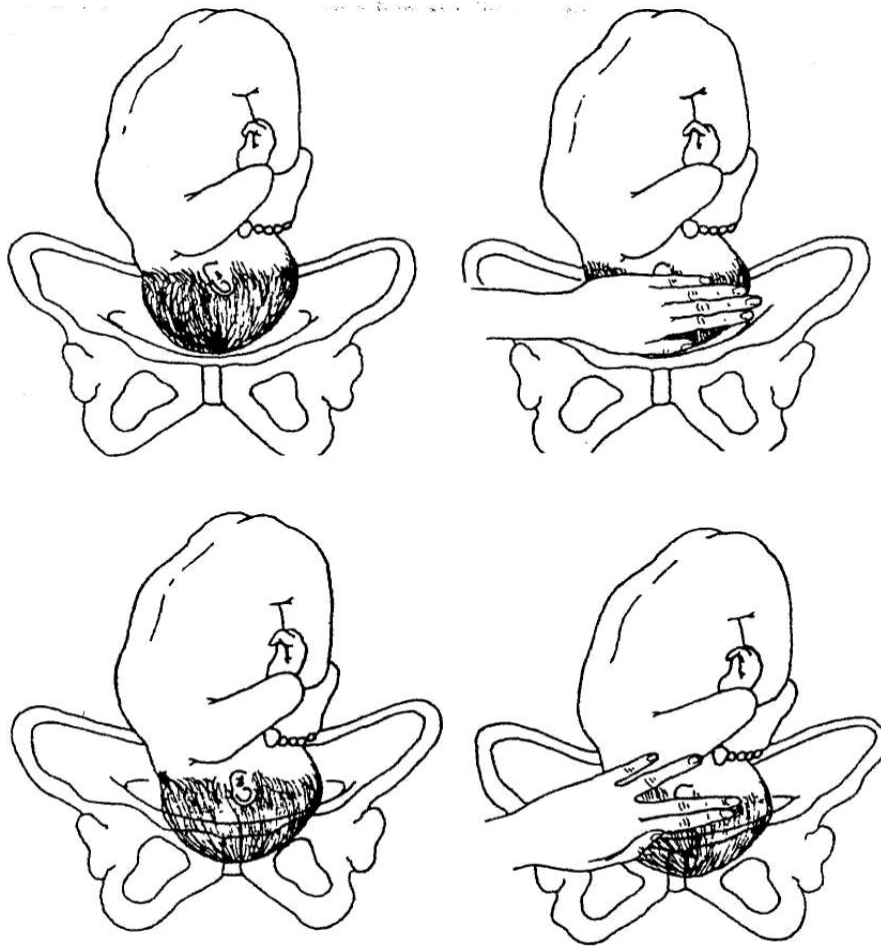
8.1.3. External obstetrical examination

Maneuvers of external obstetrical examination (Leopold's maneuvers).

Evaluation of the extent of the head fitting into the pelvic inlet during labour by palpation is performed with the fourth Leopold's method. If the fingers of the hands can be placed under the head of the fetus and their end touch one another, it locates in the pelvic inlet, if they don't — the head is pressed to its inlet. If the vertex part of the head overhangs the pelvic inlet by 2 cm, and facial part is palpated — the head is put to the pelvis by the minor segment. If the occipital part of the head can not be palpated in the pelvic inlet, and the facial one protrudes by 2–3 cm above the pelvic inlet, the head is put into the major segment. If the chin is palpated or it is not detected, the head is in the pelvic cavity.

Head above brim (as per abdominal palpation):

- 5/5 - The head is mobile over the input to the pelvis;
- 4/5 - The head is pressed against the input to the pelvis;
- 3/5 - The minor segment of the head is in the input to the pelvis;
- 2/5 - The major segment of the head is in the input to the pelvis;
- 1/5 - 0/5 - The head is in the pelvic cavity.



Picture 1. Stations of the fetal head

8.1.4. Determination position of the fetal by internal obstetrical examination

The head is mobile over the input to the pelvis – if the doctor's fingers can be brought under the head.

The head is pressed against the input to the pelvis – if the ends of the doctor's fingers do not meet under the head, nevertheless the occiput and facial parts are palpated above the input to the pelvis.

The minor segment of the head is in the input to the pelvis – the occipital part of the head is over the input to the pelvis by two fingers, and the facial part - completely.

The major segment of the head is in the input to the pelvis – the occipital part of the head is not palpated over the input to the pelvis, and the facial part is over it by two - three fingers

The head is in the pelvic cavity – when only the chin is palpated or no parts of the fetal head are palpated.

Methods of external examination also include measurement of the external sizes of the pelvis. It is performed during the patient's first visit (examination) at the female consultation and at the maternity hospital. If necessary, measurement of the pelvis is repeated during labour.

8.1.5. Cervical Examination

The level - or station - of the presenting fetal part in the birth canal is described in relationship to the ischial spines, which are halfway between the pelvic inlet and the pelvic outlet. When the lowermost portion of the presenting fetal part is at the level of

the spines, it is designated as being at zero (0) station. In the past, the long axis of the birth canal above and below the ischial spines was arbitrarily divided into thirds by some and into fifths (approximately 1 cm) by other groups. Adopted the classification of station that divides the pelvis above and below the spines into fifths. Each fifth represents a centimeter above or below the spines. Thus, as the presenting fetal part descends from the inlet toward the ischial spines, the designation is -5, -4, -3, -2, -1, then 0 station. Below the spines, as the presenting fetal part descends, it passes +1, +2, +3, +4, and +5 stations to delivery. Station +5 cm corresponds to the fetal head being visible at the introitus.

If the leading part of the fetal head is at 0 station or below, most often the fetal head has engaged - thus, the biparietal plane has passed through the pelvic inlet. If the head is unusually molded or if there is an extensive caput formation or both, engagement might not have taken place although the head appears to be at 0 station (linea interspinalis).

- mark "-" head is above the linea interspinalis (near the pelvic plane of inlet).
- mark "+" the fetal head is below the linea interspinalis (near the pelvic outlet).

Position of the fetal head in the pelvic plane:

- 3 - head of the fetus above the inlet;
- 2 - head of the fetus pressed to the inlet;
- 1 - head of the fetus by the minor segment in the inlet;
- 0 - head of the fetus by the major segment in the inlet;
- +1 - head of the fetus in the wide part of the small pelvis;
- +2 - head of the fetus in the narrow part of the small pelvis;
- +3 - head of the fetus in the pelvic outlet

8.1.6. **Methods of examining the functional condition of the fetus.**

Ultrasound fetometry of the fetus is informative after 20 weeks of pregnancy (A) and includes determining the size of the head, circumference of the abdomen and length of the hip. While determining, if there is a discrepancy of one or several basic photometric indicators for the term of pregnancy, an expanded fetometry is performed, where the relation between the biparietal diameter and frontooccipital diameters of the fetal head, size of the head, circumference of the abdomen, biparietal length of the hip bone, hip bone and circumference of the abdomen are determined. The most valuable indicator is the estimated fetal weight. The basis for performing an ultrasound fetometry in late terms of the pregnancy is suspicion of fetal growth retardation according to external measurements of the height of the uterine fundus and circumference of the woman's abdomen, and also, in special cases, to determine the term of the pregnancy with special tables, if the term is difficult to determine from anamnesis data.

• **Auscultation of the fetal heart tones** is performed after 20 weeks of pregnancy with the help of obstetrical stethoscope, where the frequency of heart beats in one minute is determined.

- physiological normal - 110-170 bpm
- frequency of heart beats above 180 bpm and less than 100 bpm testifies of disorders in the fetal condition.

For auscultation of fetal heart beat use the following rules:

- for facial presentation – listen for the heart beat below the navel on the side where the fetal thorax is located (if first position - on the right side, if second - on the left side).

- for transverse lie - near the navel, closer to the fetal head.
- for breech presentation - above the navel, near the fetal head on the side where the back is turned.

Cardiotocography (CTG) - synchronous electronic monitoring of the fetal heart rate and uterine contractions for 10-15 minutes.

- during analysis of the CTG, such parameters are evaluated: basal frequency of heart rate (BFHR), variability of the heart rate (amplitude and frequency oscillation), presence and type of changes in BFHR in the form of acceleration or decelerations of heart rate.
- if any pathological parameters of heart rate are present, which testify of a dangerous fetal condition, continuous monitoring with the CTG during labour is recommended
- diagnostic criteria: during normal fetal condition for CTG it is characteristic: BFHR is between 110-170 b.p.m (normocardia), variability (width of the tape) - 10-25 bpm with frequency of oscillation 3-6 cycles per minute (wavy type), presence of accelerations and absence of decelerations.

Biophysical profile of the fetus (BPF) (at 30 weeks of pregnancy) – complex evaluation of the condition of the fetus and the sum of separate biophysical parameters (fetal respiratory movements, fetal tone, fetal activity, reactance of the fetal heart rate to non-stress test (NST), volume of amniotic fluid)

• **Possible rupture of membranes.** In 10% of pregnancies, rupture of the membranes precedes the onset of labour. This presents as fluid leaking through the cervix and out of the vagina. The differential diagnosis includes urine leakage, vaginal infections, and passage of cervical mucus. Because prolonged rupture of the membranes is associated with higher rates of maternal and neonatal infection, optimal treatment of ruptured membranes at term is prompt induction of labour.

8.1.7. Monitoring the condition of women:

- heart rate and blood pressure (every 2 hours)
- temperature (every 4 hours)
- urine: volume; presence of protein or acetone - for displays (every 4 hours).

8.2. Management of the second stage of labour:

- measurement blood pressure, heart rate in women during labour every 10 minutes;
- monitoring of fetal palpitation every 5 minutes during the early phase;
- control by promoting fetal head through the birth canal;
- perform amniotomy if there is no timely rupture of membrane.

Physiologic position and movement.

8.3. Management of the third stage of labour

Two tactics for conducting the third period of delivery exist: *active and conservative*.

Immediately following delivery of the baby, the uterus begins the process of involution. Uterine contractions cause shearing of the placenta away from the uterine wall, and the placenta generally delivers shortly after the baby. Signs of spontaneous placental separation include an apparent lengthening of the umbilical cord, a gush of vaginal bleeding, and a change in shape of the uterus from discoid to globular.

Active management of the third stage of labour has been shown to be of benefit in reducing postpartum blood loss and may include draining the placenta of blood, controlled cord traction, or administration of oxytocic agents. If cord traction is employed, suprapubic pressure with the abdominal hand will lessen the potential for uterine inversion and catastrophic hemorrhage and shock. If the placenta has not delivered within 30 minutes of childbirth, or in the case of severe hemorrhage, the placenta should be manually removed.

The placenta should always be carefully inspected for abnormalities of cord insertion, confirmation of a three-vessel cord, and completeness of removal of the placenta and membranes. If any portion of the placenta or the membranes is missing, the uterine cavity should be manually explored. The uterus should be frequently palpated following delivery of the placenta to ensure that it remains well contracted. Oxytocin, administered as a dilute intravenous solution or given 10 to 20 U intramuscularly, decreases the incidence of postpartum hemorrhage due to uterine atony. The birth canal, including the cervix, vagina, and perineum, should be inspected for lacerations requiring repair. Under most circumstances, the baby can remain with the mother or immediate family and attempts at breast-feeding within the first 10 to 20 minutes should be encouraged. This first suckling stimulates endogenous oxytocin release and begins the process of milk production and successful breast-feeding.

Episiotomy is an incision in the perineum made to facilitate vaginal delivery. There is no role for routine episiotomy in modern obstetric practice, although there are some clinical indications for its use. In general, episiotomy is used to shorten the second stage of labour for fetal indications (terminal bradycardia or shoulder dystocia) or to control perineal damage when the risk of significant spontaneous laceration is high (operative vaginal delivery, previous large laceration, small perineal body, or large infant). Episiotomy should be performed with adequate local or regional anesthesia and with the verbal consent of the patient, when possible. There are two types of episiotomy techniques in common use: median and mediolateral.

8.3.1. Active conduction of the third stage

Because of a number of advantages, active conduction of the third stage of labour is the most widespread tactic and approved by the World Health Organization, International Federation of Obstetricians-Gynecologists and the International Confederation of Obstetricians.

The use of active conduction of the third stage during each labour lowers the frequency of postnatal bleeding 60% of the time caused by atonia of the uterus, and it also reduces the amount of postnatal blood loss and need for haemotransfusion.

Standard components for active conduction of the third stage include:

- introduction of uterotonics:
- birth of the placenta by controlled traction of the umbilical cord while holding the fundus of the uterus with the palm of the doctor's hand;
- massage of the uterus through anterior abdominal wall after the birth of the placenta.

Rules for introducing uterotonics: within the first minute after the birth of the child palpate the uterus for the presence of a second child, if there is no other child – introduce 10 units of oxytocin i/m. Oxytocin is the most widespread uterotonic because it takes effect in 2-3 minutes; it can be used for all women.

If oxytocin can not be used, use ergometrin - 0,2 mg i/m. The woman should be informed about the possible side-effects of these preparations.

Ergometrin cannot be used in women with pre-eclampsia, eclampsia and hypertension.

Controlled traction by the umbilical cord:

- clamp the umbilical cord closer to the perineum; hold the clamped umbilical cord and clamp in one hand;
- put the second hand directly over the women's pubis and hold the uterus, pulling away from the symphysis;
- slightly pull the umbilical cord and wait for a strong contraction of the uterus (usually 2-3 minutes after the introduction of oxytocin);
- simultaneously during the strong contraction, the woman should push and very cautiously pull (traction) the umbilical cord downward till the birth of the placenta; simultaneously continue with the second hand contraction in the opposite direction of traction (pushing the uterus away from the symphysis).
- if the placenta does not detach during 30-40 seconds of controlled traction, stop the traction by the umbilical cord, but continue cautiously keeping the cord in light tension; the second hand remains over the pubis, holding the uterus.
- wait for the uterus to contract again and repeat the controlled traction by the umbilical cord with contraction of the uterus.

Never use traction (pulling downwards) by the umbilical cord without contraction of a well contracted uterus over the pubis.

Using traction by the umbilical cord without contraction of the uterus can lead to prolapse or inversion of the uterus.

After the placenta is delivered, hold it with both hands and cautiously turn it, pulling the membranes out. If the membranes tear, cautiously examine the vagina and cervix in sterile gloves. If the membranes are seen, carefully use a clamp to remove it.

Attentively examine the placenta and make certain of its integrity. If an area of the maternal surface is absent, or if there is an area torn with vessels, there is reason to suspect retention of an area of the placenta and begin necessary measures.

Massage of the uterus: after the birth of the placenta immediately massage the uterus through the anterior abdominal wall until the uterus does not become firm.

Further, the uterus should be palpated every 15 minutes for the first 2 hours, to be sure that after the uterus is massaged it does not relax, but remains firm. If necessary repeat the massage.

Ice is not applied on the lower abdomen during the early postnatal period.

Active conduction of the III stage of labour should be offered to each woman as it lowers the frequency of postnatal bleedings resulting from atonia of the uterus. The parturient woman should be informed concerning active conduction of the III stage of labour, and should give voluntary written consent.

8.3.2. Passive conduction of the third stage of labour

The postnatal period of labour is the shortest (5 - 30 min). However, very important because of the possibility of appearing of postnatal bleeding. The postnatal period is accompanied by physiological blood loss (0,5 % of the woman's weight).

The midwife, when the umbilical cord stops pulsating, but no later than one minute after the birth of the child, clamps and cuts the umbilical cord. The general condition of the woman is carefully supervised; signs of placental detachment, amount of blood loss are closely watched.

When signs of placental detachment occur (Schreder's sign, Alfred's, Klein's, Kustner-Chukalov's) - it is necessary to have the woman "push" which leads to the birth of the afterbirth.

If there are no signs of placental detachment or signs of external bleeding 30 minutes after the delivery of the baby, manual detachment and delivery of the afterbirth is performed. If there are signs of bleeding - manual detachment and delivery of the afterbirth should be performed immediately with adequate anesthesia.

After the placenta is delivered, it should be carefully examined (be certain of the integrity of the placenta and membranes).

The general duration of birth on average for primipara is 8-12 hours, for secundipara - 6-8 hours.

The birth canal is examined after the delivery (with the help of vaginal mirrors) only if there is excessive bleeding, after operative vaginal delivery or if the doctor is uncertain about the integrity of the birth canal (fast childbirth, childbirth outside the hospital).

9. Partogram

The partogram provides a graphical illustration of the progress of labour and is considered by the World Health Organisation (WHO) to be a valuable tool for managing intrapartum women.

The partogram:

- Depicts the progress of labour at a glance,
- Enables failure to progress to be readily recognised,
- Is simple to use,
- Provides a practical teaching aid,
- Is an efficient means of exchange of technical information about labour progress between teams of caregivers.

KEY POINTS:

1. The partogram should be used for all women admitted in established labour. When the partogram is commenced at the beginning of the induction process the Alert and Action lines are drawn when the woman is in the active phase of labour.
2. Established labour is defined as the presence of regular contractions, increasing in strength and duration, leading to progressive effacement and dilatation of the cervix.
3. A rate of 1cm/hour in the active phase of labour is often accepted as normal progress in labour. Many women who show slower rates of cervical dilation will proceed to normal birth.
4. The Alert line is a simple tool which separates women into two groups:

Women with cervical dilatation equal to / greater than 1cm/hour who are highly unlikely to require operative intervention.

Women with cervical dilatation slower than 1 cm/hour who are more likely to require operative intervention.

5. The WHO partogram does not differentiate between nulliparous or multiparous women's labours.

MANAGEMENT:

A vaginal examination is performed 4 hours after the initial one or earlier if clinically warranted. If subsequent examination shows dilatation between Alert line and Action line a repeat vaginal examination is carried out in 2 hours. At this examination if the cervical dilatation is touching / crossing the Action line, the Labour and Birth Suite medical team must evaluate the woman's progress in labour and instigate appropriate intervention.

ANNEX 2: Partograph

Name	Gravida	Para	Hospital no.
Date of admission	Time of admission	Ruptured membranes	hours
<div> <div> 180 170 160 150 140 130 120 110 100 </div> <div> Fetal heart rate </div> </div>			
<div> <div> 10 9 8 7 6 5 4 3 2 1 0 </div> <div> Cervix (cm) [plot X] Descent of head [plot C] </div> </div>			
<div> <div> 10 9 8 7 6 5 4 3 2 1 0 </div> <div> Latent Phase Active Phase Alert Action </div> </div>			
<div> <div> 5 4 3 2 1 0 </div> <div> Contractions per 10 mins </div> </div>			
<div> <div> 5 4 3 2 1 0 </div> <div> Oxytocin U/L drops/min </div> </div>			
<div> <div> 5 4 3 2 1 0 </div> <div> Drugs given and IV fluids </div> </div>			
<div> <div> 180 170 160 150 140 130 120 110 100 90 80 70 60 </div> <div> Pulse and BP </div> </div>			
<div> <div> 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0 </div> <div> Temp °C </div> </div>			
<div> <div> 10 5 0 </div> <div> Urine { protein acetone volume </div> </div>			

Source: WHO, used by permission

Fig. 4. Recording progress of labour.

10. Newborn Care. Immediate Assessment

In 1952, Dr. Virginia Apgar devised a 0 to 10 scale scoring system intended to focus attention on the newborn and allow the systematic assessment of its condition

and immediate needs. Since that time, Apgar scores have become a mainstay in immediate newborn assessment.

To prevent the aspiration mucus is drained from the nasal part of the pharynx of the newborn immediately after the external rotation of the head, when its chest is compressed by the maternal passages and he can not make the first inhalation. After the first inhalation skin of the newborn becomes rose, he begins to move by his extremities, loudly screams.

Condition of the newborn is estimated by Virginia Apgar's score on the 1st and 5th min of his life.

Your baby will be checked for five things:

- A – Activity; muscle tone
- P – Pulse rate
- G – Grimace; reflex (measured by placing a bulb syringe in the baby's nose and seeing his response)
- A – Appearance; skin color
- R – Respiration

Each category is given a score ranging from 0-2. The numbers are then added up for a final score.

By the Apgar's score the majority of newborns on the 1st minute of life has 7 - 8 points (acrocyanosis is detected as the result of transitional blood circulation and decrease in the muscular tonus); 4 - 6 points asphyxia of slight degree; 0 - 3 - severe asphyxia.

The mark 10 points on the 1st minute of life is detected only in 15% of the newborns. On the 5th minute of life estimation by the Apgar's score in the norm rises up to 8 - 10 points.

11. Newborn Care

After 1 minute babies born:

- After the stop of pulsation of the umbilical cord two clamps are applied on it (10 cm from the umbilical ring), processed by 5% alcoholic solution of iodine and incised by aseptic scissors. During the physiological labour it is recommended to put a newborn to the breast of the mother (within first 2 h), better till the section of the umbilical cord, which contributes to its better adaptation and reduce of the length of postnatal stage of labour.

- Keep baby warm. When a baby is born, he is wet from the fluid in the womb and can easily become cold. Nurses will dry his skin, wrap him in a blanket, place a knitted hat on his head and may even use heat lamps to help him stay warm. Holding your baby close to you so that your skin touches his also helps keep him warm.

After the labour of the newborn its height (from pate to hill), weight, circumference of the head (direct diameter) and shoulders are measured. Bracelets are put on, where the sex, mother's surname and name, number of labour history, weight and height, date and time of delivery are written. The newborn is covered with warm wrapping clothes and blanket and put on the warm wrapping table.

12. Anaesthesia and analgesia of labour.

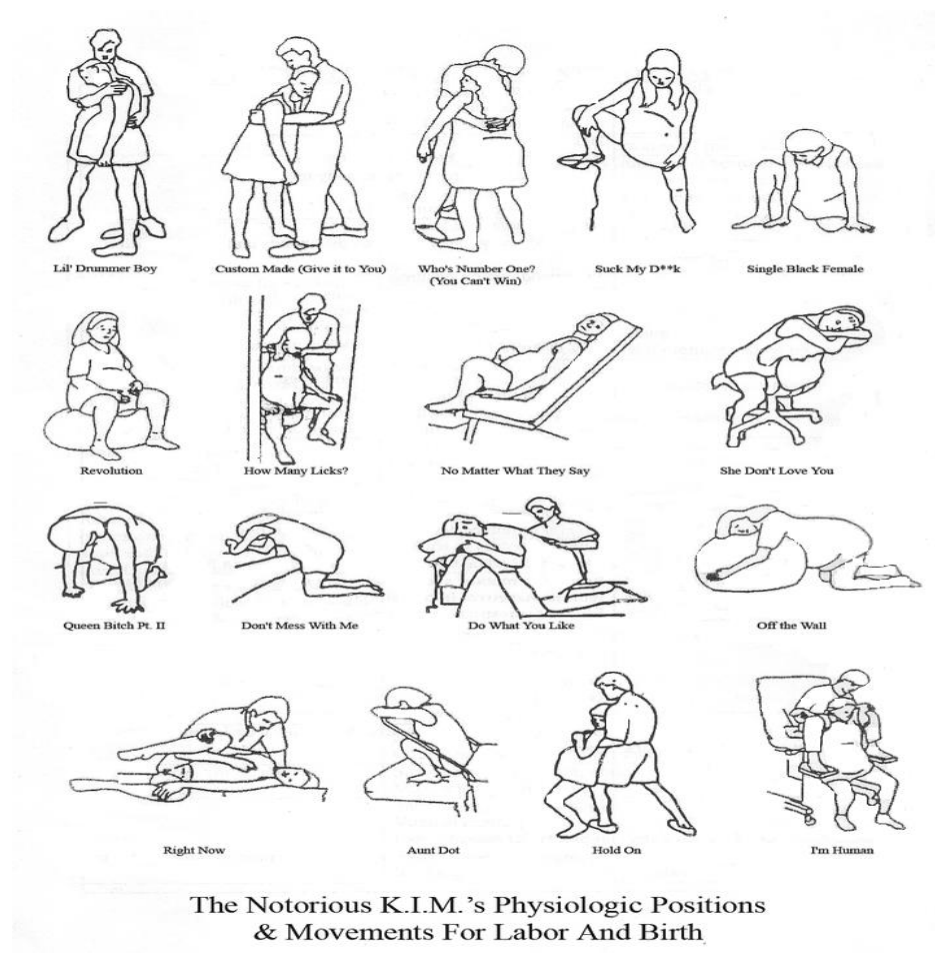
- Physiologic positions and movements,
- Child birth preparation: Psychoprophylaxis,
- Hydrotherapy• Hydrotherapy involve a simple shower or tubbath, or it include the

use of a whirlpool or large tub specially equipped for pregnant patients. Benefits of hydrotherapy includes reduced pain & anxiety, decreased BP & increased efficiency of uterine relaxation.

- Systemic Medication for Labour Analgesia

Obstetric anesthesia encompasses all techniques used by anesthesiologists and obstetricians to alleviate the pain associated with labour and delivery: general anesthesia, regional anesthesia, local anesthesia, and analgesia. Relief from pain during labour and delivery is an essential part of good obstetric care. Unique clinical considerations guide anesthesia provision for obstetric patients; physiologic changes of pregnancy and increases in certain complications must be considered.

Obstetric analgesia or anesthesia refers to the multiple techniques useful for the alleviation of pain associated with labour, delivery, or surgery. The choice of an appropriate analgesic technique must be made by the patient, the obstetrician, and the anesthesiologist and should take into consideration the patient's anatomy and physiology, the status of her fetus, the obstetric plan for delivery, and the pharmacology of the drugs to be employed.



V. Supportive employment.

3.3. Requirements for the results of work.

1. To know the precursors birth, preliminary period.
2. To give the evaluation of the cervical status (scale Bishop).
3. To show the biomechanism of labour at the anterior and posterior types occipital presentation.
4. To tell the clinical course of the first stage of labour. Methods registration labour.

Monitoring during delivery.

5. To name periods of delivery and tell clinical management of the first stage of normal labour. The basic principles of partogram.
6. To perform the clinical course of the second stage of labour and clinical management of this stage of labour. To perform the third stage of labour. The signs of placental separation. Clinical management III stage of labour (active and expectant tactics).
7. Delivery of the placenta according to Abuladze, Genter's method and Crede-Lazarevich's method.
8. To show the examination of the placenta. Physiological and pathological hemorrhage.
9. To assess the essentials of normal newborn assessment (Apgar scores) and care. Care and observation in the first few hours of life.
10. To tell about obstetric analgesia and anesthesia.

ALGORITHM for conducting normal labour:

- evaluate the degree of predicted risk of development of maternal and perinatal pathologies so as to determine the necessary level of help during labour;
- determine the plan for conducting labour and an informed conformation from the woman;
- emotional support for the parturient woman during labour (labour with partner);
- control over the condition of the mother and fetus during labour while conducting the partogram;
- free position of the parturient woman during labour;
- pain relief if indicated;
- condition of the fetus:
- frequency of fetal heart beats, performed with auscultation or manual Doppler analyzer (every 15 minutes)
- degree of configuration of the fetal head (every 4 hours)
- condition of the amniotic sac and amniotic fluid (every 4 hours)
 - condition of the parturient woman:
- pulse and arterial pressure (every 2 hours)
- body temperature (every 4 hours)
- urine: amount; presence of protein or acetone – if indicated (every 4 hours).
 - conducting the second period of labour:
- measurement of the woman's BP, pulse every 10 minutes;
- control of fetal heart activity every 5 minutes during the early phase, and after each contraction during the active phase;
- control of the advancement of the fetal head through the birth canal by using internal obstetrical examination each hour.

Because of increased risk of ascending infection through the birth canal additional internal obstetrical examinations during the second stage of labour are admissible only if indicated:

- performing amniotomy if the amniotic sac has not ruptured
- during multiple pregnancy after the birth of the first baby

- when deciding on operative vaginal delivery (obstetrical forceps, vacuum extraction, extraction of the fetus by the pelvic end).
- evaluate the condition of the child during birth; perform primary care of the newborn and early breast feeding, principles of "thermal chain"
- Preventive measures are taken for ophthalmi for all newborns during the first hour of life; 0,5% erythromycin or 1 % tetracycline ointments are used.
- 2 hours after the birth, the baby is changed into clean clothes and together with the mother is taken to the postnatal ward.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. The head of a newborn has a dolichocephalic form, extended from the front to the back. At the occipital area, there is a patrimonial tumour located in the middle between the large and small fontanel. What head presentation did the birth occur in?
 - A. Frontoparietal.
 - B. Anterior type, occipital presentation.
 - C. Posterior type, occipital presentation.
 - D. Facial.
 - E. Frontal.
2. Primipara, 20 years old, is in the beginning of the I period of physiological birth. Contractions are 15-20 sec., every 10-15 min., weak. Fetal palpitation is not suffering. How much in cm should the cervix be open for the amniotic discharge to be timely?
 - A. 6-8.
 - B. 8-10.
 - C. 4-6.
 - D. 2-4.
 - E. 1,5-2.
3. During internal obstetrical examination of a secundipara, the cervix is open 4-5 cm, when pressing with a finger on the fetal head, it pushes away and again returns to its initial position, the pelvis is free. How long is the fetal head permitted to be in this plane, in hours?
 - A. 5.
 - B. 6.
 - C. 4.
 - D. 3.
 - E. 2.
4. You are observing a parturient woman in the 1 period of birth. During internal obstetrical examination, the sagittal suture is in the right diagonal diameter, the small fontanel is closer to the pubis. How should the parturient woman lay in bed, so that the fetal head would be insert correctly?
 - A. On her left side.
 - B. On her back.
 - C. On her right side.
 - D. It make do difference.
 - E. She is only allowed to walk.
5. Secundipara with a weight of 80 kg. What is the acceptable amount of blood loss, ml:

- A. 400.
- B. 500.
- C. 600.
- D. 700.
- E. 800.

6. A woman in her first pregnancy had a live baby boy, weight 3200 g, length 50 cm. The umbilical cord was transected after pulsation of the vessels stopped. When the edge of the palm is pressed on the symphysis, the umbilical cord retreats into the vagina. What sign is used for determining whether the placenta has separated from the uterus?

- A. Alfelda.
- B. Kustner-Chukalova.
- C. Schröder.
- D. Dovjenko
- E. Rogovina.

Answer key

- | | | |
|----|---|-----|
| 1. | B | 7. |
| 2. | B | 8. |
| 3. | B | 9. |
| 4. | C | 10. |
| 5. | A | 11. |
| 6. | B | 12. |

G. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant woman and woman who is giving birth and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and just delivered woman and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant or woman during delivery or any period of labour and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant or woman in any period of labour or in early after delivery period and the interpretation of clinical, laboratory and instrumental studies.

Practical class №14.

PHYSIOLOGY OF THE POSTPARTUM PERIOD. PHYSIOLOGY OF THE NEONATAL PERIOD

LEARNING OBJECTIVE is to gain basic knowledge about physiological changes in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge.

BASIC CONCEPTS: Retrogressive changes in reproductive system and general physiological changes in female body. Course and management of the postpartum period. Physiology of lactation. Breastfeeding. Postpartum contraception: the method of lactation amenorrhea (MLA). Physical features of the newborn. Newborn care. Advantages of cohabitation of mother and child.

EQUIPMENT

- Obstetric models and obstetric instruments.
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

H. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

By convention the puerperium (postpartum period) lasts for 6 weeks from the day of the birth of the child. During this time the physiological and morphological changes that occurred during pregnancy revert to the non-pregnant state. It is also a time when the woman takes on the responsibility of caring for a dependent, demanding infant. This may cause problems, particularly if she finds it difficult to adjust to being a mother.

I. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- to collect data on patient complaints, medical history, life history;
- to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- to select the leading clinical symptom or syndrome;
- to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- to diagnose emergencies;
- to determine tactics and provide emergency medical care;
- to provide consultations on family planning, determine the tactics of the postpartum period;
- to be able to assess mother's condition; to carry out diagnostic and tactical measures in each period of labor; to conduct the postpartum period;
- to be able to assess the patient, and the necessary examination before using a contraceptive; demonstrate family planning counseling skills;
- to provide the necessary information about changes in a female body in the postpartum period;
- to formulate and bring to the patient, relatives and specialists recommendations for choosing a contraception method.

List of didactic units:

- Retrogressive changes in reproductive system and general physiological changes in female body.
- Course and management of the postpartum period.
- Physiology of lactation. Breastfeeding.
- Postpartum contraception: the method of lactation amenorrhea (MLA).
- Physical features of the newborn.
- Newborn care.

- Advantages of cohabitation of mother and child.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Duration and main events of postpartum period.
- Involution of uterus and other pelvic structures, general physiological changes in female body in puerperium.
- Physiology of lactation, composition of colostrum and milk.
- Ten steps for successful breastfeeding.
- The main principles of management of normal puerperium.
- Checkup and advise on discharge.
- Postpartum contraception.
- Apgar rating and immediate care of newborn.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A previously energetic woman complains of crying, loss of appetite, difficulty in sleeping, and feeling of low self-worth, beginning approximately 3 days after a normal vaginal delivery. These feelings persisted for approximately 1 week and then progressively diminished. Which of the following is the best term to describe her symptoms postpartum?

- (A) postpartum blues
- (B) postpartum depression
- (C) neurosis
- (D) psychosis
- (E) schizoid affective disorder

2. A patient has just delivered her first child after an uncomplicated pregnancy and term vaginal delivery. She is anxious to breast-feed. As part of her postpartum discharge counseling, she should be told that few things interfere with lactation, but she should avoid which of the following?

- (A) Depo-Provera
- (B) frequent suckling
- (C) high dose (≥ 50 μg estradiol) oral contraceptive pills
- (D) Levonorgestrel intrauterine device (IUD)
- (E) progestin-only oral contraceptive pill (minipill)

3. At delivery, a perineal laceration tore through the skin of the fourchette, vaginal mucous membrane, and the fascia and perineal muscles of the perineal body but not the anal sphincter or mucosa. This should be recorded in the medical record as what type of laceration?

- (A) first-degree
- (B) second-degree

- (C) third-degree
- (D) fourth-degree
- (E) complete

4. A patient is being discharged from the hospital following an uncomplicated vaginal delivery. Discharge counseling and plans would include which of the following?

- (A) discontinue prenatal vitamins
- (B) no driving for 4 weeks
- (C) no coitus for 6 weeks
- (D) return to work only after 6 weeks of maternity leave
- (E) rubella immunization for nonimmune patients

5. The postpartum nurse calls about a patient who had an uncomplicated vaginal delivery 12 hours ago. She is concerned that the patient has the following findings. Which of them should be of most concern to you?

- (A) abdominal rigidity
- (B) leukocytosis of 16,000
- (C) proteinuria
- (D) a pulse rate of 60
- (E) a single temperature of 38,0°C

6. During childbirth classes, a patient should be told which of the following regarding breastfeeding?

- (A) Breast milk is a major source of immunoglobulin G (IgG)
- (B) Most ingested drugs that are soluble in maternal blood do not cross into breast milk
- (C) Mother's milk contains a large amount of iron
- (D) The postpartum period of lactation is a time of above-normal fertility
- (E) Prolactin stimulates milk production and breast development

7. A 16-year-old patient delivered a term infant yesterday. She is placing the child for adoption and is not going to breast-feed. She asks for something to suppress lactation. What is the simplest and cheapest method of lactation suppression?

- (A) breast binding, ice packs, and analgesics
- (B) bromocriptine
- (C) cabergoline
- (D) Depo-Provera
- (E) oral contraceptive pills

8. A class C diabetic patient delivers at term. It is important to check her blood sugar levels immediately postpartum, since there may be a decrease in the insulin requirements of diabetic patients. This can be partly explained by which of the following?

- (A) decreased activity
- (B) decrease in plasma human placental lactogen (hPL)

- (C) decrease in plasma estrogen
- (D) decrease in plasma progesterone
- (E) increased food intake

9. Immediately after the completion of a normal labor and delivery, the uterus should be which of the following?

- (A) at the level of the symphysis pubis
- (B) boggy
- (C) discoid
- (D) firm and rounded
- (E) immobile

10. A patient had a vaginal delivery of a 4,500-g infant after a prolonged second stage. She is now unable to void. Each of the following could be a reason and can be initially treated with Foley placement. Which of the following can represent a most serious etiology of inability to void in the immediate postpartum period?

- (A) anesthesia
- (B) edema
- (C) emotions
- (D) hematoma
- (E) overdistention of the bladder

11. The decidual layer is divided into several parts, most of which are shed following pregnancy. The remaining layer can be damaged with a curettage for retained placenta. Which of the following is the part that should remain?

- (A) decidua capsularis
- (B) decidua vera
- (C) zona basalis
- (D) zona functionalis
- (E) zona spongiosa

12. Which of the following is normally found in the immediate postpartum period after a normal delivery?

- (A) leukopenia
- (B) large drop in hematocrit
- (C) elevated erythrocyte sedimentation rate (ESR)
- (D) retention of fluid
- (E) rapid fall in plasma fibrinogen

13. The period of time from the end of delivery until the reproductive organs have returned to normal is called

- (A) menopause
- (B) puerperium
- (C) perineum
- (D) pachytene
- (E) paravarium

14. Postpartum, the uterus involutes in 6 to 8 weeks. Its weight decreases by how much?
- (A) 500 g
 - (B) 100g
 - (C) 900 g
 - (D) 1300 g
 - (E) 1700 g
15. Postpartum, the decidua becomes necrotic and is normally cast off within five to six days as
- (A) decidual cast
 - (B) placental remnants
 - (C) lochia
 - (D) carunculae myrtiformis
 - (E) none of the above
16. A syndrome of amenorrhea-galactorrhea developing postpartum is
- (A) Ahumada del Castillo
 - (B) Chiari-Frommel
 - (C) Budd-Chiari
 - (D) Sheehan's
 - (E) Simmond's
17. After parturition, endometrium regenerates from the decidual
- (A) basal zone
 - (B) compact zone
 - (C) functional zone
 - (D) parietal layer
 - (E) spongy zone
18. An infant is born and at 5 minutes it has a vigorous cry, a heart rate of 105, movement of all four extremities, grimacing with stimulation, and has bluish hands and feet. What is the Apgar score of this infant?
- (A) 10
 - (B) 9
 - (C) 8
 - (D) 7
 - (E) 6
19. Newborns who are allowed to remain at room temperature immediately after delivery rather than warmed by skin-to-skin contact with mom or placement in a warmer are at risk for the development of which of the following?
- (A) metabolic acidosis
 - (B) metabolic alkalosis
 - (C) respiratory acidosis
 - (D) respiratory alkalosis

(E) pneumonia

20. Which of the following is the most common cause of failure to establish effective respiratory effort in the newborn?

- (A) fetal acidosis
- (B) fetal immaturity
- (C) upper airway obstruction
- (D) congenital laryngeal stenosis
- (E) infection

Answer key

1	A	11	C
2	C	12	C
3	B	13	B
4	C	14	C
5	A	15	C
6	E	16	B
7	A	17	A
8	B	18	B
9	D	19	A
10	D	20	C

J. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, women's outpatient clinic, postpartum ward, labor & delivery ward with newborns and postpartum women.

Tasks:

- Subgroup I - to assess general condition of postpartum woman, assess uterine involution, lochia character and lactation.
- Subgroup II - to assess the general condition of the newborn, check an afterbirth, to perform medical care for a healthy newborn in the first hours of life.
- Subgroup III – to provide counseling about postpartum contraception.

In 30 minutes the groups exchange tasks with each other. Finally, students assess results of their classmates.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. Which of the following would NOT be considered as part of the immediate care of the newborn?

- (A) drying the skin
- (B) warming the infant
- (C) clearing the airway
- (D) doing a brief physical examination
- (E) measuring the hematocrit

2. The normal infant after delivery will have a normal adult pH in about

- (A) 5 minutes
- (B) 1 hour
- (C) 12 hours
- (D) 3 days
- (E) 1 month

3. The full-term newborn has

- (A) labia majora that are in contact with one another
- (B) at least one testis in the scrotum
- (C) fingernails that extend to or beyond the fingertips
- (D) breast tissue palpable
- (E) all of the above

4. Five infants are admitted to the newborn nursery after uncomplicated vaginal deliveries. Which of the following newborns would be classified as high-risk and merits closer monitoring?

- (A) 3,500 g, 39 weeks' gestation, Apgar score 8/9
- (B) 2,650 g, 41 weeks' gestation, Apgar score 7/8
- (C) 3,800 g, 41 weeks' gestation, Apgar score 7/8
- (D) 3,100 g, 38 weeks' gestation, Apgar score 7/9
- (E) 2,650 g, 37 weeks' gestation, Apgar score 7/9

5. A 2-day-old newborn has a mild degree of hyperbilirubinemia. What is the most appropriate next step in management?

- (A) observation only
- (B) exposing the infant to light
- (C) O-negative packed red blood cells (RBCs) given as an exchange transfusion
- (D) spinal tap
- (E) soy-based formula feeding

6. Immediate care of the normal newborn at birth should include

- (A) vigorous slapping to stimulate respiration
- (B) sodium bicarbonate IV
- (C) prompt vigorous resuscitation
- (D) holding the head down to allow mucus and amniotic fluid to drain
- (E) immediate bathing to bring up the infant's body temperature

7. Newborn jaundice (icterus neonatorum) is caused mainly by

- (A) excessive indirect bilirubin
- (B) decreased amounts of direct bilirubin

- (C) lack of carotene production in the newborn liver
- (D) meconium obstruction of the newborn digestive system
- (E) genetic predisposition

8. On the 3th day of life, how would the weight of a term infant that weighed 3400 g at birth be expected to change?

- (A) increased 140-200 g
- (B) increased 70 g
- (C) remained the same
- (D) decreased 70 g
- (E) decreased 140-200 g

9. The first-time mother of a newborn would like to know about the care of the umbilical cord stump. When does the umbilical cord stump of a newborn most frequently slough off?

- (A) 2nd day after delivery
- (B) 5th day after delivery
- (C) 10th day after delivery
- (D) 15th day after delivery
- (E) 21st day after delivery

10. A term infant is delivered via cesarean delivery as a double-footling breech. It is noted to have an Apgar score of 3 at 1 minute and later to be irritable and restless. The infant's muscles are rigid, and the anterior fontanel bulges. The infant develops progressive bradycardia. What is the most likely cause of these findings?

- (A) brain stem injury
- (B) infection
- (C) congenital abnormality
- (D) neonatal sepsis
- (E) intracranial hemorrhage

1	E	6	D
2	B	7	A
3	E	8	E
4	B	9	C
5	B	10	E

Case

An 18-year-old woman with a body mass index of 35 who had a forceps delivery after a prolonged second stage of labor 10 days previously presented with heavy, fresh vaginal bleeding and clots. She felt unwell and complained of abdominal cramps. On examination she had a temperature of 38.2°C and there was mild suprapubic tenderness. Vaginal examination revealed blood clots, but no products of conception. The cervix admitted one finger and the uterus was tender and measured 16 weeks in size. A review of the delivery notes revealed that the placenta was delivered complete, but the membranes were noted to be ragged.

1. What is the most likely diagnosis?

2. What are the key features that suggest retained products of conception?
3. How should the patient be managed?

Answer

1. Secondary PPH due to infected retained products of conception.
2. Secondary postpartum haemorrhage. Enlarged uterus. Open cervical os.
3. Blood cultures. Intravenous broad-spectrum antibiotics (e.g. cephalosporin and metronidazole). Surgical evacuation of the retained products.

3.2. Educational materials, recommendations (instructions) for performing tasks

PUERPERIUM is the period following childbirth during which the body tissues, specially the pelvic organs revert back approximately to the prepregnant state both anatomically and physiologically. The retrogressive changes are mostly confined to the reproductive organs with the exception of the mammary glands which in fact show features of activity. Involution is the process whereby the genital organs revert back approximately to the state as they were before pregnancy. The woman is termed as a puerpera.

Puerperium begins as soon as the placenta is expelled and lasts for approximately 6 weeks when the uterus becomes regressed almost to the non-pregnant size. The period is arbitrarily divided into — (a) early – within 24 hours; (b) remote – up to 6 weeks. It is the time from delivery until complete physiological involution and psychological adjustment.

INVOLUTION OF THE UTERUS

Uterus: Immediately following delivery, the uterus becomes firm and retract with alternate hardening and softening. The uterus measures about $20 \times 12 \times 7.5$ cm (length, breadth and thickness) and weighs about 1000 gm. At the end of 6 weeks, its measurement is almost similar to that of the non-pregnant state and weighs about 60 gm. The placental site contracts rapidly presenting a raised surface with measures about 7.5 cm and remains elevated even at 6 weeks when it measures about 1.5 cm.

Lower uterine segment: Immediately following delivery, the lower segment becomes a thin, flabby and collapsed structure. It takes a few weeks to revert back to the normal shape and size of the isthmus, i.e. the part between the body of the uterus and internal os of the cervix.

Cervix: The cervix contracts slowly; the external os admits two fingers for a few days but by the end of first week, narrows down to admit the tip of a finger only. The contour of the cervix takes a longer time to regain (6 weeks) and the external os never reverts back to the nulliparous state.

The physiological process of involution is most marked in the body of the uterus. Changes occur in the following components: (1) Muscles (2) Blood vessels (3) Endometrium.

Muscles: There is marked hypertrophy and hyperplasia of muscle fibers during pregnancy and the individual muscle fiber enlarges to the extent of 10 times in length and 5 times in breadth. During puerperium, the number of muscle fibers is not decreased but there is substantial reduction of the myometrial cell size. Withdrawal of the steroid hormones, estrogen and progesterone, may lead to increase in the activity

of the uterine collagenase and the release of proteolytic enzyme. Autolysis of the protoplasm occurs by the proteolytic enzyme with liberation of peptones which enter the blood stream. The connective tissues also undergo the same type of degeneration. The conditions which favors involution are — (a) efficacy of the enzymatic action and (b) relative anoxia induced by effective contraction and retraction of the uterus.

Blood vessels: The changes of the blood vessels are pronounced at the placental site. The arteries are constricted by contraction of its wall and thickening of the intima followed by thrombosis. During the first week, the arteries undergo thrombosis, hyalinization and fibrinoid end arteritis. The veins are obliterated by thrombosis, hyalinization and endophlebitis. New blood vessels grow inside the thrombi.

Endometrium: Following delivery, the major part of the decidua is cast off with the expulsion of the placenta and the membranes, more at the placental site. The endometrium left behind varies in thickness from 2–5 mm. The superficial part containing the degenerated decidua, blood cells and bits of fetal membranes becomes necrotic and is cast off in the lochia. Regeneration starts by 7th day. It occurs from the epithelium of the uterine gland mouths and interglandular stromal cells. Regeneration of the epithelium is completed by 10th day and the entire endometrium is restored by the day 16, except at the placental site where it takes about 6 weeks.

CLINICAL ASSESSMENT OF INVOLUTION

The rate of involution of the uterus can be assessed clinically by noting the height of the fundus of the uterus in relation to the symphysis pubis. The measurement should be taken carefully at a fixed time every day, preferably by the same observer. Bladder must be emptied before hand and preferably the bowel too, as the full bladder and the loaded bowel may raise the level of the fundus of the uterus. The uterus is to be centralized and with a measuring tape, the fundal height is measured above the symphysis pubis. Following delivery, the fundus lies about 13-14 cm above the symphysis pubis. During the first 24 hours, the level remains constant; thereafter, there is a steady decrease in height by 1,5-2 cm in 24 hours, so that by the end of second week the uterus becomes a pelvic organ. The rate of involution thereafter slows down until by 6 weeks, the uterus becomes almost normal in size.

The involution may be affected adversely and is called subinvolution. Sometimes, the involution may be continued in women who are lactating so that the uterus may be smaller in size — superinvolution. The uterus, however, returns to normal size if the lactation is withheld.

INVOLUTION OF OTHER PELVIC STRUCTURES

Vagina: The distensible vagina, noticed soon after birth takes a long time (4-8 weeks) to involute. It regains its tone but never to the virginal state. The mucosa remains delicate for the first few weeks and submucous venous congestion persists even longer. It is the reason to withhold surgery on puerperal vagina. Rugae partially reappear at third week but never to the same degree as in prepregnant state. The introitus remains permanently larger than the virginal state. Hymen is lacerated and is represented by nodular tags — the carunculae myrtiformes.

Broad ligaments and round ligaments require considerable time to recover from the stretching and laxation.

Pelvic floor and pelvic fascia take a long time to involute from the stretching effect during parturition.

LOCHIA

It is the vaginal discharge for the first fortnight during puerperium. The discharge originates from the uterine body, cervix and vagina.

Odor and reaction: It has got a peculiar offensive fishy smell. Its reaction is alkaline tending to become acid towards the end.

Color: Depending upon the variation of the color of the discharge, it is named as: (1) Lochia rubra (red) 1-4 days. (2) Lochia serosa (5-9 days) — the color is yellowish or pink or pale brownish. (3) Lochia alba — (pale white) — 10-15 days.

Composition: Lochia rubra consists of blood, shreds of fetal membranes and decidua, vernix caseosa, lanugo and meconium. Lochia serosa consists of less RBC but more leukocytes, wound exudate, mucus from the cervix and microorganisms (anaerobic streptococci and staphylococci). The presence of bacteria is not pathognomonic unless associated with clinical signs of sepsis. Lochia alba contains plenty of decidual cells, leukocytes, mucus, cholesterol crystals, fatty and granular epithelial cells and microorganisms.

Amount: The average amount of discharge for the first 5–6 days, is estimated to be 250 mL.

Normal duration: The normal duration may extend up to 3 weeks. The red lochia may persist for longer duration especially in women who get up from the bed for the first time in later period. The discharge may be scanty, especially following premature labors or may be excessive in twin delivery or hydramnios.

Clinical importance: The character of the lochial discharge gives useful information about the abnormal puerperal state.

The vulval pads are to be inspected daily to get information:

- Odor: If malodorous, indicates infection. Retained plug or cotton piece inside the vagina should be kept in mind.
- Amount: Scanty or absent — signifies infection or lochiometra. If excessive — indicates infection.
- Color: Persistence of red color beyond the normal limit signifies subinvolution or retained bits of conceptus.
- Duration: Duration of the lochia alba beyond 3 weeks suggests local genital lesion.

GENERAL PHYSIOLOGICAL CHANGES

PULSE: For a few hours after normal delivery, the pulse rate is likely to be raised, which settles down to normal during the second day. However, the pulse rate often rises with after-pain or excitement.

TEMPERATURE: The temperature should not be above 37.2°C within the first 24 hours. There may be slight reactionary rise following delivery by 0.5°C but comes down to normal within 12 hours.

On the 3rd day, there may be slight rise of temperature due to breast engorgement which should not last for more than 24 hours. However, genitourinary tract infection should be excluded if there is rise of temperature.

URINARY TRACT: The bladder mucosa becomes edematous and hyperemic and often shows evidences of submucous extravasation of blood. The bladder capacity is increased. The bladder may be over distended without any desire to pass urine. The common urinary problems are: over distension, incomplete emptying and presence of residual urine. Urinary stasis is seen in more than 50% of women. The risk of urinary tract infection is, therefore, high. Dilated ureters and renal pelvis return to normal size within 8 weeks. There is pronounced diuresis on the second or third day of the puerperium.

GASTROINTESTINAL TRACT: Increased thirst in early puerperium is due to loss of fluid during labor, in the lochia, diuresis and perspiration. Constipation is a common problem for the following reasons: delayed GI motility, mild ileus following delivery, together with perineal discomfort. Some women may have the problem of anal incontinence.

WEIGHT LOSS: In addition to the weight loss (5–6 kg) as a consequence of the expulsion of the fetus, placenta, liquor and blood loss, a further loss of about 2 kg occurs during puerperium chiefly caused by diuresis. This weight loss may continue up to 6 months of delivery.

FLUID LOSS: There is a net fluid loss of at least 2 liters during the first week and an additional 1.5 liters during the next 5 weeks. The amount of loss depends on the amount retained during pregnancy, dehydration during labor and blood loss during delivery. The loss of salt and water are larger in women with preeclampsia and eclampsia.

BLOOD VALUES: Immediately following delivery, there is slight decrease of blood volume due to blood loss and dehydration. Blood volume returns to non-pregnant level by the second week. Cardiac output rises soon after delivery to about 80% above the pre-labor value but slowly returns to normal within one week.

RBC volume and hematocrit values return to normal by 8 weeks postpartum after the hydremia disappears. Leukocytosis to the extent of 25000 per ml occurs following delivery probably in response to stress of labor. Platelet count decreases soon after the separation of the placenta but secondary elevation occurs, with increase in platelet adhesiveness between 4-10 days. Fibrinogen level remains high up to the second week of puerperium. A hypercoagulable state persists for 48 hours postpartum and fibrinolytic activity is enhanced in first 4 days. The secondary increase in fibrinogen, factor VIII and platelets in the first week increases the risk for thrombosis. The increase in fibrinolytic activity after delivery acts as a protective mechanism.

MENSTRUATION AND OVULATION: The onset of the first menstrual period following delivery is very variable and depends on lactation. If the woman does not breastfeed her baby, the menstruation returns by 6th week following delivery in about 40% and by 12th week in 80% of cases.

In non-lactating mothers, ovulation may occur as early as 4 weeks and in lactating mothers about 10 weeks after delivery. In lactating mothers the mechanism of amenorrhea and anovulation are depicted schematically above. A woman who is exclusively breastfeeding, the contraceptive protection is about 98% up to 6 months of postpartum. Thus, lactation provides a natural method of contraception. However, ovulation may precede the first menstrual period in about one-third and it is possible for the patient to become pregnant before she menstruates following her confinement.

Non-lactating mother should use contraceptive measures in 3rd postpartum week and the lactating mother in 3rd postpartum month.

LACTATION

For the first two days following delivery, no further anatomic changes in the breasts occur. The secretion from the breasts called colostrum which starts during pregnancy becomes more abundant during the period.

COMPOSITION OF THE COLOSTRUM: It is deep yellow serous fluid, alkaline in reaction. It has got a higher specific gravity; a high protein, vitamin A, sodium and chloride content but has got lower carbohydrate, fat and potassium than the breast milk. It contains antibody (IgA) produced locally.

Advantages: (1) The antibodies (IgA, IgG, IgM) and humoral factors (lactoferrin) provides immunological defense to the new born. (2) It has laxative action on the baby because of large fat globules.

PHYSIOLOGY OF LACTATION

Although, lactation starts following delivery, the preparation for effective lactation starts during pregnancy.

The physiological basis of lactation is divided into four phases:

- (a) Preparation of breasts (mammogenesis).
- (b) Synthesis and secretion from the breast alveoli (lactogenesis).
- (c) Ejection of milk (galactokinesis).
- (d) Maintenance of lactation (galactopoiesis).

Mammogenesis: Pregnancy is associated with a remarkable growth of both the ductal and lobuloalveolar systems. An intact nerve supply is not essential for the growth of the mammary glands during pregnancy.

Lactogenesis: Though some secretory activity is evident (colostrum) during pregnancy and accelerated following delivery, milk secretion actually starts on 3rd or 4th postpartum day. Around this time, the breasts become engorged, tense, tender and feel warm. In spite of a high prolactin level during pregnancy, milk secretion is kept in abeyance. Probably, the steroids — estrogen and progesterone circulating during pregnancy make the breast tissues unresponsive to prolactin. When the estrogen and progesterone are withdrawn following delivery, prolactin begins its milk secretory activity in previously fully developed mammary glands. Prolactin and glucocorticoids are the important hormones in this stage. The secretory activity is enhanced directly or indirectly by also growth hormone, thyroxine and insulin. For milk secretion to occur, nursing effort is not essential.

Galactokinesis: Discharge of milk from the mammary glands depends not only on the suction exerted by the baby during suckling but also on the contractile mechanism which expresses the milk from the alveoli into the ducts. Oxytocin is the major galactokinetic hormone.

The milk ejection (or 'let-down') reflex is initiated by suckling and is mediated via the hypothalamus and pituitary gland, which release oxytocin into the bloodstream. The oxytocin causes contractions of the myoepithelial cells and milk is ejected from the alveoli and small ducts to flow to the large ducts and the subareolar reservoirs. Oxytocin may also inhibit the release of dopamine from the hypothalamus, further encouraging the secretion of milk.

Negative emotional and physical factors can reduce the letdown reflex, with the result that for lactation to be established the mother must be confident that she can breastfeed.

TEN STEPS TO SUCCESSFUL BREASTFEEDING

Every facility providing maternity services and care for newborn infants should:

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all healthcare staff in the skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants.
6. Give newborn infants no food or drink other than breast milk unless medically indicated.
7. Practice rooming-in. Allow mothers and infants to stay together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic.

Galactopoiesis: Prolactin appears to be the single most important galactopoietic hormone. For maintenance of effective and continuous lactation, suckling is essential. It is not only essential for the removal of milk from the glands, but it also causes the release of prolactin. Secretion is a continuous process unless suppressed by congestion or emotional disturbances. Milk pressure reduces the rate of production and hence periodic breastfeeding is necessary to relieve the pressure which in turn maintains the secretion.

MILK PRODUCTION: A healthy mother will produce about 500-800 mL of milk a day to feed her infant. This requires about 700 Kcal/day for the mother, which must be made up from diet or from her body store. For this purpose a store of about 5 kg of fat during pregnancy is essential to make up any nutritional deficit during lactation.

Lactation suppression: It may be needed for women who cannot breastfeed for personal or medical reasons. Lactation is suppressed when the baby is born dead or dies in the neonatal period or if breastfeeding is contraindicated. Methods commonly used are: (i) To stop breastfeeding (ii) To avoid pumping or milk expression (iii) To wear breast support (iv) Ice packs to prevent engorgement (v) Analgesics (aspirin) to relieve pain (vi). A tight compression bandage is applied for 2–3 days. The natural inhibition of prolactin secretion will result in breast involution.

Medical methods of suppression with estrogen, androgen or bromocriptine is not recommended. The side effects of bromocriptine are: hypotension, rebound secretion, seizures, myocardial infarction and puerperal stroke.

MANAGEMENT OF NORMAL PUERPERIUM

The principles in management are: (1) To restore the health of the mother. (2) To prevent infection. (3) To take care of the breasts, including promotion of breastfeeding. (4) To motivate the mother for contraception.

Immediate attention: Immediately following delivery, the patient should be closely observed. She may be given a drink of her choice or something to eat, if she is hungry. Emotional support is essential. Usually the first feeling of mother is the sense of happiness and relief, with the birth of a healthy baby. The woman needs emotional support when she suffers

from postpartum blues or stress due to newborn's prematurity, illness, congenital malformation or death.

REST AND AMBULANCE: Early ambulation after delivery is beneficial. After a good resting period, the patient becomes fresh and can breastfeed the baby or moves out of bed to go to the toilet. Early ambulation is encouraged. Advantages are: (1) Provides a sense of well-being (2) Bladder complications and constipation are less (3) Facilitates uterine drainage and hastens involution of the uterus (4) Lessens puerperal venous thrombosis and embolism. Following an uncomplicated delivery, climbing stairs, lifting objects, daily household work, cooking may be resumed.

HOSPITAL STAY: Early discharge from the hospital is an almost universal procedure. If adequate supervision by trained health visitors is provided, there is no harm in early discharge. Most women are discharged fit and healthy after 2 days of spontaneous vaginal delivery with proper education and instructions. Early discharge may be done in a few selected women. Some need prolonged hospitalization due to morbidities (infections of urinary tract, or the perineal wound, pain, or breastfeeding problems).

DIET: The patient should be on normal diet of her choice. If the patient is lactating, high calories, adequate protein, fat, plenty of fluids, minerals and vitamins are to be given. However, in non-lactating mothers, a diet as in non-pregnant is enough.

CARE OF THE BLADDER: The patient is encouraged to pass urine following delivery as soon as convenient. At times, the patient fails to pass urine and the causes are — (1) Unaccustomed position and (2) Reflex pain from the perineal injuries. This is common after a difficult labor or a forceps delivery. If the patient still fails to pass urine, catheterization should be done. Catheterization is also indicated in case of incomplete emptying of the bladder evidenced by the presence of residual urine of more than 60 mL. Continuous drainage is kept until the bladder tone is regained. The underlying principle of the bladder care is to ensure adequate drainage of urine so that infection and cystitis are avoided.

CARE OF THE BOWEL: The problem of constipation is much less because of early ambulation and liberalization of the dietary intake. A diet containing sufficient roughage and fluids is enough to move the bowel. If necessary, mild laxative may be given at bed time.

SLEEP: The patient is in need of rest, both physical and mental. So she should be protected against worries and undue fatigue. Sleep is ensured providing adequate physical and emotional support. If there is any discomfort, such as after pains or painful piles or engorged breasts, they should be dealt with adequate analgesics (Ibuprofen).

CARE OF THE VULVA AND EPISIOTOMY WOUND: Shortly after delivery, the vulva and buttocks are washed with soap water down over the anus and a sterile

pad is applied. The patient should look after personal cleanliness of the vulval region. The perineal wound should be dressed with spirit and antiseptic powder after each act of micturition and defecation or at least twice a day. The nurse should use sterilised gloves during dressing.

Cold (ice) sitz baths relieve pain. When the perineal pain is persistent, a vaginal and rectal examination is done to detect any hematoma, wound gaping or infection. For pain Ibuprofen is safe for nursing mothers.

CARE OF THE BREASTS: The nipple should be washed with sterile water before each feeding. It should be cleaned and kept dry after the feeding is over. A nursing brassiere provides comfortable support. Nipple soreness is avoided by frequent short feedings rather than the prolonged feeding, keeping the nipples clear and dry. Nipple confusion is a situation where the infant accepts the artificial nipple but refuses the mother's nipple. This is avoided by making the mother's nipple more protractile and not offering any supplemental fluids to the infant.

MATERNAL-INFANT BONDING (ROOMING-IN): It starts from first few moments after birth. This is manifested by fondling, kissing, cuddling and gazing at the infant. The baby should be kept in her bed or in a cot besides her bed. This not only establishes the mother-child relationship but the mother is conversant with the art of baby care so that she can take full care of the baby while at home. Baby-friendly hospital initiative promotes parent-infant-bonding, baby rooming with the mother and breastfeeding.

ASEPSIS AND ANTISEPTICS: Asepsis must be maintained especially during the first week of puerperium. Liberal use of local antiseptics, aseptic measures during perineal wound dressing, use of clean bed linen and clothing are positive steps. Clean surroundings and limited number of visitors could be of help in reducing nosocomial infection.

IMMUNISATION: Administration of anti-D-gamma globulin to unimmunized Rh-negative mother bearing Rh-positive baby.

MANAGEMENT OF AILMENTS

After pain — It is the infrequent, spasmodic pain felt in the lower abdomen after delivery for a variable period of 2–4 days. Presence of blood clots or bits of the afterbirths lead to hypertonic contractions of the uterus in an attempt to expel them out. This is commonly met in primipara. The pain may also be due to vigorous uterine contraction especially in multipara. The mechanism of pain is similar to cardiac anginal pain induced by ischemia. Both the types are excited during breastfeeding. The treatment includes massaging the uterus with expulsion of the clot followed by administration of analgesics (Ibuprofen) and antispasmodics.

Pain on the perineum: Never forget to examine the perineum when analgesic is given to relieve pain. Early detection of vulvo-vaginal hematoma can thus be made. Sitz baths (hot or cold) can give additional pain relief.

Correction of anemia: Majority of the women remain in an anemic state following delivery. Supplementary iron therapy (ferrous sulfate 200 mg) is to be given daily for a minimum period of 4–6 weeks.

Hypertension is to be treated until it comes to a normal limit. The physician should be consulted if proteinuria persists.

TO MAINTAIN A CHART: A progress chart is to be maintained noting the following: (1) Pulse, respiration and temperature recording 6 hourly or at least twice a

day (2) Measurement of the height of the uterus above the symphysis pubis once a day in a fixed time with prior evacuation of the bladder and preferably the bowel too (3) Character of the lochia (4) Urination and bowel movement.

POSTPARTUM EXERCISE: The objectives of postpartum exercises are: (1) To improve the muscle tone, which are stretched during pregnancy and labor especially the abdominal and perineal muscles. (2) To educate about correct posture to be attained when the patient is getting up from her bed. This also includes the correct principle of lifting and working positions during day-to-day activities.

Advantages gained thereby are: (1) To minimize the risk of puerperal venous thrombosis by promoting arterial circulation and preventing venous stasis (2) To prevent backache (3) To prevent genital prolapse and stress incontinence of urine.

PROCEDURE: (1) Initially, she is taught breathing exercise and leg movements lying in bed. (2) Gradually, she is instructed to tone up the abdominal and perineal muscles and to correct the postural defects. These can well be taught by a trained physiotherapist. The exercise should be continued for at least 3 months. The common exercises prescribed are: (a) To tone up the pelvic floor muscles: The patient is asked to contract the pelvic muscles in a manner to withhold the act of defecation or urination and then to relax. The process is to be repeated as often as possible each day. (b) To tone up the abdominal muscles: The patient is to lie in dorsal position with the knees bent and the feet flat on the bed. The abdominal muscles are contracted and relaxed alternately and the process is to be repeated several times a day. (c) To tone up the back muscles: The patient is to lie on her face with the arms by her side. The head and the shoulders are slowly moved up and down. The procedure is to be repeated 3–4 times a day and gradually increased each day.

Physical activity should be resumed without delay. Sexual activity may be resumed (after 6 weeks) when the perineum is comfortable and bleeding has stopped.

CHECK-UP AND ADVICE ON DISCHARGE: A thorough check-up of the mother and the baby is mandatory prior to discharge of the patient from the hospital. Discharge certificate should have all the important information as regard the mother and baby.

Advices include: (1) Measures to improve her general health. Continuance of supplementary iron therapy (2) Postnatal exercises (3) Procedures for a gradual return to day-to-day activities (4) Breastfeeding and care of the newborn (5) Avoidance of intercourse for a reasonable period of 4–6 weeks until lacerations or episiotomy wound are well healed (6) Family planning advice and guidance — Non-lactating women should practice some form of contraceptive measures after 3 weeks and the lactating women should start 3 months after delivery (7) To have postnatal check up after 6 weeks.

The method of contraception will depend upon breastfeeding status, state of health and number of children. Natural methods cannot be used until menstrual cycles are regular. Exclusive breastfeeding provides 98% contraceptive protection for 6 months. Barrier methods may be used. Steroidal contraceptions — combined preparations are suitable for nonlactating women and should be started 3 weeks after. In lactating women it is avoided due to its suppressive effects. Progestin only pill may be a better choice for them. Other progestins (DMPA, Levonorgestrel implants) may be used. IUDs are also a satisfactory method irrespective of breastfeeding status.

IMMEDIATE CARE OF THE NEWBORN

Soon after the delivery of the baby, it should be placed on a tray covered with clean dry linen with the head slightly downwards (15°). It facilitates drainage of the mucus accumulated in the tracheobronchial tree by gravity. The tray is placed between the legs of the mother and should be at a lower level than the uterus to facilitate gravitation of blood from the placenta to the infant.

Air passage (oropharynx) should be cleared of mucus and liquor by gentle suction.

Apgar rating at 1 minute and at 5 minutes is to be recorded.

Clamping and ligature of the cord—The cord is clamped by two Kocher's forceps, the nearest one is placed 5 cm away from the umbilicus and is cut in between. Two separate cord ligatures are applied with sterile cotton threads 1 cm apart using reef-knot, the proximal one being placed 2.5 cm away from the navel. Leaving behind a length of the cord attached to the navel not only prevents inclusion of the embryonic structure, if present, but also facilitates control of primary haemorrhage due to a slipped ligature. The cord is divided with scissors about 1 cm beyond the ligatures taking aseptic precautions so as to prevent cord sepsis.

The purpose of clamping the cord on the maternal end is to prevent soiling of the bed with blood and to prevent fetal blood loss of the second baby in undiagnosed monozygotic twin.

Delay in clamping for 2–3 minutes or till cessation of the cord pulsation facilitates transfer of 80-100 mL blood from the compressed placenta to a baby when placed below the level of uterus. This is beneficial to a mature baby but may be deleterious to a pre-term or a low birth weight baby due to hypervolemia. But early clamping should be done in cases of Rh-incompatibility (to prevent antibody transfer from the mother to the baby) or babies born asphyxiated or one of a diabetic mother.

Quick check is made to detect any gross abnormality and the baby is wrapped with a dry warm towel.

The identification tape is tied both on the wrist of the baby and the mother.

Once the management of third stage is over (usually 10–20 minutes), baby is given to the mother.

3.3. Requirements for the results of work.

- To take a medical history (general and specific) and record information in a standardized proforma,
- to perform general examination, assess the health status of the puerpera,
- to assess uterine involution, character of lochia, lab tests,
- to counsel the women about physiological changes in postpartum period,
- to assess complaints of puerpera, explain the origins of minor ailments in postpartum period, give advice how to reduce the problem,
- to develop a plan of management of normal postpartum period,
- to understand the common disorders of the puerperium and how to manage them
- to be able to recognize and manage common postpartum psychiatric disorders,
- to counsel woman about physiology of lactation, benefits of breastfeeding,

- to check up woman on discharge, give judicious advice regarding diet, drugs and hygiene,
- to provide counseling about postpartum contraception,
- to rate a newborn according Apgar scale,
- to perform immediate care of newborn.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. A heroin-abusing woman presents to labor and delivery and has a precipitous vaginal delivery of a term infant who has poor respiratory effort and Apgar scores 2/4/6. Rather than simply sedation from narcotic abuse, what is the most likely finding in a neonate with intrapartum asphyxia?

- (A) alkalemia
- (B) hypoxia
- (C) hypocapnia
- (D) tachycardia
- (E) increased anal sphincter tone

2. Continued apnea in the newborn most often results from which of the following?

- (A) maternal infection
- (B) epidural anesthesia
- (C) central nervous system (CNS) depression
- (D) maternal hyperventilation
- (E) naloxone administration

3. After a delivery complicated by a shoulder dystocia, a newborn is found to have paralysis of one arm with the forearm extended and rotated inward next to the trunk. These findings are most consistent with which of the following?

- (A) damage to the C8–T1 nerve roots
- (B) neonatal asphyxia
- (C) damage to the brachial plexus
- (D) fracture of the clavicle
- (E) comminuted fracture of the humerus

4. Within the first minute after delivery, the baby does not breathe spontaneously. The heart rate is 80 to 90 bpm. There is some movement, with pale and limited irritability. What is the most appropriate next step in management?

- (A) dry and warm the newborn
- (B) slap the baby's back gently at first, then vigorously if necessary
- (C) ventilate the infant by mask
- (D) do external cardiac massage
- (E) administer intravenous bicarbonate via umbilical vein

5. At a new obstetrics visit, a nulliparous patient shares her fears of having a neonatal death because her mother had a child with a neonatal death. In counseling the patient, you explain that which of the following is the most common factor associated with neonatal death?

- (A) birth injury
- (B) prematurity
- (C) congenital malformations
- (D) metabolic diseases
- (E) intrauterine growth restriction

6. Neurologic abnormalities are found in greatest proportion in infants with which of the following?

- (A) high Apgar scores and normal birth weight
- (B) low Apgar scores and normal birth weight
- (C) low Apgar scores and low birth weight
- (D) high Apgar scores and high birth weight
- (E) low Apgar scores and high birth weight

7. You deliver an infant who has a moderate shoulder dystocia and at 1 minute it does not cry, as well as has flexed extremities, irregular respiration, a bluish color, and a heart rate of 90 bpm. What is the most appropriate Apgar score for this infant?

- (A) 1
- (B) 3
- (C) 5
- (D) 7
- (E) 9

8. At 5 minutes after resuscitation efforts, the infant has a pink body, blue fingers, vigorous cry and active motion, good respiration, and heart rate of 120 bpm. What is the most appropriate Apgar score for this infant?

- (A) 1
- (B) 3
- (C) 5
- (D) 7
- (E) 9

9. Antimicrobial therapy is routinely applied to the eyes of newborns to prevent blindness caused by which of the following?

- (A) *Neisseria gonorrhoeae*
- (B) *Chlamydial conjunctivitis*
- (C) *Herpes simplex*
- (D) *Group B streptococcus*
- (E) *Hemophilus Ducreyi*

10. What is the most common cause of clonic seizures in the initial 24-hour newborn period?

- (A) hypoxic-ischemic encephalopathy

- (B) intracranial hemorrhage
- (C) infection
- (D) hypoglycemia
- (E) drug withdrawal

Answer key

1	B	6	C
2	C	7	B
3	C	8	D
4	C	9	A
5	B	10	A

Case

A 25 years old primipara was seen by her GP at 12 weeks' gestation. The only history of note was that her father had suffered a long-standing psychiatric illness that the woman believed to be 'schizophrenia'. He had died when she was young in a road traffic accident. Her pregnancy proceeded without complication, and she went home on the second postnatal day following a normal delivery at term. Within a couple of weeks, her partner reported to the community midwife that he had concerns about her mood. She seemed agitated, fearful and unduly concerned about the wellbeing of the baby and refused any help offered by him. The GP saw her and diagnosed 'postnatal depression'. He commenced tricyclic antidepressants. However, 1 week later she became frankly delusional and believed that her partner was trying to kill the baby. She was hardly sleeping and eating very little, but was continuing to breastfeed her baby.

1. What is the most likely diagnosis?
2. How should this be managed?
3. How should her breastfeeding be managed?
4. In retrospect, how should the pregnancy have been managed?

Answer

1. The most likely diagnosis is puerperal psychosis.
2. She should be admitted to a regional mother-and-baby unit with her newborn where she can receive multidisciplinary care from the specialist medical, nursing and midwifery staff. The antidepressants should be stopped and she should be treated with antipsychotics.
3. She should be encouraged to continue breastfeeding but the baby should be monitored for side-effects.
4. Ideally, the woman should have been asked to explore the nature of her family history. This would have revealed that her father suffered from schizophrenia. If this had been known, then it could have prompted review by a specialist in perinatal mental health, leading to regular postnatal review by a psychiatric nurse being organized. This might have led to earlier intervention and prevented her deterioration to such a severe state.

K. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №15.

“ANOMALIES IN THE DEVELOPMENT OF THE FERTILIZED EGG. MULTIPLE PREGNANCY”

LEARNING OBJECTIVES is to gain basic knowledge about multiple pregnancies, classification, risk factors for multiple pregnancies and why prevalence is increasing, be familiar with the increased complications that occur in multiple pregnancies, understand the antenatal care of women with multiple pregnancies in order to provide successful obstetric outcome.

To understand why prenatal diagnosis is performed and what conditions can be tested for in the fetus, be aware of the invasive prenatal diagnostic tests that can be performed, their risks and benefits, know the various screening tests that are used to predict the risk of a woman having a pregnancy affected by Down's syndrome, appreciate how to appropriately counsel a woman and her partner who are considering having an invasive prenatal diagnostic test, learn about newer non-invasive methods of prenatal diagnosis based on measurement of cell-free fetal DNA in the maternal circulation.

BASIC CONCEPTS: Anomalies of extraembryonic elements of the ovum (placenta, amniotic membranes and umbilical cord). Polyhydramnios and oligohydramnios: causes, diagnosis, tactics of pregnancy, consequences for the fetus and newborn. Hereditary and congenital diseases of the fetus. Prenatal genetic counseling, indications. Prenatal screening and diagnosis.

Multiple pregnancy: classification, diagnosis, course and management of multiple pregnancy. Childbirth in multiple pregnancies.

EQUIPMENT

- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

L. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Prenatal diagnosis is the identification of a disease in the fetus prior to birth. This topic will discuss why prenatal diagnostic tests may be performed and the types of non-invasive and invasive tests that are available. It will discuss factors that should be taken into consideration prior to offering testing, and emphasizes the importance of good communication with women and multidisciplinary working.

Rates of multiple pregnancies continue to increase and now constitute approximately 3% of live births. The high prevalence of multiple pregnancy is explained predominantly by increasing use of assisted fertility, with rates of multiple pregnancy being directly proportional to the number of embryos transferred. Regardless of chorionicity and amnionicity, complications in multiple pregnancies are higher than for singleton pregnancies and include preterm birth, fetal growth restriction (FGR), cerebral palsy and stillbirth. The maternal risks are also increased and include hypertensive and thromboembolic disease and antepartum and postpartum haemorrhage.

M. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Ability to collect data on patient complaints, medical history, life history;
- Ability to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- Ability to select the leading clinical symptom or syndrome;
- Ability to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- Ability to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- Ability to diagnose emergencies;
- Ability to determine tactics and provide emergency medical care;
- Ability to provide consultations on family planning, determine the tactics of physiological pregnancy, physiological labor and the postpartum period;
- Ability to assess mother's condition; to carry out diagnostic and tactical measures in each period of labor; to examine woman in labor; assess the condition of the fetus during childbirth; to conduct the postpartum period;
- Ability to assess the patient, and the necessary examination before using a contraceptive; demonstrate family planning counseling skills;
- Ability to formulate and bring to the mother, relatives and specialists recommendations for the most effective mode of delivery; to provide the necessary information about changes in a female body in the postpartum period;
- Ability to keep medical records.

List of didactic units:

- Anomalies of extraembryonic elements of the ovum (placenta, amniotic membranes and umbilical cord).
- Polyhydramnios and oligohydramnios: causes, diagnosis, tactics of pregnancy, consequences for the fetus and newborn.
- Hereditary and congenital diseases of the fetus.
- Prenatal genetic counseling, indications.
- Prenatal screening and diagnosis.

- Multiple pregnancy: classification, diagnosis, course and management of multiple pregnancy.
- Childbirth in multiple pregnancies.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Hereditary and congenital diseases of the fetus.
- Indications for prenatal genetic screening and counselling.
- Screening and diagnostic tests, invasive and non-invasive procedures.
- First-trimester screening and diagnostic testing options for aneuploidy.
- Biochemical and ultrasound components for aneuploidy screening in the first trimester.
- Combination first- and second-trimester screening modalities and their detection rates.
- The types of second-trimester serum testing for fetal aneuploidy.
- The role of serum testing for fetal neural tube defects.
- The diagnostic approach to abnormal first- and second-trimester screening.
- Epidemiology and aetiology of multiple pregnancy.
- Classification of multiple pregnancy.
- Complications of multiple pregnancy Perinatal mortality.
- Complications unique to monochorionic twin pregnancies.
- Care of women with a multiple pregnancy.
- Intrapartum management. Time and mode of delivery.
- Amniotic fluid metabolism.
- Causes of polyhydramnios and oligohydramnios. Fetal and maternal complications.
- Management of pregnant with polyhydramnios and oligohydramnios.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. You review a woman who is 20 weeks pregnant with MCMA twins at her booking appointment. She asks your opinion regarding timing and mode of delivery. She had hoped for a vaginal delivery. How would you advise her?

- (A) Emergency caesarean section
- (B) Delivery by caesarean section at 37 weeks
- (C) Refer for laser ablation therapy
- (D) Elective caesarean section at 32-34 weeks
- (E) Start oxytocin infusion

2. Advising a 34-year-old woman at 12 weeks' gestation about the risk of chromosomal defects in the fetus, you can correctly state which of the following?

- (A) There is little worry regarding Down syndrome before the age of 35.
- (B) Paternal age is very important in the etiology of Down syndrome.

(C) Maternal serum alpha-fetoprotein (MSAFP) is a very specific test for Down syndrome.

(D) Screening for Down syndrome can be improved by checking amniotic fluid for acetylcholinesterase level.

(E) Efficacy of screening for Down syndrome is improved by adding estriol, inhibin A, and hCG concentration to the MSAFP (quadruple screen).

3. A patient is measuring size larger than dates at her initial obstetric visit at 24 weeks' EGA. She is worried about twins since they "run" in the family. The best method to safely and reliably diagnose twins is by which of the following?

(A) ultrasonography

(B) Leopold's maneuvers

(C) auscultation

(D) X-rays

(E) computed tomography (CT) scan

4. There is good evidence that a woman who gave birth to an infant with a neural tube defect (NTD) can substantially reduce the risk of recurrence by taking periconceptional folic acid supplementation. What is the recommended dose?

(A) 0.4 mg

(B) 0.8 mg

(C) 1.0 mg

(D) 4 mg

(E) 8 mg

5. How many weeks after LMP is ultrasound most useful in evaluating fetal anatomy?

(A) between 2 and 4 weeks after LMP

(B) between 7 and 9 weeks after LMP

(C) between 12 and 14 weeks after LMP

(D) between 19 and 21 weeks after LMP

(E) between 30 and 32 weeks after LMP

Answer key

- | | |
|---|---|
| 1 | D |
| 2 | E |
| 3 | A |
| 4 | D |
| 5 | D |

N. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 2 subgroups of 4-5 people each. They work in the classroom, women's outpatient clinic, labor & delivery ward, ward of pathology of pregnancy with pregnant.

Tasks:

- Subgroup I – to determine indications for prenatal genetic screening and counselling, to perform detailed counselling prior to embarking on any screening or diagnostic tests, to make clear for woman the potential outcomes of tests, the choices available to her, to explain how the outcome of the test would affect the decisions she made during her pregnancy.
- Subgroup II – to perform general and obstetric examination, assess the health status of the mother carrying twins, to assess results of clinical general and obstetrical examinations, lab tests in multiple pregnancy, to develop a plan of prenatal care and a plan of intrapartum management in multiple pregnancy, choose a time and a mode of delivery, to develop a plan of management of pregnant with polyhydramnios and oligohydramnios.

In 30 minutes the groups exchange tasks with each other. After next 30 min students assess and discuss results of their work.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A 32-year-old woman has a twin pregnancy at 8 weeks' gestation. During her initial prenatal care visit, you review risks for multifetal pregnancies. Which of the following statements reflects the most frequent risks in twin pregnancies?

- (A) Pregnancy-induced hypertension occurs at a higher rate than in singletons.
- (B) Cesarean delivery is necessary in greater than 90% of twin deliveries.
- (C) Shoulder dystocia occurs more in the aftercoming vertex twin, as compared to a singleton.
- (D) Perinatal death rate is less than that of singletons.
- (E) Congenital anomalies occur at the same rate as in singletons.

2. Which clinical scenario is most associated with metastatic gestational trophoblastic disease?

- (A) after spontaneous abortion of a chromosomally abnormal embryo
- (B) spontaneously during the childbearing years
- (C) after hydatidiform mole
- (D) after normal pregnancy
- (E) after a second trimester pregnancy termination

3. Which of the following is the only class of hormones relevant to the embryogenesis of the external genitalia?

- (A) androgens
- (B) estrogens
- (C) cortisol
- (D) human chorionic gonadotropin (hCG)
- (E) progesterone

4. When asked about the fetal safety of a category B drug when taken by a pregnant woman, you should respond that a drug in this category has which of the following?

- (A) proven risks that outweigh its benefits
- (B) fetal risk, but the benefits far outweigh the risks
- (C) studies showing adverse effects in animals, but there are no human data
- (D) animal studies showing no fetal risks, or if there are risks, they are not shown in well-controlled human studies
- (E) no fetal risks and the medication is thus considered safe in pregnancy

5. When counseling a patient regarding fetal abnormalities during prenatal care, which of the following is the greatest advantage of chorionic villus sampling (CVS) over amniocentesis?

- (A) the ability to provide results early
- (B) the ability to perform enzyme studies
- (C) a decreased fetal risk
- (D) obtaining far superior cellular sample
- (E) a lack of maternal cell contamination

Answer key

- | | |
|-----|---|
| 6. | A |
| 7. | C |
| 8. | A |
| 9. | D |
| 10. | A |

Case

Ms G is an 18-year-old woman who had her first scan at 16 weeks' gestation. When the fetal abdomen was scanned, an irregular mass was seen to project from the anterior abdominal wall at the level of the umbilicus, to the right side of the umbilical cord insertion. Figure shows the herniated bowel (indicated by a white arrow) in the amniotic fluid. No other fetal abnormalities were noted.

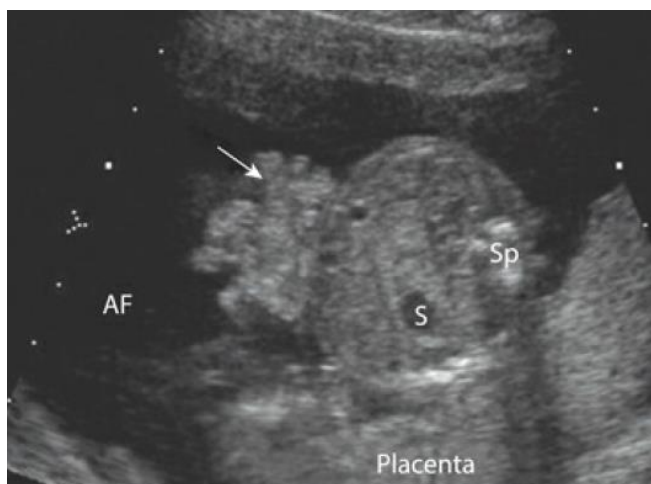


Figure 1. Ultrasound image of gastroschisis (arrow). AF, amniotic fluid; S, fetal stomach; Sp, fetal spine.

Questions:

- A. How should this patient be managed?
- B. What should the consultant tell her about the outlook for her baby?
- C. What plans would you make for delivery?

Answers:

A. A prenatal diagnosis of a gastroschisis has been made on ultrasound scan. Ultrasound scan will detect at least 90% of all gastroschisis defects. Ms G should be seen by the consultant and the ultrasound findings explained to her. She requires referral to a tertiary unit for ongoing management and planning of delivery. Involvement of a multidisciplinary team would be important.

B. The consultant should stress that the majority of babies born with gastroschisis will do well in the long term and lead normal lives. Gastroschisis is not usually associated with any other physical problems or with learning problems (Table 5.3). It should be explained that the fetus will need to be monitored regularly during the pregnancy as fetuses with gastroschisis are often small and may have oligohydramnios. In later pregnancy, the fetal bowel may dilate, which can be associated with bowel ischaemia and bowel atresia. This can make the postnatal surgery more difficult. Following delivery, the baby would require an operation to repair the defect. Surgical repair ranges from reduction of bowel and suturing of defect under anaesthetic, to the need for a silo. This is a covering placed over the abdominal organs on the outside of the baby. Gradually, the organs are squeezed by hand through the silo into the opening and returned to the body. This method can take up to a week to return the abdominal organs to the body cavity. Severe cases may require bowel resection for atresias or volvulus. Survival rates of up to 97% are found for simple cases and the majority of babies are on full oral feeds by 4 weeks of age. For more complex severe cases there is a lower rate of survival with longer hospitalization. Ms G should be given the opportunity to meet the paediatric surgeons during the pregnancy and visit the paediatric surgical unit. After delivery, she should be encouraged to express breast milk to feed to her baby.

C. Induction around 37 weeks' gestation enables delivery to be planned in a unit with appropriate paediatric surgical facilities, and may reduce the incidence of stillbirth late in pregnancy. There does not appear to be any benefit from delivery by caesarean section for babies with gastroschisis. If other organs such as the liver are also herniated, caesarean delivery may be indicated. If a woman has a normal delivery it makes it easier for her to visit her baby on the paediatric surgical unit in the first few days after birth.

3.2. Educational materials, recommendations (instructions) for performing tasks

PRENATAL GENETIC COUNSELING

Nearly 3% of newborns have major congenital anomaly. Usually genetic factors are responsible. Chromosomal abnormalities are observed in majority of all first trimester miscarriages and about 5% of all stillborns. The different etiologic factors for fetal malformations are:

1. Chromosomal abnormalities (numeric or structural)
2. Single gene disorders (cystic fibrosis) - 1%
3. Polygenic or multifactorial disorders

4. Teratogenic disorders due to exposure of exogenous factors (drugs).


Prenatal genetic counseling, screening and diagnosis are done to evaluate a fetus with risk of chromosomal, genetic abnormality or a structural anomaly. Couple is communicated with the basic knowledge of genetic abnormalities. Different possible causes are discussed. Written information (leaflets) may be handed over as that allows the couple for discussion among themselves. Couples are encouraged to ask questions. Women's or couples' risk assessment for having a baby with increased risk of genetic disease should be done based on the ethnicity, race, personal (age, drug history) or family history. In cases where the risk is high, couple needs additional counseling by a genetic counselor.

Noninvasive prenatal screening for aneuploidy or neural tube defects is offered to all women regardless of age.

Indications for prenatal genetic counselling

Maternal Risk Factors	Prenatal Risk Factors
<ul style="list-style-type: none">■ Maternal age > 35 years■ Family history of neural tube defects■ Previous baby born with neural tube defect■ Previous child with chromosomal anomaly■ One or both parents—carriers of sex-linked or autosomal traits■ One parent is known to carry a balanced translocation■ History of recurrent miscarriage	<ul style="list-style-type: none">■ Oligohydramnios (see p. 250)■ Polyhydramnios (see p. 250)■ Severe symmetrical fetal growth restriction (see p. 534)■ Abnormal ultrasound findings (structural anomalies)■ Uncontrolled diabetes mellitus in the periconceptual period (see p. 325)■ Contact with infection (teratogenic), e.g. rubella, cytomegalovirus (see p. 348) or intake of teratogenic drugs (see p. 587)■ Presence of soft tissue markers of chromosomal anomaly on ultrasonography (see p. 735)■ Abnormal maternal serum screening (see p. 128)

Prenatal genetic screening



**Non Invasive
Diagnosis**

Screening Tests

It can be carried out either in first trimester or second trimester.

If a baby shows high risk, it is followed up by invasive methods.

Screening Tests

1st trimester Screening

Blood tests:
Measures 2 proteins produced by placenta Beta HCG, PAPP-A at 9-14 weeks of pregnancy

Integrated Screening

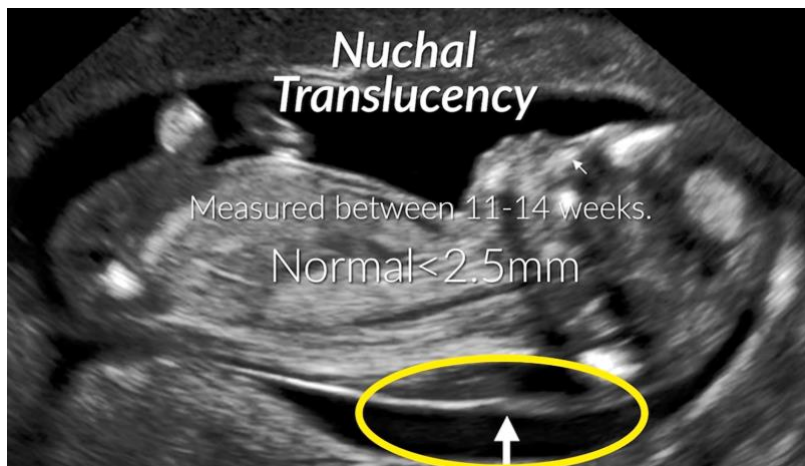
2nd trimester in conjunction with 1st trimester screening

2nd trimester Screening

Blood tests:
Triple / Quadruple measures AFP, HCG, conjugated estriol, inhibin-A at 15- 18 weeks of pregnancy

Cell Free DNA blood test

At 9-10 weeks of pregnancy



Prenatal genetic testing

Table 12.2: Prenatal Diagnosis: CVS, Amniocentesis and Cordocentesis

	Chorionic Villus Sampling	Amniocentesis	Cordocentesis
Time	Transcervical 10–13 weeks, Transabdominal 10 weeks to term	After 15 weeks (early 12–14 weeks)	18–20 weeks
Materials for study	Trophoblast cells	<ul style="list-style-type: none"> Fetal fibroblasts Fluid for biochemical study (see p. 741) 	<ul style="list-style-type: none"> Fetal white blood cells (others—infection and biochemical study)
Karyotype result	<ul style="list-style-type: none"> Direct preparation: 24–48 hours. Culture: 10–14 days 	<ul style="list-style-type: none"> Culture: 3–4 weeks 	<ul style="list-style-type: none"> Culture: 24–48 hours
Fetal loss	0.5–1%	0.5%	1–2%
Accuracy	Accurate; may need amniocentesis for confirmation	Highly accurate	Highly accurate
Termination of pregnancy when indicated	1st trimester—safe	2nd trimester—risky	2nd trimester—risky
Maternal effects following termination of pregnancy	Very little	More traumatic; physically and psychologically	Same as amniocentesis

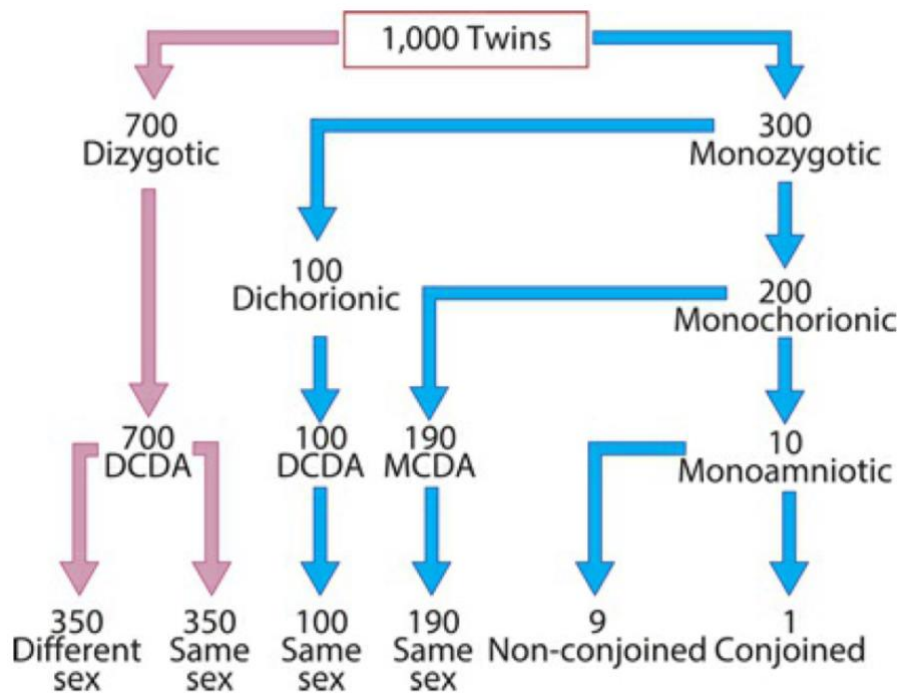
KEY LEARNING POINTS

- Approximately 3% of live-born infants have a major birth defect. Majority (80%) of fetal deaths occur antenatally.
- Birth defect may be - (a) *Chromosomal*: numerical or structural, (b) *Single gene disorder*, (c) *Polygenic or multifactorial*, or (d) *Teratogenic disorder* (drugs). About half of chromosomal abnormalities are due to autosomal trisomy and remaining half is due to sex chromosomal abnormalities.
- Screening for prenatal diagnosis should be offered to all pregnancies. *MSAFP estimation* is done between 15–18 weeks. Value of 2.5 MOM adjusted with maternal age is taken as cut-o" point. Elevated level can detect 85% of all open NTDs.
- Triple test (MSAFP, hCG, uE3) is used for detection of Down's syndrome. It is done between 15 weeks and 18 weeks.
- First trimester screening with biochemical analytes PAPP-A and hCG and USG measurement of NT can improve detection rate (87%) of Down's syndrome. For confirmation, prenatal genetic study (CVS, amniocentesis or cordocentesis) has to be performed.
- Second trimester screening (quad screening) at 15–18 weeks: MSAFP, uE3, inhibin A and hCG can detect trisomy 21 in 85% of cases with a false-positive rate of 0.9%.
- Screen positive women are offered fetal karyotyping for confirmation. Fetal tissues are obtained from CVS, amniocentesis or cordocentesis. All these are invasive procedures.
- Invasive procedures carry risks. CVS is comparable to amniocentesis in terms of fetal loss rate and diagnostic accuracy. To avoid the problems of LRD, CVS should be done after 9 completed weeks. The complications of cordocentesis appear to be 1–2%.
- Single gene disorders can be detected by enzymatic analysis and or by molecular genetics. Direct analysis is done when gene sequence is known otherwise linkage analysis is done.
- PGD can be done by removing a single cell from the embryo. Molecular genetics including FISH can detect genetic or chromosomal disorder accurately and safely. Currently implantation rate is only 20–30% in most IVF centers. After genetic screening, implantation rate increases by 50%.
- Cell-free fetal DNA can be obtained from maternal plasma and whole blood and is a reliable source for prenatal diagnosis. It is a noninvasive procedure. Fetal aneuploidy (trisomy 21) and single gene disorders can be diagnosed.
- Intact fetal cells have also been recovered from maternal circulation. Genetic and chromosomal disorders are detected from a fetal cell using DNA probes and FISH or comparative genomic hybridization (CGH) and chromosomal microarrays.

MULTIPLE PREGNANCY

Multiple pregnancy may be classified according to:

- Number of fetuses: twins, triplets, quadruplets, etc.
- Number of fertilized eggs: zygosity.
- Number of placentae: chorionicity.
- Number of amniotic cavities: amnionicity.

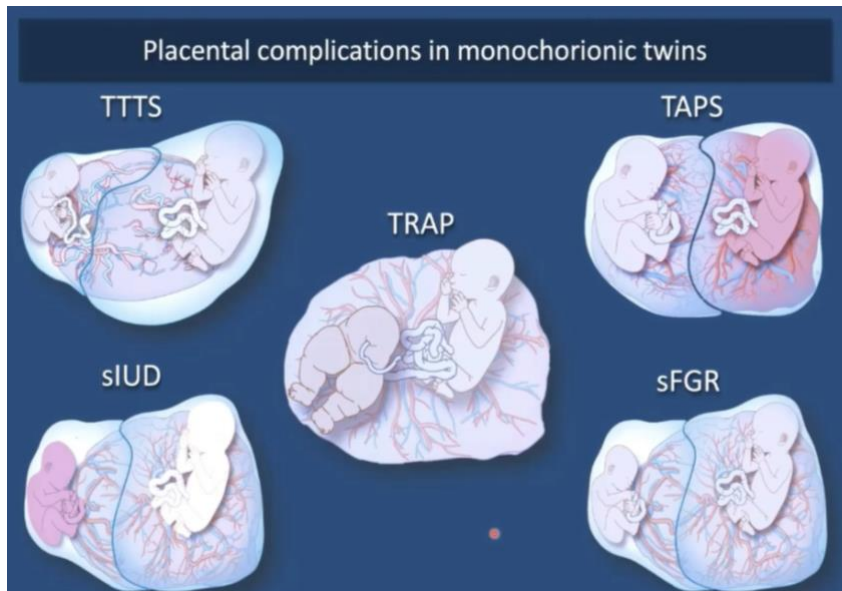


Incidence of monozygotic and dizygotic twin pregnancies. DCDA, dichorionic diamniotic; MCDA, monochorionic diamniotic.

Complications of multiple pregnancy

Maternal	Fetal
<ul style="list-style-type: none"> ■ Nausea, Vomiting ■ Anemia ■ PIH and Preeclampsia ■ Polyhydramnios/ oligohydramnios ■ Preterm Labor ■ Malpresentation ■ Antepartum hemorrhage ■ Mechanical distress (dyspnea, palpitation) ■ Prolonged labor ■ Operative interference ■ Postpartum hemorrhage ■ (↑) Postnatal support 	<ul style="list-style-type: none"> ■ Abortion ■ Vanishing twin/fetus papyraceous ■ Appearing twin ■ Preterm birth ■ Fetal anomalies ■ Discordant growth ■ Intrauterine death of one fetus ■ Twin transfusion syndrome ■ Cord prolapse ■ Locked twins ■ (↑) Perinatal mortality (complications are more in monozygotic twins, p. 240)

Complications unique to monochorionic twin pregnancies



Care of women with a multiple pregnancy

According to the National Institute for Health and Care Excellence (NICE) guidelines, treatment and care should take into account a woman's needs and preferences.

Due to an increased risk of pregnancy complications, women with multiple pregnancies that involve a shared amnion should be offered individualized care in a tertiary level fetal medicine.

Women with multiple pregnancies should be cared for by a multidisciplinary team consisting of a core team of named specialist obstetricians, specialist midwives and ultrasonographers.

Regular ultrasound assessment is used to date the pregnancy, perform first trimester screening and to monitor growth. Abdominal palpation or symphysis–fundal height (SFH) measurements should not be used to predict FGR.

There is no benefit in using untargeted administration of corticosteroids.

Gestation and mode of delivery depends on the type of multiple pregnancy.

Women with multiple pregnancies should receive the same advice about diet, lifestyle and nutritional supplements as in routine antenatal care.

Women with multiple pregnancies are at higher risk of anaemia compared with singleton pregnancies and a full blood count should be checked at 20 and 28 weeks' gestation and supplementation with iron, folic acid or vitamin B12 initiated.

Intrapartum management

- General management of a patient with twin pregnancy in labour involves:
- Antenatal education and a preagreed birth plan.
- Continuous fetal heart monitoring.
- Two neonatal resuscitation trolleys, two obstetricians and two paediatricians are available and that the special care baby unit and anaesthetist are informed well in advance of the delivery.
- Analgesia, ideally in the form of an early epidural, to allow for internal podalic version (if needed) for twin 2.

- A standard oxytocin solution for augmentation should be prepared, run through an intravenous giving-set and clearly labelled ‘for augmentation’, for use for delivery of the second twin.
- Oxytocin infusion in anticipation of postpartum haemorrhage.
- Portable ultrasound.

Timing of Delivery in Multiple Pregnancy

- DCDA twins: from 37⁺⁰ wk
- MCDA twins : from 36⁺⁰ wk after a course of steroids
- MCMA twins : 32⁺⁰ to 33⁺⁶ wk after a course of steroids
- TCTA or DCTA triplet: from 35⁺⁰ wk after a course of steroids

- If declines elective birth → weekly appointments with specialist obstetrician
 - ultrasound scan (including assessment of AFV and umbilical artery doppler)
 - fortnightly growth scans

Mode of delivery

DCDA	Depends on Twin 1 presentation
MCDA	Depends on Twin 1 presentation
MCMA	CS
Triplet	CS



KEY LEARNING POINTS

- Multiple pregnancy rates continue to increase worldwide.
- Multiple pregnancies are associated with increased incidence of almost every pregnancy complication, with the exception of macrosomia and postdates pregnancy.
- Preterm birth, growth restriction and stillbirth are key causes of the raised fetal morbidity and mortality associated with multiple pregnancies.
- Maternal morbidity and mortality are also increased in multiple pregnancies.
- Early ultrasound assessment is key in the management of multiple pregnancy as it can correctly classify the type of pregnancy according to chorionicity and amnionicity, allowing risk to be stratified.
- Ultrasonography in multiple pregnancy is very informative. Antenatal fetal surveillance is done by serial sonography at every 3–4 weeks interval or even earlier when needed. Sonography is useful in the intrapartum period and for selective fetal reduction and termination.
- Twin pregnancy needs special care in the antenatal period (maternal nutrition) and hospital admission and supplement therapy.
- Routine hospital admission for bed rest is not essential. To prevent preterm delivery prophylactic tocolytics, cervical cerclage or progesterone supplementation is not recommended.
- Mode of delivery in twins depends on fetal presentation, estimated fetal weight and gestational age.

- Vaginal delivery (trial of labor) following spontaneous onset of labor is often allowed when both the fetuses are in vertex (50%) and also when the first twin is vertex (40%). Cesarean delivery is decided when the first twin is nonvertex or when there is any obstetric indication.
- Management of third stage of labor should be very prompt and active following delivery of the second twin. Atonic PPH is a major postpartum complication in multiple pregnancy.

3.3. Requirements for the results of work.

- To determine indications for prenatal genetic screening and counselling,
- to perform detailed counselling prior to embarking on any screening or diagnostic tests,
- to understand and make clear for woman the potential outcomes of tests, the choices available to her, be able to explain how the outcome of the test would affect the decisions she made during her pregnancy,
- if a fetal abnormality is diagnosed antenatally, provide the woman with the best information about the likely outcome for her baby, facilitate her decision,
- to provide appropriate support at a difficult time,
- to take a medical history (general and specific, such as menstrual, obstetrics) and record information in a standardized proforma (antenatal record book),
- to perform general and obstetric examination, assess the health status of the mother carrying twins,
- to assess results of clinical general and obstetrical examinations, lab tests in multiple pregnancy,
- to develop a plan of prenatal care in multiple pregnancy,
- to develop a plan of intrapartum management in multiple pregnancy, choose a time and a mode of delivery,
- to develop a plan of management of pregnant with polyhydramnios and oligohydramnios.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. Which of the following is the most common chromosomal abnormality found in tissue from first trimester spontaneous abortions?

- (A) autosomal trisomy
- (B) sex-chromosome monosomy
- (C) sex-chromosome polysomy
- (D) triploidy
- (E) tetraploidy

2. You are seeing a 21-year-old with G1, P0, abortion 1. Her last pregnancy was terminated at 17 weeks' gestation for anencephaly. She would like to try to get pregnant again. She asks you if there is anything in particular that you would recommend in this pregnancy. Which of the following should you suggest?

- (A) begin folic acid 4 mg daily

- (B) ultrasounds beginning at 10 weeks with a vaginal scan because anencephaly may be detected at that point
- (C) 1 mg folic acid
- (D) first-trimester screening for nuchal thickness and blood acolytes—beta-subunit of hCG, inhibin, and Pap A
- (E) alpha-fetoprotein screening at 15 weeks' gestation with Level II ultrasound at 18 weeks

3. After a normal labor and delivery of monozygotic twins at 35 weeks of gestation, one is found to be polycythemic, and the other small and markedly anemic. What is the most likely etiology of this phenomenon?

- (A) acute fetal bleeding
- (B) fetal cardiac failure
- (C) inadequate maternal iron intake
- (D) placental anastomosis
- (E) Rh incompatibility

4. A male infant is delivered with very little amniotic fluid. He is noted to have low-set ears, contractures of the extremities, and prominent epicanthal folds. He does not void and dies during the first day of life. What is the most likely diagnosis?

- (A) glycogen storage disease
- (B) renal agenesis
- (C) talipes equinovarus
- (D) anencephalus
- (E) trisomy 18

5. Fetal anencephaly is commonly associated with which of the following?

- (A) pituitary hyperplasia
- (B) oligohydramnios
- (C) bradycardia
- (D) adrenal hypertrophy
- (E) postterm labor

6. A patient who is a practicing veterinarian is concerned about contracting toxoplasmosis from her feline patients. In counseling the patient, what do you note as the most common sequela of a fetal toxoplasmosis infection?

- (A) phocomelia
- (B) anencephaly
- (C) mental retardation
- (D) ambiguous genitalia
- (E) respiratory distress in the first 24 hours of life

7. While counseling a mother on the risks of a child having a trisomy 21 after second-trimester screening, you note that the general background incidence of significant fetal malformations (birth defects) is approximately which of the following?

- (A) <1%
- (B) 3–5%
- (C) 7–9%

(D) 10–13%

(E) 14–18%

8. Widespread use of thalidomide in Europe in the mid-1980s was clearly associated with birth defects. As thalidomide has been reapproved by the FDA for certain indications, it is important that all women in the reproductive age who are prescribed this medication or whose partner is taking thalidomide use very effective contraception. This is because when used in the first trimester, thalidomide is associated with phocomelia, which is defined as a defect in the development of which of the following?

(A) color vision

(B) the digits

(C) the long bones

(D) the great vessels

(E) the cytochrome P450 system

9. A child is born with genital ambiguity. The genital folds (scrotum and labia minora) are adherent in the midline, and there is severe hypospadias. The parents ask you about the gender of their child. Your best response, based on the information given, should be which of the following?

(A) The child has female pseudohermaphroditism and should be raised as female.

(B) The diagnosis is most likely testicular feminization and the child should be raised as a male.

(C) This is called an incomplete scrotal raphe and the child should be raised as a male.

(D) It is likely the child has vaginal atresia but should be raised as a female

(E) While the sex of rearing will most likely be female, assignment must await further investigation.

10. A patient who reports episodes of binge drinking in the first trimester wants evaluation of the fetus for fetal alcohol syndrome so she might terminate the pregnancy if it is affected. You inform her that antenatal testing is unable to detect the physical manifestations of fetal alcohol syndrome and it is associated with which of the following?

(A) fetal hypospadias

(B) postmaturity

(C) midfacial hypoplasia

(D) macrosomia

(E) congenital cataracts

11. A 16-year-old G1P0 patient presents at 24 weeks' estimated gestational age (EGA) with a recent onset of a rash. It is determined to be rubella. You reassure her that an in utero infection with rubella virus is unlikely to result in congenital rubella syndrome when it occurs after how many weeks of pregnancy?

(A) 9 weeks

(B) 11 weeks

- (C) 13 weeks
- (D) 15 weeks
- (E) 17 weeks

12. Which of the following neonatal findings would suggest congenital rubella syndrome rather than a congenital cytomegalovirus infection?

- (A) thrombocytopenia
- (B) hepatosplenomegaly
- (C) fetal growth restriction
- (D) cataracts
- (E) hemolytic anemia

13. Regarding drug and alcohol use in pregnancy, which of the following statements is TRUE?

- (A) Alcohol abusers seldom abuse a second drug.
- (B) The main side effect of alcohol use during pregnancy is related to postmaturity secondary to alcohol's ability to forestall labor.
- (C) Fetal alcohol syndrome is associated with impaired mental performance and midfacial hypoplasia in the offspring.
- (D) A well-defined "cocaine syndrome" in pregnancy has been described.
- (E) All of the above

14. Hydramnios is characterized by which of the following?

- (A) amniotic fluid volumes greater than 2,000 cc
- (B) negligible increase in perinatal morbidity
- (C) a lack of symptoms, depending on rapidity of onset
- (D) marked increase in intrauterine pressure
- (E) an increase in endometritis

Answer key

- | | | | |
|----|---|-----|---|
| 1. | A | 8. | C |
| 2. | A | 9. | E |
| 3. | D | 10. | C |
| 4. | B | 11. | E |
| 5. | E | 12. | D |
| 6. | C | 13. | C |
| 7. | B | 14. | A |

Case 1

Ms B is 38 weeks gestation in her second pregnancy. This is a dichorionic diamniotic pregnancy that has been uncomplicated to date. Ms B presents contracting every 5 minutes. Twin 1 (the presenting twin) is cephalic and twin 2 is cephalic. Her first pregnancy was a term delivery, delivered 11 months previously as a spontaneous vaginal delivery. On examination Ms B is 6 cm dilated and both fetal heart recordings are reassuring. An epidural has just been inserted and is providing good analgesia.

Question A. What would you do next?

Ms B waters rupture and she proceeds to have a spontaneous vaginal delivery. On delivering twin 1, the abdomen is palpated and ultrasound confirms that twin 2 is cephalic. The fetal heart rate remains reassuring.

Question B. How would you proceed?

After 25 minutes of reassuring heart monitoring Ms B is contracting once every 10 minutes. Fetal heart monitoring remains reassuring.

Question C. How would you proceed?

The membranes surrounding twin 2 rupture. Vaginal examination reveals that Ms B remains fully dilated. However, twin 2 is now transverse with its back upwards. The fetal heart tracing shows prolonged fetal decelerations.

Question D. How would you proceed?

ANSWER

A. There is no indication to intervene in this situation. Ms B has labored spontaneously and is progressing quickly. Fetal heart rate is reassuring. Allow labour to progress naturally. Continue fetal monitoring.

B. Again, there is no indication to intervene. Ms B has successfully delivered twin 1. Waiting allows the head of twin 2 to descend, which will increase the likelihood of a spontaneous vaginal delivery.

C. There are now two options. First would be to perform an amniotomy to rupture the membranes of twin 2, which will likely increase the frequency of contractions, allowing twin 2 to be delivered. The second option would be to start oxytocin infusion to try to increase the frequency of contractions and allow delivery of twin 2 to proceed. As the membranes are intact one must be cautious with the use of oxytocin, therefore the ideal option is to perform a vaginal examination and, when a contraction occurs (which will push the fetal head into the pelvis), perform artificial rupture of the membranes. Oxytocin may be used at this stage to augment contractions.

D. This is now an obstetric emergency. Ensure senior obstetric help is present. There are two options on how to manage this situation. The first is to perform internal podalic version as described above by performing vaginal examination; follow the fetal spine towards the legs and on palpating a foot apply gentle traction to the foot to encourage delivery of the fetus by breech extraction. The second option is to transfer the mother to the operating theatre and perform a category 1 caesarean section. As Ms B is multiparous, internal podalic version and breech extraction would be the quickest way to deliver twin B and ensure a quick recovery for Ms B. External cephalic version would be a third option, but in the presence of a non-reassuring fetal heart rate this would be contraindicated.

Case 2

A 36-year-old G2P1001 woman presents as a transfer of care at 10 weeks' gestation. She was previously receiving care with another obstetrician until her insurance changed. She has no significant medical or family history. Her last pregnancy 4 years ago ended in a term delivery of a healthy female infant. She is aware of the increased likelihood of fetal chromosome disorders associated with maternal age over 35. She was advised by her previous doctor to undergo amniocentesis later in pregnancy. She is uneasy about waiting until after 16 weeks to get any information on the fetal chromosome status. Conversely, she is also uneasy about putting this pregnancy at risk by undergoing an invasive prenatal diagnostic procedure.

Questions:

1. What first-trimester screening/testing options does this patient have to address her risk for fetal aneuploidy?
2. Would your recommendations for screening versus testing be any different if she was 26 years old instead of 36 years old?

ANSWER

1. First-trimester screening/testing options to address risk for fetal aneuploidy: This patient has the option of aneuploidy screening with serum biochemical markers in combination with nuchal translucency or invasive testing with chorionic villus sampling (CVS) if available.

2. Recommendations for screening versus testing if patient was 26 years old instead of 36 years old: Obviously the difference for these two patients would be the a priori risk for fetal chromosome abnormalities each of these patients has. If patients truly understand the nuances and limitations of screening versus testing, there should be no important differences in the type of counseling each of these age groups should receive. All patients should be offered invasive testing for prenatal diagnosis of fetal chromosome abnormalities, and all patients should be offered noninvasive screening, if they choose to do so, before deciding about invasive testing.

O. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

Criteria for current assessment on the practical lesson:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.

- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №16.

FETAL DISTRESS. INTRAUTERINE GROWTH RESTRICTION.

LEARNING OBJECTIVE is to gain basic knowledge about placenta, its main functions and physiological changes during pregnancy, formation placenta insufficiency, peculiarities of fetal development at placenta insufficiency, forming and signs of intrauterine growth restriction In addition, in order to make recommendations for management of pregnancy and way of delivery for babies with distress or with IUGR.

BASIC CONCEPTS: Placenta from anatomical, physiological and histological points of view. Placenta's functions. The structure of placenta, classification of placenta insufficiency. Signs of fetal distress (antenatal and intranatal periods) . Methods of examination of a baby during pregnancy, CTG, dopplerometry, ultrasound scanning.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

1. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Placenta ("child's place") – is an extremely important organ, which exists only during pregnancy. It connects the functional systems of two organisms – the mother and fetus, providing the fetus with necessary vital substances. Etiology and pathogenesis, clinical features, classification and modern diagnostic methods of

placental dysfunction and baby's wellbeing are basic to understand here to provide qualified emergency care, modern principles of prevention and medical rehabilitation of the patients. Unless well studied, this can make impossible to master physiological and pathological obstetric care.

P. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy.
- Ability to keep medical records.

List of didactic units:

- Placenta from physiological and obstetric points of view.
- Fetal distress.
- Signs of the fetal intrauterine growth restriction.
- Fetometry and dopplerometry.
- Signs of symmetric and asymmetry IUGR .
- Evaluation of the fetal distress.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Measure the height of the uterine fundus over the pubis symphysis and the circumference of the abdomen in dynamics.
- Determine the sizes of the fetus with an ultrasound.
- Study the respiratory activity of the fetus with an ultrasound.
- Ultrasound of the urinary functions of the kidneys of the fetus by the amount of excreted urine.
- Evaluation of the fetal heart activity.
- Evaluation of the placenta hormonal function.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A 23-year-old woman (gravida 1) at about 12 weeks' gestation develops persistent nausea and vomiting that progresses from an occasional episode to a constant retching. She has no fever or diarrhea but lost 3 kg in 1 week and appears dehydrated. What is your diagnosis?

- A. Ptyalism
- B. Gastroenteritis
- C. Hyperemesis gravidarum

- D. Anorexia nervosa
- E. Morning sickness

2. A 28-years-old woman complains of nausea and vomiting about 10 times per day. She has been found to have body weight loss and xerodermia. The pulse is 100 bpm. Body temperature is 37,2oC. Diuresis is low. USI shows 5-6 weeks of pregnancy. What is the most likely diagnosis?

- A. Premature abortion
- B. Food poisoning
- C. Moderate vomiting of pregnancy
- D. Mild vomiting of pregnancy

3. A patient develops excessive salivation during pregnancy. What is this called?

- A. Eructation
- B. Ptyalism
- C. Deglutition
- D. Pruritus
- E. Emesis

4. In Primagravida, at 15-16 weeks of gestation, was determined that level of α -fetoprotein in serum significantly higher than normal. Pregnancy occurred against the backdrop of clomiphene stimulate ovulation. When ultrasound revealed twins. How should treat elevated levels α -fetoprotein in this case?

- A. liver necrosis of fetus.
- B. Disorders of osteogenesis of the fetus .
- C. Symptom of multiple pregnancy
- D. Defect neural tube.
- E. Underestimation of gestational period.

5. A 17-year-old G2P0 woman with no prenatal care at 29 weeks' gestation presents with painful contractions and pressure. Her cervix is 2 cm dilated, 60% effaced, and breech at -2 station. There is no evidence of ruptured membranes. Her contractions are every 3 minutes. FHT are 150 with accelerations. Maternal vital signs are temperature 36.8 degrees, pulse 96, BP 110/72. What should you do?

- A. Prepare for a cesarean delivery
- B. Observe to look for cervical change
- C. Give IV sedation
- D. Begin tocolytic agents
- E. Start antibiotics

6. A child was born at a gestational age of 34 weeks. The leading symptoms were respiratory distress symptoms, namely sonorous and prolonged expiration, involving additional muscles into respiratory process. The Silverman score at birth was 0 points, in 3 hours it was 3 points with clinical findings. Which diagnostic study will allow to diagnose the form of pneumopathy?

- A. X-ray of chest
- B. Clinical blood test
- C. Determination of blood gas composition
- D. Proteinogram
- E. Immunoassay

7. A multipara woman was admitted to hospital with a diagnosis of multiple pregnancy. Possible complications of pregnancy and childbirth:

- A. Premature detachment of normally situated placenta
- B. Occipital fetal presentation
- C. Acute fetal distress
- D. Polyhydramnios
- E. Preterm labor

8. A patient has entered spontaneous premature labor at 28 weeks' gestation. During the vertex delivery, one should do which of the following?

- A. Use prophylactic forceps
- B. Use vacuum extraction
- C. Recommend epidural anesthesia to control delivery
- D. Allow spontaneous vaginal birth
- E. Perform an episiotomy

9. A patient presents at 30 weeks' gestation in labor that cannot be stopped. Lung maturity is unlikely. Fetal lung surfactant production may be increased by a number of factors. Which of the following is proven clinically useful?

- A. Glucocorticosteroids
- B. Prolactin
- C. Thyroxine
- D. Estrogen
- E. Alpha-fetoprotein

Answer key

- 1. C
- 2. C
- 3. B
- 4. C
- 5. D
- 6. A
- 7. E
- 8. D
- 9. A

Q. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

- Subgroup I - to perform external measuring of uterus fundus standing, calculation of the baby's approximate weight.
- Subgroup II - to assess grade and type of baby's heart rate and give the characteristic of CTG.
- Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A pregnant woman is 28 years old. Anamnesis: precipitous labor complicated by the II degree cervical rupture. The following 3 pregnancies resulted in spontaneous abortions at the terms of 12, 14 and 18 weeks. On examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external os is open 1 cm wide, the internal os is half-open; the uterus is enlarged to the 12th week of pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis would you make?

- A. Cervical pregnancy, 12 weeks
- B. Isthmico-cervical insufficiency, habitual non carrying of pregnancy
- C. Threatened spontaneous abortion
- D. Incipient abortion, habitual non carrying of pregnancy
- E. Cervical hysteromyoma, habitual non carrying of pregnancy

2. A pregnant, 34 weeks gestation, is at the department of pathology. She has Rh- antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh- antibodies 1: 2 in 14 weeks. What should you do?

- A. Blood transfusion
- B. CTG
- C. Early delivery
- D. Re-determination of antibodies in 1 day
- E. Cordocentesis

3. A premature birth has been defined as a fetus born

- A. Before 37 weeks' gestation
- B. Prior to the period of viability
- C. Weighing less than 1000 g
- D. Weighing more than 1000 g but less than 2500 g
- E. None of the above

4. Primigravida is in I stage of labor for 9 hours. Head of the fetus is engaged to inlet of the small pelvis. Contractions are weak, irregular. . Auscultation of the fetus is clear, rhythmical, 136 bp.m. At vaginal examination uterine cervix is flattened, thickened, opened up to 4 cm. The amniotic membranes are present. During of internal examination, situation are the same in 4 hours . The most likely diagnosis?

- A. Intrauterine hypoxia of fetus
- B. Uterine inertia
- C. Premature separation of normally posed placenta
- D. Discoordination of labor activity
- E. Preeclampsia of light degree

5. A 31-year-old woman (gravida 6, para 0-2-3-1) comes to you at 10 weeks' gestation with the history of having had progressively earlier deliveries, all without painful contractions. Her first child was born at 34 weeks and survived, the next delivered at 26 weeks, the next two at 22 weeks, and the last one at 20 weeks. No congenital abnormalities were found. On examination, her uterus is 10-12-weeksize, FHTs are present with Doppler, and the cervix is soft, three-quarters effaced, and 2-cm

dilated. With this information, your first diagnosis is intrauterine gestation and which of the following?

- A. Incompetent cervical os
- B. Genetic disease
- C. Fibroid uterus
- D. Premature labor
- E. Progesterone lack

6. A 17-year-old G2P0 woman with no prenatal care at 29 weeks' gestation presents with painful contractions and pressure. Her cervix is 2 cm dilated, 60% effaced, and breech at -2 station. There is no evidence of ruptured membranes. Her contractions are every 3 minutes. FHT are 150 with accelerations. Maternal vital signs are temperature 36.8 degrees, pulse 96, BP 110/72. What should you do?

- A. Prepare for a cesarean delivery
- B. Observe to look for cervical change
- C. Give IV sedation
- D. Begin tocolytic agents
- E. Start antibiotics

Answer key

- | | |
|----|---|
| 1. | B |
| 2. | C |
| 3. | A |
| 4. | B |
| 5. | A |
| 6. | D |

3.2. Educational materials, recommendations (instructions) for performing tasks

Placental functions:

First, the placenta participates in the gas exchange: diffusion of oxygen occurs from the mother's blood to the fetus, and carbonic gas is transported in the opposite direction.

Secondly, the fetus receives vital substances necessary for its growth and development through the placenta. It is necessary to remember that a lot of substances (alcohol, nicotine, narcotics, many medical preparations, viruses) easily penetrate through the placenta and can harm the fetus. Besides, with the help of the placenta, the fetus gets rid of products of metabolism.

Thirdly, the placenta provides immunological protection for the fetus by detaining the cells of the mother's immune system which, can penetrate to the fetus causing it to be a foreign object and then cause an immune conflict, which could start rejection reactions. At the same time, the placenta passes the maternal antibodies, which protect the fetus from infections.

Fourthly, the placenta plays the role of an internal secretion gland and synthesizes hormones (human chorionic gonadotropin (HCG), placental lactogen, prolactin and so on), necessary for the safety of the pregnancy, growth and development of the fetus.

Placental dysfunction (PD) – a clinical syndrome, caused by morphological and functional changes in the placenta and its infringement of the compensatory-adaptive

possibilities. The reasons for placental dysfunction can be infringements of maturing and the formation of the placenta in women with pathologies of the endometrium, ovary-hypophysis and adrenal glands disorders, previous abortions and miscarriages. Pre-eclampsia, risk of miscarriage, overdue pregnancy, iso-serological blood incompatibility of the mother and fetus, genital infertility and other extra-genital pathologies (dysfunction of the adrenal glands, diabetes, thyrotoxicosis, etc.). play a great role in the occurrence of placental dysfunction. Thus, a complex of transport, trophic, endocrine and metabolic disorders of the placenta can occur, which is the basis for pathology of the fetus and newborn. The degree and character of influence of the pathological condition of the pregnant woman on the fetus depends upon many factors: the term of the pregnancy, the length of influence, condition of compensatory-adaptive mechanisms in the "mother-placenta-fetus" system.

Placental dysfunction – syndrome, caused by morpho-functional changes in the placenta, the result of complex reaction of the placenta and fetus to different pathological conditions in the mother's organism. The basis for the given syndrome is pathological changes in the fetal- and-or uterine-placental complex with infringement of the compensatory-adaptive mechanisms at the molecular, cellular and tissue levels. Thus, a complex of transport, trophic, endocrine and metabolic disorders of the placenta can occur, which is the basis for pathology of the fetus and newborn. The data specifies that the term "feto- or uterine-placental insufficiency", is incomplete because it does not display completely the whole complex of changes in the uterine-placenta-fetus system. In the International Classification of Diseases (ICD-X reviewed in Geneva, 1995) the disease has only one name - "placental insufficiency"; later – placental dysfunction.

Placental ischemia and placental dysfunction are the starting link in the complex chain of pathophysiological mechanisms and progress of gestosis into pre-eclampsia. The condition of the placental complex during a pregnancy is studied completely (hormonal function, uterine-placental blood circulation, activity of the enzymes, ultrasound, tests of the amniotic fluid), especially taking into account the fact that the placenta is a uniform organ, accessible for lifetime pathomorphological research. Changes in the placental complex in pregnant women with different degrees of gestosis allow to track the steps (stages) of formation of placental dysfunction.

No uniform classification of PD exists.

In 1986, M. Ygel offered a classification of placental dysfunction by dividing it into latent placental dysfunction, manifestive and chronic insufficiency. Each division contains minimal, average or severe degree of severity.

In our country, the greatest and most widespread classification of placental dysfunction was offered by M.V. Fedorov and E.P. Kalashnikov (1986), where they distinguish primary (before 16 weeks pregnancy) and secondary (after 16 weeks) PD.

On the basis of the morphological changes in the placenta, I.S. Sidorov and I.O. Makarov (2000), V.I. Kulakov (2004) distinguished compensated, subcompensated, decompensated and critical forms of chronic PD.

Depending on the area of defeat in the placenta, M.V. Fedorov, O.P. Kalashnikov (1986) and H.C. Wallenburg (1990) distinguished relative and absolute placental dysfunction.

V.A. Tsinzerling and co-authors (1998) developed the criteria for morphological diagnostics of the following kinds of functional conditions of the placenta:

compensated condition, acute insufficiency, chronic insufficiency with acute decompensation, chronic subcompensated insufficiency, chronic decompensated insufficiency (gradually accruing).

Classification of PD:

I. by the clinical-morphological signs:

a) primary (early) placental insufficiency (before 16 weeks) occurs during the formation of the placenta during implantation, early embryogenesis and placentation under the influence of genetic, endocrine, infectious and other factors. Enzyme insufficiency of the decidual tissue (during dysfunction of the ovaries, anatomical structural disorders, disorders in the location of the placenta attachment, and also defects of vascularization and the problems in the maturing of the chorion) play a valuable role in the development of primary placental dysfunction. Primary insufficiency can assist in the development of congenital disorders of the fetus, stillborn pregnancy. Clinically, it appears as risk of miscarriage in early terms. On occasion, primary placental dysfunction can develop into secondary.

b) secondary (late) placental dysfunction, as a rule, occurs in the late terms of pregnancy, after 16 weeks, under the influence of different maternal factors.

II. by the clinical course:

a) acute – acute disturbances of decidual perfusion and disturbances of the utero-placental blood circulation play a leading role in its development. This kind of placental dysfunction appears as large infarctions of the placenta, preterm detachment of a normally located placenta. As a result, death of the fetus and the termination of the pregnancy can occur quickly.

b) chronic – very frequent pathology (it is observed in approximately every third pregnancy woman in the group of high risk). It can occur in the II trimester and last for a long time.

III. by the condition of the compensatory-adaptive reactions:

a) relative – when the compensatory reactions in the placenta are preserved. Vital support of the fetus is caused by compensatory reactions, which operate on the tissue (increase the number of reabsorbing villa, capillaries of terminal villa, functioning syncytial nodes), cellular and subcellular levels of the syncytiotrophoblast. Infringements of maturing of the placenta and immune disorders have certain value in the development of this type of PD.

b) absolute - most difficult form of chronic PD. It is characterized by the development of damage to the placenta of involution-dystrophic, circulatory and inflammatory character, which is accompanied by the absence of compensatory-adaptive reactions of the chorion at the tissue level.

Diagnostics of disorders of the functions of the placenta.

**1. Determine the degree and character of changes in the placenta. **

a) hormonal researches:

Hormonal methods of diagnostics of PD consist of determining the level of hormones in the amniotic fluid, patient's blood and urine. But, it cannot be limited to the research of one hormone only one time. It is advisable to use dynamic supervision of a complex of hormones in the placental complex, placental lactogen (PL) and chorionic gonadotropin (CG) – to diagnose the condition of the syncytiotrophoblast of the placenta; estrogen (estradiol-E2 and estriol-E3) – to evaluate the function of the

placental complex; progesterone (Pg)-to diagnose the condition of the uterine-placental-fetal system (see table 1).

2. Determine the condition of the fetus and placental system.

a) measure the height of the uterine fundus over the pubis symphysis and the circumference of the abdomen in dynamics.

Special attention should be paid during external measurement in the II and beginning of the III trimester when the received sizes are comparison to the term of the pregnancy, which shows any fetal growth retardation. It is convenient to use a gravidogram, where normal measurements of the height of the uterus fundus are marked. The lack of 20 mm in the size of the uterus or more at 32-33 weeks is basis for considering the presence of hypotrophy of the fetus.

b) determine the sizes of the fetus with an ultrasound.

c) study the respiratory activity of the fetus with an ultrasound.

d) determine the movement activity of the fetus with an ultrasound.

It is performed at 7-8 weeks of pregnancy, but its evaluation has the greatest value in the III trimester when the fetus does 5 and more movements in 30 minutes. Thus, an increase in general movement activity of the fetus is considered compensatory reactions, a decrease - an adverse sign.

e) ultrasound of the urinary functions of the kidneys of the fetus by the amount of excreted urine.

The latter is determined by the difference between the volume of the urinary bladder during the first US and the repeated US in 1 hour. The given test is especially valuable when diagnosing hypotrophy of the fetus, during which the excretion of the urine decreases to 15-18 ml (normal – 24-27 ml). Also consider, that a decrease in the speed of urine excretion of the fetus is observed during gestosis of the pregnant women, in those cases there is no growth retardation by data from the US. The degree of decrease in the production of urine is directly dependant on the severity of gestosis, which is connected not only to fetal growth retardation, but also to the infringement in the regulation of the kidney functions.

f) evaluation of the fetal heart activity.

Along with auscultation, the most accessible and widespread method of evaluating the fetal heart activity is cardiotocography, registration of fetal heart rate (HR). Cardiomonitoring shows initial and expressed signs of suffering of the fetus as a result of fetal distress.

The basic treatment for placental dysfunction:

- 1) Improving the uterine-placental blood circulation;
- 2) Normalizing the gas exchange between the mother and fetus;
- 3) Improving the metabolic functions of the placenta;
- 4) Acting on the fetus, through the placenta and using the para-placental way of exchange.

Different methods and different means influence multiple functions of the placenta at once. Normalizing the uterine-placental blood flow, certainly, improves the transport of nutrients and gas exchange, which is an important factor in the synthesis of hormones. Correcting the metabolic changes leads to the improvement of gas exchange and normal function of the placenta which in turn, improves the haemodynamics of the placenta.

Normalizing the uterine-placental blood flow is the basic link in normalizing the function of the placenta; it is achieved by using vasodilating means or preparations which relax the uterus, along with actions directed on normalizing the reocoagulate properties of the blood:

a) physical methods of action (electro-relaxation of the uterus, electrophoresis of magnesium, thermal procedures on the renal area, diathermy, inductothermy, etc.) reflex the biometry and lead to the dilation of vessels;

b) abdominal decompression removes extra muscle work of the uterus by overcoming of the tonus of the abdominal muscles. It leads to an increase in blood flow in the uterus and improves placental perfusion. Besides that, it leads to an increase in the synthesis of estriol and an increase in the transport function of the placenta;

c) hyperbaric oxygenation is applied to improve the function of the placenta and fetal condition, especially in pregnant women heart disorders. It preserves the activity of the respiratory enzymes, assists in normalizing the carbohydrate metabolism;

d) medicament means. Aminophylline or teophylline, vasodilating substances, are used; they can be introduced by i/v by stream or droplet introduction. Complamin, teonicle are used for the same purposes. It should be noted that hypersensitivity is possible in pregnant woman and so individual doses of complamin should be selected. Considerable improvement in the uterine-placental blood circulation causes vaso-active preparation trental. It has vasodilating action, decreases the resistance of peripheral vessels, increases the collateral blood circulation. The preparation improves the rheological properties of blood and microcirculation, and it can be used in hospitals and female consultations.

Prevention of placental dysfunction

1) eliminating the influence of harmful factors during the period before conception and especially during the first days and weeks of pregnancy:

a) eliminating smoking, alcohol, taking of medicines (without prescription from the doctor);

b) before pregnancy (and during pregnancy) sanitation of sites of infection, treatment of chronic diseases.

2) after the patient becomes pregnant, it is necessary to explain to her the role of high-grade balanced food, high-grade and extra sleep.

3) finding the group of high risks and registering them for regular medical check-ups.

Fetal distress syndrome

According to order of the Ministry of Health of Ukraine №900 from 27.12.2006 about the statement of the clinical report about obstetrical help for "Fetal distress during pregnancy and during birth ", the terms "chronic hypoxia of the fetus ", "acute hypoxia " are not clinical, because for the diagnostics of these disorders, indicators of oxygen contents in the fetus (metabolic acidosis) are not used in routine medical practice. So, all disorders of the functional condition of the fetus at the present are distinguished as "fetal distress". The concept "chronic fetal hypoxia", "acute fetal hypoxia" are not used.

Respiratory distress syndrome in newborns (respiratory disorder syndrome) – non-infectious pathological processes (primary atelectasis, disease of the hyaline membrane, hydropic- hemorrhagic syndrome) that form in the prenatal and early neonatal periods of development of an infant and breathing; it appears as respiratory disorders. The frequency of development of respiratory distress depends on the degree

of immaturity and averages about 60% of children born at the pregnancy term less than 28 weeks, 15-20% -at the term 32-36 weeks and 5% - 37 weeks and more. With rational nursing of such children, the mortality rate is close to 10%.

Fetal distress syndrome means hypoxia.

Hypoxia of the fetus - insufficient supply of oxygen to the tissue and organs or their incomplete digestion of the oxygen. This term was recommended by the World Health Organization, but it is not the only one: the terms fetal distress ("suffering") and asphyxia (without pulse; but has dyspnea, i.e. a lack of oxygen and accumulation of carbonic gas in the organism) also exist. The term hypoxia of the fetus and asphyxia of newborns are not used.

The consequences of oxygen insufficiency for a fetus during different periods of pregnancy are different. In early terms (before 16 weeks), when organs and systems are forming, expressed hypoxia can be accompanied by embryo growth delay and the occurrence of development anomalies. Oxygen starvation in later pregnancy terms can lead to fetal growth retardation, defects of the central nervous system in the fetus and newborns, infringement of the processes of the infant's adaptation after birth; in special cases it can be the reason for stillborn deliveries or death in infants.

Depending on the duration, chronic and acute fetal distress is distinguished. Chronic distress develops when there is an insufficient supply of oxygen to the fetus throughout a long period of time due to diseases of the mother's internal organs (diabetes, chronic diseases of the lungs, kidneys, anemia, etc.), complicated course of the pregnancy (gestosis, risk of miscarriage, over-due pregnancy, immunological incompatibility of the mother and fetus blood by Rhesus factor, pre-natal fetal infection). Chronic distress also can be the result of smoking, use of alcohol, drugs during pregnancy. Acute fetal distress, as a rule, occurs during the delivery (in connection with anomalies of labor activity, entanglement of the umbilical cord, prolapse or compression of loops of the umbilical cord, short umbilical cord). Less often, acute fetal distress is observed during the pregnancy during life-threatening conditions of the mother (premature detachment of the placenta, rupture of the uterus). Sometimes, chronic and acute distress is observed together.

Intrauterine fetal distress - pathological condition connected with oxygen insufficiency during the pregnancy and delivery. It is caused by the reduction or absence of oxygen in the body and the accumulation of metabolism products in the blood. Hypoxia leads to an imbalance in the oxidation-reduction reactions in the fetus's organism resulting in the development of acidosis, when tissue ceases to receive oxygen. Carbonic acid accumulation causes irritation of the respiratory center. The fetus starts to breathe through an open vocal fissure and aspirates amniotic fluid, mucous, blood.

Many kinds of obstetrical pathologies, different extra-genital diseases, dysfunction of the placenta, pathology of the umbilical cord and fetus are just some of the reasons.

Etiology and pathogenesis

The main pathogenesis for distress of the fetus and newborn is placental dysfunction with obstetrical and extra-genital pathologies. Defects in the structure of the placenta and processes of microcirculation in pregnant women with gestosis, the action of medical preparations and other harmful factors lead to chronic oxygen starvation which is accompanied by a decrease of oxygen in blood, hypercapnia, non-

compensated acidosis, imbalance in the water-electrolyte exchange, decrease of the contents of corticosteroids. It, in turn, causes dysfunction of the central nervous and cardiovascular systems, homeostasis regulation, and increase in the permeability of vessels, decrease in the immunological reactivity of the fetus's organism. Conditions of fetal hypoxia are connected with the changes in the complex uterine-placental-fetal system. This testifies that the result of the pregnancy for the fetus and in many respects for the mother depends on the condition of the compensatory-reactive mechanisms of the fetoplacental complex and rational correction of disorders.

Acute and chronic fetal distress is distinguished. The symptoms of acute fetal distress usually appear during delivery. Chronic fetal distress (more than 7-10 days) - the consequence of prolonged obstetrical or extragenital pathologies, which lead to fetal development delay.

The reasons for fetal distress and distress in newborns can be divided into 4 groups:

I group - diseases of the mother.

Blood loss during obstetrical bleedings (detachment of the placenta, placental presentation, rupture of the uterus); blood diseases (anemia, leukemia, etc.).

Shock conditions of any origin.

Diseases of the cardiovascular system (congenital and acquired heart disorders with haemodynamic infringement).

Diseases of the respiratory system with gas exchange infringement (bronchial asthma, pneumonia).

Any intoxications.

II group - pathology of the uterine-placental and umbilical cord circulation.

Umbilical cord pathology (umbilical cord knots, entanglement of the umbilical cord around the extremities, prolapse of the umbilical cord, compression of the umbilical cord during delivery in pelvic presentation).

Bleedings (detachment of the placenta, placental presentation, rupture of vessels with membrane attachment of the umbilical cord).

Defects in the placental blood circulation in connection with dystrophic changes of the vessels (during gestosis, over-due pregnancy).

Anomalies of the birth activity (very long or fast contractions, discoordination of the birth activity).

III group - reasons connected with the fetus.

Genetic illnesses of newborns.

Hemolytic disease of newborns.

Congenital defects of the cardiovascular system.

Pre-natal infection.

Intracranial trauma.

IV group.

Partial or complete obstruction of the respiratory tract (characteristic only for distress of newborns).

Clinical picture

Main displays of fetal distress: heart rate abnormalities (at first tachycardia, then bradycardia), muffled heart sounds (in the beginning little increase, then muffled); arrhythmia, decrease in the intensity of fetal movements, excretion of meconium, change in the indicators of the acid-base balance of the amniotic fluid and blood.

Diagnostics

Diagnostics of fetal distress can only be complex. Registration of cardiac activity is one of the most simple and widespread methods of monitoring the functional condition of the fetus during pregnancy and delivery. In clinical practice, CTG is used.

Test with functional loads (diagnostics of chronic fetal distress). The pregnant woman for 3-4 min. steps up and down on 2 steps. Before and after the workout register the fetal cardiac activity. During a normal course of pregnancy, the heart rate remains within the physiological borders 116-160 b.p.m. When the fetus is in distress, monotony of the rhythm of the heart is marked, tachycardia or bradycardia.

Test with oxytocin. Under the influence of oxytocin, the blood circulation decreases in the intervillous lacuna, appearing as change in the fetal heart rate. To perform the test, 1 unit of oxytocin is dissolved into 100 ml of 5% glucose. 1 ml of this solution contains 0,01 units of oxytocin. 5 ml of the solution is put into a syringe, and introduced by i.v with a speed of 1 ml per minute. Normally, the fetal heart rate does not change. When the fetus is in distress tachycardia or bradycardia is observed.

Test with holding of breath during inhalation and during exhalation. Normally, when breath is held, the fetal heart rate changes on average 7 b.p.m. Holding of breath during inhalation causes a decrease, and on exhalation - increase in fetal heart rate. When the fetus is in distress, there is no change in fetal heart rate.

Cold test gives a decrease in fetal heart rate by 10 b.p.m. When the fetus is in distress, the rhythm does not change.

There are tests with the introduction of atropine sulphate, aminophylline, etc. Atropine easily passes through the placenta and causes tachycardia, so it is not recommended.

Modern methods of evaluating the condition of the fetus include US (fotometry, placentography, "biophysical profile"), Doppler flowmetry, amniocentesis (pH of the amniotic fluid, delta Oe450, level of hormones, phospholipids), chordocentesis (blood indicators), cardiomonitoring with computer evaluation of the received data, pH of the blood from the skin of the fetus's head (during labor).

Retardation, hypotrophy of the fetus.

In literature you meet a large quantity of terms: "intrauterine development delay", "intrauterine growth retardation", "hypotrophy of the fetus", "fetal retardation", "small gestational age", etc. In the ICD-10 all terms specified above are united into one concept "Delay in growth and lack of nutrition for the fetus".

The term "intrauterine growth retardation" - pathology of the fetus resulting from the influence of harmful factors. IUGR is diagnosed in infants who have insufficient body weight at birth in relation to their gestational age, when the body weight is 10% less than for that pregnancy term, and/or the morphological index of maturity of the fetus is behind by 2 or more weeks from the valid gestational age.

Fetal development delay is one of the most frequent reasons for a decrease in the adaptation of newborns in the neonatal period, high disease rate, psychological disorders. Perinatal death rate for IUGR reaches 80-100%.

The mortality rate for low-weight infants is 35-37 times more than in mature infants with physiological body weight. The death rate for many depends on the body weight at birth. So, with a weight of 500-700 gr the death rate is 56%, with a weight of

751-999 gr - 48%, and with a weight of 1000 gr - 40%. The maximum death rate for low-weight infants is evident in the 1st week of life.

According to recommendations of WHO, infants born with a body weight less than 2500 gr are called infants with small weight at birth. Thus, infants with small weight at birth are divided into three groups:

1) Newborns before 37 weeks of gestational age with corresponding gestation growth to the given term – immature newborns with growth and body weight, corresponding to the gestation term;

2) Newborns before 37 weeks of gestational age and small for the given term – immature newborns with IUGR;

3) Newborns after 37 weeks gestation and small for the given term – mature newborns with IUGR.

Prenatal infections also lead to IUGR and make up about 10% of the reasons for this pathology. Rubella leads to IUGR in 60% of cases.

Retardation (from lat. - delay) (biological), late rudiment of organs and their slow development in descendants in comparison with ancestors. It depends on the beginning of the organ's functioning and also on the conditions of environment in which individual development of the organism occurs - ontogenesis.

Retardation - delay (in medicine) - delay of sexual development of an organism. In girls – delay of first menstruation, delay in breast development. In boys – delay of first ejaculation.

Retardation (in literature) – delay in literary and art development, lyrical digressions, different mistakes (interior, characteristic).

Hypotrophy of the fetus

This term doctor's use for delay in the rate of physical growth of a fetus; it includes: the physical parameters of the fetus do not correspond with the size for given term of pregnancy. Today, very often, the term hypotrophy is replaced by intrauterine growth retardation.

Intrauterine growth retardation (IUGR) in infants who have insufficient body weight at birth in relation to their gestational age, when the body weight is 10% less than for that pregnancy term, and/or the morphological index of maturity of the fetus is behind by 2 or more weeks from the valid gestational age. Evaluation is performed during the first hours of life.

There are two forms of this syndrome: symmetrical and asymmetrical. The symmetric form develops at early terms of pregnancy. All the fetus's organs are evenly small; upon US the size parameters of the fetus are less than what is characteristic for the given term of pregnancy. The reasons for symmetric form of hypotrophy are intrauterine fetal infection, chromosomal pathology, developmental anomalies of the fetus, and also insufficient nutrition of mother and smoking.

The asymmetrical form develops later, after 28 weeks of pregnancy and is characterized by non-uniform development of different organs; the brain, skeleton, extremities are developed according to pregnancy term, but the development of the organs (liver, kidneys) is delayed. In this case, during US, the sizes of the fetal head and extremities correspond to the pregnancy term, but the size of the circumference of the abdomen is smaller.

Hypotrophy of the fetus is divided into three degrees according to the severity level:

First degree - situation when the fetus is delayed in development by two weeks.

Second degree – delayed by 2 to 4 weeks.

Third degree – delayed by more than 4 weeks.

The reasons for asymmetrical hypotrophy are. They are divided into the following basic groups:

I. Social factors:

- a) the mother's age (17 years or younger, 30 years or older)
- b) professional harm (difficult physical work, emotional overstrain, work with chemicals)
- c) bad habits (smoking, alcohol)

II. Condition of the mother's organism:

- a). chronic infections (chronic tonsillitis, chronic tracheobronchitis)
- b) general diseases (diseases of the kidneys, cardiovascular system, endocrine system)

III. Gynecologic diseases of the pregnant woman and features of the course of previous pregnancies:

- a) hormonal imbalance – menstrual dysfunction, infertility
- b) miscarriages in anamnesis
- c) uterus pathology (scar on the uterus after an operation, myoma of the uterus, endometriosis)

IV. Complicated course of the given pregnancy

- a) risk of miscarriage
- b) anemia
- c) multiple pregnancy
- d) hypotonia
- e) acute attack of chronic infections during the pregnancy.

All these reasons lead to infringement of the so-called uterine-placental-fetal circulation, because then there is a effect in the blood supply to the uterus, placenta and fetus. And, accordingly, the fetus starts to receive insufficient amounts of food and oxygen, resulting in the development of oxygen starvation and delay in growth.

The diagnosis hypotrophy can be diagnosed at the doctor during external obstetrical examination: measuring the height of the uterine fundus and circumference of the abdomen. No increase in the circumference of the abdomen by 2 cm in 2-3 weeks and lack in height of the uterine fundus by 2 cm from the target date testifies of delay in intrauterine growth.

Nevertheless, an accurate diagnosis can be made with US, where photometry and measurements of all the fetus's parameters. Also the condition of the placenta, where metabolism and oxygen exchange between the mother's blood and the fetus's blood, is evaluated. During one US, especially when primary signs are seen, it is difficult to make a definitive diagnosis about a delay in the development of the fetus. Therefore, it is important to perform an US in dynamic, and repeat the US 3 weeks after the first one.

Other methods of examination are Dopplermetry, during which the blood flow in the uterine vessels, arteries of the umbilical cord and arteries of the brain of fetus, are determined with ultrasound. By means of the given method, it is possible to judge the sufficiency of the blood supply to the uterus and fetus. For hypotrophy of the fetus, not only is a delay in physical sizes from normal important, but also the functional

condition of the fetus. Therefore, for hypotrophy of the fetus, it is necessary to evaluate the cardiovascular activity of the fetus with ultrasonic cardiotocography, which is performed after 30 weeks of pregnancy.

Prevention of fetal hypotrophy consists of planning and preparing for the pregnancy. It is necessary to treat all infections before becoming pregnant; if chronic sites of infection (for example, chronic tonsillitis) exist then prevention of an acute attack of this infection during pregnancy should be taken. If other diseases of the kidneys, lungs, liver, cardiovascular system exist, it is necessary to consult with experts about possible complications during the pregnancy, and also about what actions need to be made so that these complications do not occur. Early registration at the female consultation is important so that your doctor from the beginning can evaluate your condition and make a prognosis for the course of the pregnancy. It should not have to be said, that after becoming pregnant and during the pregnancy, it is necessary to conduct a healthy lifestyle and lose all harmful habits: smoking, alcohol, drugs. Correct high-grade food during pregnancy, the use of special, balanced vitamin complexes for pregnant women, and also following all the recommendations of the doctor is important. Treatment of fetal hypotrophy depends on the severity, and can be done in out-patient conditions or in the hospital (in the department for pathology of pregnancy) with obligatory evaluation of the functional condition of the fetus.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. A patient, 20 years old, thinks that she is pregnant. She does not remember the first day of the last menstruation. Patient complaints: weakness, nausea, vomiting, an aversion to meat during 10 days. Bimanual examination revealed: cyanosis of the cervical and vaginal mucous. The uterus is in hyperanteflexion, enlarged till the sizes of a female fist; softened, especially in the isthmic area, however, during inspection became denser, painless. Appendages are not palpated. What are the symptoms indicate the presence of pregnancy?

- A. Increase and softening of the uterus
- B. Menstruation is absence
- C. All of above
- D. Cyanosis of the cervical and vaginal mucous
- E. Hyperanteflexion of the uterus

2. A patient, 27 years old, has visited the maternity hospital with complaints of delay of menses for 5 months, sleepiness, increase the abdomen. General condition of the patient is satisfactory. Extragenital diseases are absent. The fundus of the uterus is soft, painless during palpation and situated near the umbilicus. Fetal movements feel good. What are the absolute symptoms of pregnancy described in the case?

- A. Fetal movements
- B. Delay of menses
- C. Sleepiness
- D. Increase the abdomen
- E. Increase the uterus

3. A secundipara, 32 weeks, arrived at the maternity hospital. The uterus is in normal tone and increased in size according to gestational age. Where should be the fundus of the uterus?

- A. Near the navel
- B. 4 cm below the xiphoid process
- C. Near the xiphoid process
- D. Near the pubis
- E. In the middle distance between xyphoid process and the navel

4. A woman with blood group B(III) Rh(+) gave birth to a full-term healthy boy. Examination on the 3rd day of the infant's life shows him to have icteric colour of his skin. The child has no problems with suckling, sleep is not disturbed. The abdomen is soft, the liver protrudes by 2 cm from under the costal margin. Complete blood count: hemoglobin -200 g/L, erythrocytes - $5.5 \cdot 10^{12}/L$, total bilirubin – 62 mcmol/L, indirect bilirubin – 52 mcmol/L. What condition can be suspected?

- A. Congenital hepatitis
- B. Hemolytic disease of the newborn due to Rh incompatibility
- C. Physiologic jaundice
- D. Biliary atresia
- E. Hemolytic disease of the newborn due to ABO incompatibility

5. A woman, 34 weeks of pregnancy at her visit to the maternity hospital, height is 175 cm, weight is 74 kg. She has no complaints. The circumference of the wrist joint is 16 cm. Sizes of the pelvis: 25-28-31-21 cm. The fundal height is 35 cm, the circumference of the abdomen is 90 cm. Determine the estimated fetal weight in g:

- A. 3150 ± 200 g.
- B. 2500 ± 200 g.
- C. 4100 ± 200 g.
- D. 1850 ± 200 g.
- E. 2850 ± 200 g.

6. At what pregnancy term is it necessary to conduct the first ultrasound screening of the fetus?

- A. 11 weeks -13 weeks + 6 days
- B. 8 – 9 weeks
- C. 9 – 10 weeks
- D. 10 – 11 weeks
- E. 18 – 21 weeks

Answer key

- 1. C
- 2. A
- 3. E
- 4. C
- 5. A
- 6. A

R. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

- methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
- methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

- 5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
- 4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
- 3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
- 2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №17.

ISOANTIGENIC INCOMPATIBILITY OF MATERNAL AND FETAL BLOOD

LEARNING OBJECTIVE: The overall aim of this topic is to gain basic knowledge about physiological changes in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge.

BASIC CONCEPTS: Immunological incompatibility of maternal and fetal blood (Rh-, ABO-system, isoleukocyte, etc.). Pathogenesis, diagnosis, management, treatment, and prevention.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

S. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Among the clinical variety of forms of this pathology, the most known and learned a small amount of hemolytic diseases (HD) to the fetus and non-malignancy, which develops in the midst of the insane organisms of the mothers and antibodies of the fetus after The knowledge of the nutrition of the etiopathogenesis of ailments, the peculiarities of obstetric and perinatal tactics, allows in the significant world to change the number of unwelcoming inheritances for the fetus, because of the relevance of the inception of this pathology.

T. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Etiopathogenesis of HD of the fetus and infant.
- classification and clinic of HD.
- methods of ante- and postnatal diagnosis of HD
- principles of isoimmunization therapy and HD in the antenatal and early neonatal periods
- methods of isoimmunization prevention

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions

- determine the Rh- and AB0-affiliation of maternal and fetal blood
- interpret the data of immunological, biochemical, cardiotocographic studies, analyze ultrasound results
- make a plan for Rh-negative unimmunized pregnant women
- make a plan for Rh-negative pregnant woman with isoimmunization
- determine the indications for specific prevention of Rh-immunization in non-immunized pregnant women and women in labor
- substantiate the diagnosis and make a treatment plan for a pregnant woman with isoimmunization, determine the tactics of delivery in immune-conflict pregnancy
- Explain the pathogenesis of essential hypertension fetus and infant.
- Describe the clinical characteristics of different forms of GD.
- List the diagnostic methods GD fetus and infant.
- Describe the principles of pregnant women with isoincompatibility.
- Describe the main treatment of hemolytic disease in the antenatal period.
- State the principles of treatment of hemolytic disease in the early neonatal period.
- What are the methods of prevention of Rh -conflict.

Tests

1. Pregnant with blood group B (III) Rh (-) 24 weeks of pregnancy revealed titer Rh antibody 1: 8. The first pregnancy ended antenatal fetal death due to Rh-conflict. The general condition is satisfactory. Tonus of uterus is normal. Position of the fetus is longitudinal, presenting part is head, heart rate - 146 beats / min. No edema. Your tactics?

- A. Natural labor, waiting tactics.
- B. Repeat analysis for Rh antibodies after 2 weeks
- C. Send for consultation to therapist.
- D. Send for consultation to immunologist
- E. Dynamic observation in antenatal clinic.

2. A pregnant 22 years old. Pregnancy is first. The examination determined Rh negative blood type A (II) in December. From history was found that as a child she spent hemotherapy. A man has Rh-positive blood type 0 (I) gr. How often to determine the blood of pregnant Rh antibodies?

- A. Definition of antibodies in the blood of pregnant each month.
- B. Determination of antibody 1 per month in the first half of pregnancy and 2 times a month in the second half.
- C. Determination of antibodies in the blood of pregnant women during her first visit, at 20 weeks term, then every 4 weeks
- D. Determination of antibody every two weeks.
- E. Determination of antibodies twice during pregnancy.

3. Second gravida has the blood group 0 (I) Rh (-), at term 35 weeks of pregnancy was diagnosed antenatal fetal death. Three days ago titer Rh antibody was 1: 128, ultrasound signs of hepatosplenomegaly, ascites of the fetus, placenta edema, non-stress test was abnormal. From the proposed delivery refused pregnant. What is the reason antenatal fetal death?

- A. Rh - immunisation
- B. Intrauterine infection
- C. Congenital defect of the fetus
- D. ABO conflict
- E. Fetal hypoxia

4. Second gravida, in term 34 weeks of gestation during next visit complained of shortness of breath and a rapid increase in the abdomen. OBJECTIVELY: height of fundus of the uterus is 40 cm, abdominal circumference is 102 cm. Presenting part is head, its movable above the pelvic inlet, fetal heart 132 bpm. / Min. During ultrasound examination was diagnosed polyhydramnios, ascites and hydrothorax in the fetus, placenta is thick. Choose tactics management of pregnancy.

- A. Determine fetal biophysical profile
- B. Determine blood flow in the vessels of the umbilical cord with dopplerometry
- C. ECG
- D. Labor induction
- E. amniocentesis is necessary to do

5. Pregnant 17 years, and pregnancy 8-9 weeks, ending in a complete abortion. Blood group O (I) Rh negative, in men - A (II) Rh positive. No rhesus antibodies were detected in the woman's blood. Doctor's tactics.

- A. Prophylactic administration of Rh-immunoglobulin IM woman
- B. Monitoring the level of anti-rhesus blood in women
- C. Prophylactic administration of Rh-immunoglobulin IM man
- D. Hemodialysis
- E. Autohemotherapy

6. Second gravida C., at 28 weeks of pregnancy has the Rh- antibodies titer 1: 8. She gave birth to child with symptoms of hemolytic disease. When should you check Rh- antibodies titer?

- A. Re-determination of antibodies in 1 week
- B. Re-determination of antibodies in 1 month
- C. Re-determination of antibodies in 3 weeks
- D. Re-determination of antibodies in 1 day
- E. Re-determination of antibodies after 2 weeks

7. A. A pregnant, 34 weeks gestation, is at the department of pathology. She has Rh- antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh- antibodies 1: 2 in 14 weeks. What should you do?

- A. Re-determination of antibodies in 1 day

- B. Cordocentesis
- C. Early delivery
- D. Blood transfusion
- E. ECTG

8. 24 y.o. woman with Rh-negative blood, admitted to Obstetrician at term 10 weeks of pregnancy. Current pregnancy is third; first pregnancy finished normally six years ago, the child is healthy; second - miscarriage at 16 - 17 weeks of pregnancy. After birth detected diabetes class "B". The titer of Rh-antibodies 1: 16-1: 32. Correct tactic is :

- A. prolongation of pregnancy, prescribe needed dose of insulin.
- B. prolongation of pregnancy, dietotherapy.
- C. prolongation of pregnancy with regular determination of blood glucose.
- D. prolongation of pregnancy with the introduction of the suspension lymphocytic blood man.
- E Stop pregnancy (abortion).

9. Time to give anti-D-immunoglobulin in puerperium period is:

- A. In the first 24 hours after birth.
- B. In the early postnatal period.
- C. During the first 72 hours.
- D. During the first 96 hours.
- E. After 1 month postpartum.

10. Secundipara, 26 y.o. addressed to the department of pathology pregnancy at term 32-33 weeks. Blood A (II), Rh-negative. From the history she gave birth for two Rh-positive healthy kids. Antibodies titers during pregnancy is on the level 1:32, not growing. The patient must be delivery:

- A. gestational age 34-35 weeks.
- B. At 37-38 weeks.
- C. Immediately.
- D. At 40 weeks.
- E. Since the beginning of the spontaneous labor.

11. On the 1st day of life a full-term girl (2nd labour) weighing 3500g, with Apgar score of 8 points, presented with jaundice. Indirect bilirubin of blood - was 80 micromole/l, 6 hours later - 160 micromole/l. What is the optimal method of treatment?

- A. Infusion therapy
- B. Phototherapy
- C. Exchange blood transfusion
- D. Phenobarbital treatment
- E. Enterosorbents

12. A primigravida is 22 years old. She has Rh(-), her husband has Rh(+). Antibodies to Rh weren't found at 32 weeks of pregnancy. Redetermination of antibodies to Rh didn't reveal them at 35 weeks of pregnancy as well. How often should the antibodies be determined hereafter?

- A. There is no need in further checks
- B. Once in two weeks
- C. Once in three weeks
- D. Monthly
- E. Once a week

13. A multigravida with Rh- isosensitization was found to have a decrease in anti-Rh titer from 1:32 to 1:8 at 33-34 weeks of gestation. Ultrasound revealed double contour of head, enlargement of fetal liver, placental thickness of 50 mm. The patient has indication for:

- A. Repeated (after 2 weeks) USI
- B. Course of desensitizing therapy
- C. Plasmapheresis
- D. Premature delivery
- E. Administration of anti-Rh gamma globulin

14. Rh-negative woman with 32-weeklong term of pregnancy has been examined. It was observed that Rh-antibodies titer had increased four times within the last 2 weeks and was 1:64. First two pregnancies ended in antenatal death of fetus caused by hemolytic disease. What tactics of pregnancy management should be chosen?

- A. Preterm delivery
- B. Delivery at 37 weeks term
- C. Rh-antibody test in 2 weeks; if Rh-antibodies increase in number conduct delivery
- D. Introduction of anti-Rh immunoglobulin
- E. US examination to determine signs of fetal erythroblastosis

15. Examination of a Rh-negative pregnant woman at 32 weeks of gestation revealed a four-time rise of Rh-antibody titer within 2 weeks, the titer was 1:64. In the first two pregnancies the patient had experienced antenatal fetal death due to hemolytic disease. What is the optimal tactics of pregnancy management?

- A. Early delivery
- B. Delivery at 37 weeks of gestation
- C. Screening for Rh-antibodies 2 weeks later and early delivery in case of further titer rise
- D. Introduction of anti-Rh (D) immunoglobulin
- E. Ultrasound for signs of hemolytic disease of the fetus

16. A woman with blood group B(III) Rh(+) gave birth to a full-term healthy boy. Examination on the 3rd day of the infant's life shows him to have icteric tint to his skin. The child has no problems with suckling, sleep is nondisturbed. The abdomen is soft, the liver protrudes by 2 cm from under the costal margin. Complete blood count: hemoglobin -200 g/L, erythrocytes - $5.5 \cdot 10^{12}/L$, total bilirubin – 62 $\mu\text{mol}/L$, indirect bilirubin – 52 $\mu\text{mol}/L$. What condition can be suspected?

- A. Physiologic jaundice
- B. Congenital hepatitis
- C. Hemolytic disease of the newborn due to Rh incompatibility

D. Biliary atresia

E. Hemolytic disease of the newborn due to ABO incompatibility

17. A 30-year-old woman in childbirth gave birth to a child with an anemic-jaundiced form of hemolytic disease. Blood group in woman A (II) Rh⁻, blood group in newborn B (III) Rh⁺, in father of newborn also B (III) Rh⁺. What is the most likely cause of immune conflict?

A. Rh conflict

B. Antigen Conflict A

C. Antigen Conflict B

D. AB antigen conflict

E. ABO conflict

18. A 28-year-old woman in childbirth gave birth to a girl weighing 3,400 g, 52 cm long, with manifestations of anemia and progressive jaundice. Blood group in woman B (III) Rh⁻, in the father of the newborn - A (II) Rh⁺, in the newborn - B (III) Rh⁺. What is the cause of anemia?

A. Rh conflict

B. Antigen Conflict A

C. Antigen Conflict B

D. AB antigen conflict

E. Intrauterine infection

19. The firstborn has rhesus - a negative blood type, isoantibodies are not detected. Rhesus man is positive. At monthly control antibodies are not revealed. What should be the doctor's tactics?

A. Immunize a pregnant woman at 28 weeks of gestation and postpartum for 72 hours.

B. Do not desensitize or immunize.

C. Immunize after delivery for 72 hours.

D. To carry out desensitizing therapy, not to carry out immunization.

E. Desensitizing therapy and immunization for 72 hours after delivery.

20. Pregnant 26 years old, pregnancy II, 14-15 weeks. The first pregnancy ended in an abortion at 11-12 weeks. In women - O (I) Rh⁻, in men - O (I) Rh⁺ blood group. What examinations should a woman have?

A. Coagulogram

B. Determination of group antibodies

C. Determination of anti-Rh antibodies

D. Biochemical analysis of blood

E. Cordocentesis

21. In a 22-year-old woman with Rh (-) negative blood, the man is Rh (+) positive. No antibodies to Rh were detected until 32 weeks. At 35 weeks of gestation, no antibodies to Rh were detected during retesting. What is the frequency of further determination of antibodies?

A. Once a month

B. Once every two weeks

C. Once every three weeks

- D. Once a week
- E. Further definition is impractical

22. On the second day of the child from physiological urgent childbirth appeared icteric skin and mucous membranes. Indirect bilirubin - 152 $\mu\text{mol} / \text{l}$. The mother has blood group O (I) Rh-, the child - A (II) Rh +. The mechanism of jaundice?

- A. Intrauterine infection.
- B. Impaired bile outflow.
- C. Disorders of bilirubin metabolism.
- D. Fetoplacental insufficiency.
- E. Hemolysis of erythrocytes

23. The pregnant woman turned to the doctor of the women's consultation with complaints about the decrease in the motor activity of the fetus within 34-35 weeks. Ultrasound revealed: the placenta is thickened, 52 mm, granular, with calcinates, the head and torso of the fetus have a double contour, the diameter of the abdomen is increased, the motor activity of the fetus is sluggish, the fetal heart rate is 160-170 / min. Pregnant blood group 0 (I) Rh (-). Rh antibody titer 1: 128. What tactics?

- A. Premature birth by cesarean section
- B. Introduce 1 dose (300 μg) of anti-Rho (D) immunoglobulin
- C. Carry out a skin graft from a man
- D. Carry out infusion antihypoxic therapy for the fetus
- E. Repeat ultrasound after 4 days

24. A 24-year-old woman at the age of 16 weeks applied for an appointment due to a history of reproductive losses (stillbirth, early infant death). The study was not performed due to a burdensome history. In the phenotype of the pregnant woman pay attention: high growth, developed mammary glands. At cytogenetic research the karyotype of the woman - 45, X / 46, XX / 47, XXX. Ultrasound examination of the fetus revealed marker signs of chromosomal pathology. What are the tactics of managing a pregnant woman?

- A. Abortion
- B. Carrying out of ultrasound research of a fetus with the analysis of syndromes
- C. Carrying out cytogenetic research of a man
- D. Carrying out molecular cytogenetic research
- E. Carrying out invasive methods of prenatal diagnosis (amniocentesis)

25. In a re-pregnant woman with Rh-isosensitization revealed a decrease in the titer of Rh antigen from 1:32 to 1: 8 during pregnancy 33-34 weeks. Ultrasound revealed a double contour of the head, enlargement of the fetal liver, placental thickness of 50 mm. The patient is shown:

- A. Premature birth
- B. Conducting a course of desensitizing therapy
- C. Plasmapheresis
- D. Repeated (after 2 weeks) ultrasound examination
- E. Introduction of anti-rhesus gamma globulin

Answers: 1- B; 2-C; 3- A; 4-D; 5- A; 6-E; 7-C; 8-E; 9- C; 10-B; 11-C; 12- E; 13—D; 14-A ;15- A ; 16-A; 17-A; 18- A; 19- A; 20- C; 21- D; 22- E; 23- A; 24- E; 25- A.

Situational tasks:

1. Secondipara, O (I), Rh - negative blood type at 36-37 weeks of gestation was hospitalized in the Department of Pathology of Pregnant Women. The titer of natural antibodies - 1: 256, immune antibodies - 1: 4, hemolysins - 1: 2. Ultrasound: hepatosplenomegaly, ascites, placental thickness 56 mm, polyhydramnios were detected in the fetus. What diagnosis is most likely, and what are the tactics of the patient?

The correct answer is isoantigenic incompatibility of maternal and fetal blood by Rh factor. Hemolytic disease of the fetus. Premature birth by cesarean section.

2. In a second gravida woman with Rh-isosensitization revealed a decrease in the titer of rhesus antibodies from 1:16 to 1: 8 at a gestational age of 25-26 weeks. Ultrasound revealed a double contour of the head, enlargement of the liver, thickening of the placenta to 50 mm. What are the next tactics?

The correct answer is to terminate the pregnancy

3. A pregnant woman with Rh-isosensitization (titer 1:16) was diagnosed with type I diabetes. What are the next tactics?

The correct answer is to terminate the pregnancy

4. Second gravida with 0 (I), Rh-positive blood at 36-37 weeks of gestation was hospitalized in the Department of Pathology of Pregnant Women. The titer of natural antibodies 1: 256, immune antibodies 1:64, hemolysins - 1: 2. At what time of gestation should the patient give birth?

The correct answer is urgent

5. Second gravida hospitalized in the pathology department of pregnant women at gestational age of 32-33 weeks. Blood group A (II), Rh-negative. History of two births with Rh-positive full-term fetuses. The antibody titer in this pregnancy is 1:16, does not increase. At what time of gestation is it necessary to give birth to a patient?

The correct answer is at 37-38 weeks

6. A first-pregnant woman with Rh-negative blood had a medical abortion at 10-11 weeks. What are the doctor's next tactics?

The correct answer is the introduction of anti Rh-immunoglobulin.

7. Rh-factor sensitization was detected in a second pregnant woman during registration in the woman's consultation. The woman was diagnosed with chronic pyelonephritis, mild iron deficiency anemia. History of two blood transfusions, 2 miscarriages in early gestation. What is the most likely cause of Rh factor sensitization?

The correct answer is a blood transfusion without taking into account the Rh factor.

8. Prima gravida with Rh-negative blood at a gestational age of 40 weeks is in the second period of childbirth. When is it necessary to administer anti Rh immunoglobulin to prevent Rh-sensitization?

The correct answer is within 72 hours after delivery.

9. A mother with O (I), Rh-negative blood type and a father with A (II), Rh-positive blood type gave birth to a child with A (II) Rh-negative blood type with signs of hemolytic jaundice. What is the most likely cause of this condition?

The correct answer is a conflict according to the ABO system.

10. A full-term newborn developed moderate jaundice one day after birth. The mother is pregnant with O (I), Rh-negative blood type, the father with B (III), Rh-positive blood type. Coombs' direct test with umbilical cord blood is negative, the mother has no anti-rhesus antibodies. What is the diagnosis of a newborn?

The correct answer is hemolytic disease of the newborn according to the ABO system.

3. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 4-5 people each. We work in women's consultation rooms with gynecological patients, we give tasks:

And the I subgroup - to make a preliminary diagnosis.

Subgroup II - to make a plan for the management of a pregnant patient.

Subgroup III – to assess answers of subgroups I and II and makes adjustments.

3.2. Recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills, etc.)

Isoantigenic incompatibility of maternal and fetal blood

Isoimmunization – one of the clinical forms of immune pregnancy failure that arises conditional upon incompatibility of maternal and fetal organisms for different antigens and leads to severe disorders in the state of fetus and baby.

The main forms are:

- Rh- isoimmunization;
- AB0- isoimmunization.

Rh isoimmunization – humoral immune answer to fetus erythrocytal antigenes of Rh group. Antibodies (Ab) get through placenta and cause extravascular hemolysis and anemia conditioning erythroblastosis of fetus.

Risk factors:

- Artificial abortion in anamnesis;
- Spontaneous abortion in anamnesis;
- Rh-positive blood type transfusion in anamnesis;
- Ectopic pregnancy;

- Absence of specific prophylactics of Rh incompatibility after the end of previous pregnancy;
- Rh incompatibility during previous pregnancies.

Risk of isoimmunization is heightened by:

- Placental abruption;
- Surgery (manual removal of placenta, caesarean section, amniocentesis) in anamnesis or during existent pregnancy;
- Virus infection (herpes, cytomegalovirus).

AB0 incompatibility develops in conditions of incompatibility of maternal and fetal blood groups and presence of Ab to erythrocytes of fetal blood group. Group-specific Ab may be produced in maternal organism as an answer to hemotherapy, vaccines and therapeutic serums, contact with bacteria that contain A and B antigenic factors.

In most cases immune incompatibility happens when maternal blood type is 0(I) and fetal blood type is A(II), seldom B(III) or AB(IV). AB0 isoimmunization can be the cause of different forms of hemolytic disease (HD) of newborn from subclinical form to severe erythroblastosis and antenatal fetal death. Although whilst in AB0 incompatibility fetal erythrocytes are quickly destroyed in maternal organism and Ab synthesis doesn't catch so as a rule the form of the disease is mild.

It is wise to make AB0-specified Ab test in women with recurrent miscarriage or antenatal fetal death in anamnesis.

Ab0 incompatibility smoothes pregnancy course whilst in Rh incompatibility. Rh incompatibility arises more often if mother and fetus have the same or common blood types of AB0 system.

Diagnostics of immune conflict

Anamnesis: blood transfusion without regard to Rh group, abortions, stillbirth or babies with HD, data of specific prophylactics of isoimmunization during previous pregnancies.

Rh-Ab titre test: rise and instability of Rh-Ab titre indicates on Rh incompatibility. In titre 1:32 and higher HD arises more often, the risk of antenatal fetal death is high.

AB0-specific Ab test is performed in pregnant women with O(I) blood type that have spontaneous abortions, stillbirth, child death from HD in anamnesis.

Diagnostics of HD of fetus

Ultrasound examination allows to visualize symptoms of an early and fully developed hydrops fetalis.

Symptoms of an early stage of hydrops fetalis:

- polyhydramnion;
- hepatosplenomegaly.

Symptoms of a fully developed hydrops fetalis:

- growth of echogenicity of fetal intestines;
- cardiomegaly and pericardial effusion;
- ascites and hydrothorax;
- "Buddha" posture;

- motion activity deminussion;
- placenta thickening.

Ultrasonic scanning is carried out in pregnant women from the risk group for Rh incompatibility:

- before 30 weeks of pregnancy once a month;
- after 30 weeks of pregnancy twice a month;
- on appearance of fetal damage symptoms every day up to delivery.

Cardiotocography – symptoms of chronic hypoxia of fetus and decrease of compensatory ability of fetoplacental complex.

Transabdominal amniocentesis is carried out after 26 weeks of pregnancy.

A question of necessity of amniocentesis is solved depending upon Ab titre and anamnesis data. If there are indications to amniocentesis a woman must be treated in the health care institution of the 3rd level.

Indications to amniocentesis:

- Ab titre 1:64 and higher;
- 4-fold titre growth in repeated test in 2 weeks;
- Ab titre growth and ultrasonic symptoms of HD of fetus;
- stillbirth, children with HD in anamnesis.

Contraindications:

- threatening premature birth;
- fever.

Amniotic fluid test allows to estimate fetal anemia severity.

In the case of development of fetal HD, rise of the concentration of bilirubin in amniotic fluid and growth of amniotic fluid optical density (AFOD) indicates severity level of the HD.

If AFOD is 0,1 or lower then pregnancy can be prolonged, if AFOD is 0,15 or over then delivery preparation should be started.

Amniotic Fluid Optic Density	Bilirubin concentration in amniotic fluid, mg/l	Fetus state
0,15 – 0,20	0 – 2,8	Risk of fetal HD development is low
0,21 – 0,34	2,9 – 4,6	Risk of fetal HD development is mild
0,35 – 0,70	4,7 – 9,5	Risk of fetal HD development is high
Over 0,70	Over 9,5	Risk of fetal HD development is extremely high

Cordocentesis – umbilical cord blood taking through anterior abdominal wall of a woman (is carried out at the health care institution of the 3rd level if there are trained specialists). In fetal blood we measure:

- hemoglobin and hematocrit;
- blood group and Rh-factor;
- bilirubin level;
- reticulocytes amount;
- serum protein;
- fetal erythrocytes-fixed Ab.

If fetal blood is Rh-negative further analysis are not necessary.

Postnatal diagnostics of hemolytic disease of newborn (HDN) – blood group, Rh-factor and bilirubin level, speed of hourly bilirubin level rise, Hb and Ht levels are measured in blood of umbilical cord vessels. Coombs direct test is carried out on peripheral blood of fetus.

Tactics of pregnancy care and delivery management

On the stage of antenatal clinic:

Rh-Ab titre is measured in blood on the first visit, in 20 weeks and later every 4 weeks.

If pregnant woman has 0(I) blood type we measure her husband's blood type and identify the risk group for newborn for AB0 incompatibility.

On the stage of maternity obstetric service:

Delivery in women with Rh-negative blood type with isoimmunization is carried out prematurely depending on blood Ab titre.

Indications to premature delivery in Rh-incompatibility:

- Ab titre 1:64 (critical level);
- 4-fold titre rise in repeated test;
- AFOD 0,35-0,70 and over, bilirubin level in amniotic fluid is 4,7-9,5 mg/l;
- ultrasonic symptoms of HD of fetus;
- stillbirth or babies with HD in anamnesis.

Straight after baby's birth umbilical cord is clamped to prevent of anti-Rh Ab getting into baby's bloodstream, placental end of umbilical cord is not clamped (to decrease the risk and volume of transfusion from mother to child). In the case of caesarean section manual removal of placenta is not performed.

Prophylactics of Rh-immunization

Prophylactics during pregnancy without previous immunization of pregnant woman is carried out by intramuscular injection of 1 dose (300 mcg) of anti-Rh (D) immunoglobulin:

- at the term of pregnancy of 28-32 weeks;
- in case of symptoms of threatened spontaneous abortion before 28 weeks of pregnancy;
- after amniocentesis or chorion biopsy;
- after molar pregnancy removal;
- after ectopic pregnancy;
- after abortion (not later than in 48 hours);
- after mistaken transfusion of Rh-positive blood to Rh-negative woman;
- after platelet concentrate transfusion;
- in clinical situations that are accompanied by fetus cells arriving in maternal bloodstream;
- placenta abruption, uterine bleeding (of an unknown etiology);
- trauma of pregnant woman (e.g. car crash).

In pregnancy term less than 13 weeks dose of anti-Rh (D) immunoglobulin is 75 mcg, in pregnancy term over 13 weeks – 300 mcg.

Prophylactics after birth of Rh-positive baby: intramuscularly 1 dose (300 mcg) of anti-Rh (D) immunoglobulin during first 72 hours.

Contraindications to injection of anti-Rh (D) immunoglobulin – anamnesis data of anaphylactic or severe system reactions to human immunoglobulin.

Prophylactics of HD caused by AB0 incompatibility is not performed during pregnancy.

Unspecific drug prophylactics and treatment of Rh incompatibility is not performed in pregnant women.

Jaundice of the newborn – appearing of visible yellow tinction of skin, sclerae and/or mucosae as a result of bilirubin blood level rise in newborn.

- **Early jaundice** – appears during the first 36 hours after birth. Jaundice that appeared during the first 24 hours after birth is always a symptom of pathology.
- **“Physiological” jaundice** – appears after the first 36 hours after birth and is characterized by total bilirubin level rise in blood serum not more then up to 205 mmol/l.
- **Complicated “physiological” jaundice**– physiological jaundice that is accompanied by changes in a state of newborn.
- **Prolonged (protracted) jaundice** – is diagnosed after the 14th day in mature newborns and after the 21th day in premature newborns.
- **Late jaundice** – appears after the 7th day of newborn’s life.

Methodics of clinical examination and staging of jaundice

Skin colour: check for yellow discoloration of skin should be held on a fully naked baby in condition of sufficient (optionally daylight) illumination.

Yellow skin tinction spread: It is wise to use modified Kramer’s scale for estimation of jaundice appear stages and correlation with bilirubin blood level. An alternative to the visual estimation with Kramer’s scale can be bilirubin skin level analysis with percutaneous bilirubinometry.

Time of jaundice appear:

Child age (hours)	Jaundice localization	Conclusion
24	Any	
24-48	Extremities	“dangerous jaundice”
>48	Foots, arms	

Immediate phototherapy should be started after symptoms appearing of a “dangerous jaundice”.

Clinical state of a newborn

- **Clinical state of newborn should be estimated on appearance of jaundice:**
 - Grade of child adequacy, reflex activity.
 - Adequacy of breast feeding that should take place not less than 8 times a day.
 - Skin turgor state and mucosae wetness
 - Liver and spleen sizes.
 - Miction rate and urine character.
- It is extremely important to check newborns with jaundice for symptoms of central neural system disorders (kernicterus):

- Early symptoms – appearance of lethargy, drowsiness, torpidity and sucking reflex repression.
- Acrimony, muscular hypertonia, high sound scream, possible temperature rise at a later period.
- At terminal stage child develops opisthotonus, convulsions, apnea, monotonous high-pitch cry, deep stupor or coma.

3.3. Requirements for the results of work.

- to give an advice for pregnant woman with Rh negative blood.
- to evaluate the patient.
- to make a management of pregnancy course and postpartum period for women's with O(I) and Rh neative blood .
- to write the clinical diagnosis in pregnant women with Rh - incompatibility of mother and fetus;
- to write a plan of survey pregnant with Rh-negative blood type;
- to write tactics pregnant withRh – and ABO incompatibility of blood between mother and fetus;
- to make an oral report on the thematic patient.
- to do analysis and discussion of the results of the patient's examination.
- to do multimedia presentation on the topic of the lesson (review of literature using modern sources; videos, etc.).

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Situational task:

1. Second- Gravida with blood type O (I) Rh - negative at term 36-37 weeks of gestation was hospitalized. Natural antibodies titer - 1: 256, immune antibodies - 1: 4, hemolysin - 1: 2. Ultrasound results: fetal revealed hepatosplenomegaly, ascites, placental thickness of 56 mm, polyhydramnios.

What is the most likely diagnosis and what tactics?

Correct answer – Rh-incompatibility between the blood of mother and fetus in Rh-factor. Hemolytic disease of the fetus. Early delivery by Caesarean section.

2. Pregnant with Rh-iincompatibility has a reduction in titer Rh antibodies from 1:16 to 1: 8 at term gestation 25-26 weeks. With ultrasound revealed the outline of the head, liver enlargement, thickening of the placenta to 50 mm. What subsequent tactic?

Correct answer - abortion

3. In pregnant women with Rh-iincompatibility (titer 1:16) discovered type I diabetes. What subsequent tactic?

Correct answer - abortion

4. Multigravida with 0 (I), Rh- positive blood was admitted to hospital at 36-37 weeks gestation . Natural antibody titer of 1: 256, 1:64 immune antibodies, hemolizyn - 1: 2. In what term of gestation should be taken labor?

Correct answer - immediately

5. Multigravida was hospitalized in the department of pathology of pregnancy at term gestation 32-33 weeks. Blood group A (II), Rh-negative. In the history She gave a birth to 2 Rh-positive mature babies. Antibody titers during this pregnancy 1:16, not increased. In what gestation period is necessary to gently delivery patient?

The correct answer – at 37-38 weeks

6. Primagravida with Rh-negative blood affiliation made medical abortion at 10-11 weeks of term. What subsequent tactic of doctor?

The correct answer - the prescription of Anti-Rh immunoglobulin.

7. In Multigravida during registration in Women's consultation detected sensitization by Rh-factor. The woman discovered chronic pyelonephritis, iron deficiency anemia mild. In the history of two hemotranfuziyi 2 mymovylnyh abortion in early nd habitats. What is the most probable cause sensitization by Rh-factor?

The correct answer is - without blood transfusion Rh-factor.

8. Primagravida with Rh-negative blood at term gestation of 40 weeks nahodytsya in the second stage of labor. When you need to enter Antirhesus Rh-immunoglobulin to prevent Rh-sensitization?

Correct answer - to train the first 72 hours after birth.

9. The mother of O (I), Rh-negative blood type and the father of A (II), Rh-positive blood type baby with A (II) Rh-negative blood type with signs of hemolytic jaundice. What is the most likely cause of this condition?

Correct answer is conflict ABO system.

10. In newborn baby one day after birth developed mild jaundice. Mother is Primapara with O (I), Rh-negative blood type, the father has B (III), Rh-positive blood type. The direct Coombs test of umbilical cord blood is negative, no antirhesus maternal antibodies. What is the diagnosis in a newborn?

Correct answer - hemolytic disease of the newborn ABO system.

4. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

“5”	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical,
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	laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
“4”	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
“3”	The student isn’t well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
“2”	The student isn’t versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №17.

ISOANTIGENIC INCOMPATIBILITY OF MATERNAL AND FETAL BLOOD

LEARNING OBJECTIVE: The overall aim of this topic is to gain basic knowledge about physiological changes in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge.

BASIC CONCEPTS: Immunological incompatibility of maternal and fetal blood (Rh-, ABO-system, isoleukocyte, etc.). Pathogenesis, diagnosis, management, treatment, and prevention.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

U. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Among the clinical variety of forms of this pathology, the most known and learned a small amount of hemolytic diseases (HD) to the fetus and non-malignancy, which develops in the midst of the insane organisms of the mothers and antibodies of

the fetus after The knowledge of the nutrition of the etiopathogenesis of ailments, the peculiarities of obstetric and perinatal tactics, allows in the significant world to change the number of unwelcoming inheritances for the fetus, because of the relevance of the inception of this pathology.

V. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Etiopathogenesis of HD of the fetus and infant.
- classification and clinic of HD.
- methods of ante- and postnatal diagnosis of HD
- principles of isoimmunization therapy and HD in the antenatal and early neonatal periods
- methods of isoimmunization prevention

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions

- determine the Rh- and AB0-affiliation of maternal and fetal blood
- interpret the data of immunological, biochemical, cardiotocographic studies, analyze ultrasound results
- make a plan for Rh-negative unimmunized pregnant women
- make a plan for Rh-negative pregnant woman with isoimmunization
- determine the indications for specific prevention of Rh-immunization in non-immunized pregnant women and women in labor
- substantiate the diagnosis and make a treatment plan for a pregnant woman with isoimmunization, determine the tactics of delivery in immune-conflict pregnancy
- Explain the pathogenesis of essential hypertension fetus and infant.
- Describe the clinical characteristics of different forms of GD.
- List the diagnostic methods GD fetus and infant.
- Describe the principles of pregnant women with isoincompatibility.

- Describe the main treatment of hemolytic disease in the antenatal period.
- State the principles of treatment of hemolytic disease in the early neonatal period.
- What are the methods of prevention of Rh -conflict.

Tests

1. Pregnant with blood group B (III) Rh (-) 24 weeks of pregnancy revealed titer Rh antibody 1: 8. The first pregnancy ended antenatal fetal death due to Rh-conflict. The general condition is satisfactory. Tonus of uterus is normal. Position of the fetus is longitudinal, presenting part is head, heart rate - 146 beats / min. No edema. Your tactics?

- A. Natural labor, waiting tactics.
- B. Repeat analysis for Rh antibodies after 2 weeks
- C. Send for consultation to therapist.
- D. Send for consultation to immunologist
- E. Dynamic observation in antenatal clinic.

2. A pregnant 22 years old. Pregnancy is first. The examination determined Rh negative blood type A (II) in December. From history was found that as a child she spent hemotherapy. A man has Rh-positive blood type 0 (I) gr. How often to determine the blood of pregnant Rh antibodies?

- A. Definition of antibodies in the blood of pregnant each month.
- B. Determination of antibody 1 per month in the first half of pregnancy and 2 times a month in the second half.
- C. Determination of antibodies in the blood of pregnant women during her first visit, at 20 weeks term, then every 4 weeks
- D. Determination of antibody every two weeks.
- E. Determination of antibodies twice during pregnancy.

3. Second gravida has the blood group 0 (I) Rh (-), at term 35 weeks of pregnancy was diagnosed antenatal fetal death. Three days ago titer Rh antibody was 1: 128, ultrasound signs of hepatosplenomegaly, ascites of the fetus, placenta edema, non-stress test was abnormal. From the proposed delivery refused pregnant. What is the reason antenatal fetal death?

- A. Rh - immunisation
- B. Intrauterine infection
- C. Congenital defect of the fetus
- D. ABO conflict
- E. Fetal hypoxia

4. Second gravida, in term 34 weeks of gestation during next visit complained of shortness of breath and a rapid increase in the abdomen. OBJECTIVELY: height of fundus of the uterus is 40 cm, abdominal circumference is 102 cm. Presenting part is head, its movable above the pelvic inlet, fetal heart 132 bpm. / Min. During ultrasound examination was diagnosed polyhydramnios, ascites and hydrothorax in the fetus, placenta is thick. Choose tactics management of pregnancy.

- A. Determine fetal biophysical profile
- B. Determine blood flow in the vessels of the umbilical cord with dopplerometry
- C. ECG
- D. Labor induction
- E. amniocentesis is necessary to do

5. Pregnant 17 years, and pregnancy 8-9 weeks, ending in a complete abortion. Blood group O (I) Rh negative, in men - A (II) Rh positive. No rhesus antibodies were detected in the woman's blood. Doctor's tactics.

- A. Prophylactic administration of Rh-immunoglobulin IM woman
- B. Monitoring the level of anti-rhesus blood in women
- C. Prophylactic administration of Rh-immunoglobulin IM man
- D. Hemodialysis
- E. Autohemotherapy

6. Second gravida C., at 28 weeks of pregnancy has the Rh- antibodies titer 1: 8. She gave birth to child with symptoms of hemolytic disease. When should you check Rh-antibodies titer?

- A. Re-determination of antibodies in 1 week
- B. Re-determination of antibodies in 1 month
- C. Re-determination of antibodies in 3 weeks
- D. Re-determination of antibodies in 1 day
- E. Re-determination of antibodies after 2 weeks

7. A. A pregnant, 34 weeks gestation, is at the department of pathology. She has Rh-antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh-antibodies 1: 2 in 14 weeks. What should you do?

- A. Re-determination of antibodies in 1 day
- B. Cordocentesis
- C. Early delivery
- D. Blood transfusion
- E. ECTG

8. 24 y.o. woman with Rh-negative blood, admitted to Obstetrician at term 10 weeks of pregnancy. Current pregnancy is third; first pregnancy finished normally six years ago, the child is healthy; second - miscarriage at 16 - 17 weeks of pregnancy. After birth detected diabetes class "B". The titer of Rh-antibodies 1: 16-1: 32. Correct tactic is :

- A. prolongation of pregnancy, prescribe needed dose of insulin.
- B. prolongation of pregnancy, dietotherapy.
- C. prolongation of pregnancy with regular determination of blood glucose.
- D. prolongation of pregnancy with the introduction of the suspension lymphocytic blood man.
- E Stop pregnancy (abortion).

9. Time to give anti-D-immunoglobulin in puerperium period is:

- A. In the first 24 hours after birth.
- B. In the early postnatal period.
- C. During the first 72 hours.
- D. During the first 96 hours.
- E. After 1 month postpartum.

10. Secundipara, 26 y.o. addressed to the department of pathology pregnancy at term 32-33 weeks. Blood A (II), Rh-negative. From the history she gave birth for two Rh-positive healthy kids. Antibodies titers during pregnancy is on the level 1:32, not growing. The patient must be delivery:

- A. gestational age 34-35 weeks.
- B. At 37-38 weeks.
- C. Immediately.
- D. At 40 weeks.
- E. Since the beginning of the spontaneous labor.

11. On the 1st day of life a full-term girl (2nd labour) weighing 3500g, with Apgar score of 8 points, presented with jaundice. Indirect bilirubin of blood - was 80 micromole/l, 6 hours later - 160 micromole/l. What is the optimal method of treatment?

- A. Infusion therapy
- B. Phototherapy
- C. Exchange blood transfusion
- D. Phenobarbital treatment
- E. Enterosorbents

12. A primigravida is 22 years old. She has Rh(-), her husband has Rh(+). Antibodies to Rh weren't found at 32 weeks of pregnancy. Redetermination of antibodies to Rh didn't reveal them at 35 weeks of pregnancy as well. How often should the antibodies be determined hereafter?

- A. There is no need in further checks
- B. Once in two weeks
- C. Once in three weeks
- D. Monthly
- E. Once a week

13. A multigravida with Rh- isosensitization was found to have a decrease in anti-Rh titer from 1:32 to 1:8 at 33-34 weeks of gestation. Ultrasound revealed double contour of head, enlargement of fetal liver, placental thickness of 50 mm. The patient has indication for:

- A. Repeated (after 2 weeks) USI
- B. Course of desensitizing therapy
- C. Plasmapheresis
- D. Premature delivery
- E. Administration of anti-Rh gamma globulin

14. Rh-negative woman with 32-weeklong term of pregnancy has been examined. It was observed that Rh-antibodies titer had increased four times within the last 2 weeks

and was 1:64. First two pregnancies ended in antenatal death of fetus caused by hemolytic disease. What tactics of pregnancy management should be chosen?

- A. Preterm delivery
- B. Delivery at 37 weeks term
- C. Rh-antibody test in 2 weeks; if Rh-antibodies increase in number conduct delivery
- D. Introduction of anti-Rh immunoglobulin
- E. US examination to determine signs of fetal erythroblastosis

15. Examination of a Rh-negative pregnant woman at 32 weeks of gestation revealed a four-time rise of Rh-antibody titer within 2 weeks, the titer was 1:64. In the first two pregnancies the patient had experienced antenatal fetal death due to hemolytic disease. What is the optimal tactics of pregnancy management?

- A. Early delivery
- B. Delivery at 37 weeks of gestation
- C. Screening for Rh-antibodies 2 weeks later and early delivery in case of further titer rise
- D. Introduction of anti-Rh (D) immunoglobulin
- E. Ultrasound for signs of hemolytic disease of the fetus

16. A woman with blood group B(III) Rh(+) gave birth to a full-term healthy boy. Examination on the 3rd day of the infant's life shows him to have icteric tint to his skin. The child has no problems with suckling, sleep is nondisturbed. The abdomen is soft, the liver protrudes by 2 cm from under the costal margin. Complete blood count: hemoglobin -200 g/L, erythrocytes - $5.5 \cdot 10^{12}/L$, total bilirubin – 62 $\mu\text{mol/L}$, indirect bilirubin – 52 $\mu\text{mol/L}$. What condition can be suspected?

- A. Physiologic jaundice
- B. Congenital hepatitis
- C. Hemolytic disease of the newborn due to Rh incompatibility
- D. Biliary atresia
- E. Hemolytic disease of the newborn due to ABO incompatibility

17. A 30-year-old woman in childbirth gave birth to a child with an anemic-jaundiced form of hemolytic disease. Blood group in woman A (II) Rh⁻, blood group in newborn B (III) Rh⁺, in father of newborn also B (III) Rh⁺. What is the most likely cause of immune conflict?

- A. Rh conflict
- B. Antigen Conflict A
- C. Antigen Conflict B
- D. AB antigen conflict
- E. AB0 conflict

18. A 28-year-old woman in childbirth gave birth to a girl weighing 3,400 g, 52 cm long, with manifestations of anemia and progressive jaundice. Blood group in woman B (III) Rh⁻, in the father of the newborn - A (II) Rh⁺, in the newborn - B (III) Rh⁺. What is the cause of anemia?

- A. Rh conflict
- B. Antigen Conflict A

- C. Antigen Conflict B
- D. AB antigen conflict
- E. Intrauterine infection

19. The firstborn has rhesus - a negative blood type, isoantibodies are not detected. Rhesus man is positive. At monthly control antibodies are not revealed. What should be the doctor's tactics?

- A. Immunize a pregnant woman at 28 weeks of gestation and postpartum for 72 hours.
- B. Do not desensitize or immunize.
- C. Immunize after delivery for 72 hours.
- D. To carry out desensitizing therapy, not to carry out immunization.
- E. Desensitizing therapy and immunization for 72 hours after delivery.

20. Pregnant 26 years old, pregnancy II, 14-15 weeks. The first pregnancy ended in an abortion at 11-12 weeks. In women - O (I) Rh⁻, in men - O (I) Rh⁺ blood group. What examinations should a woman have?

- A. Coagulogram
- B. Determination of group antibodies
- C. Determination of anti-Rh antibodies
- D. Biochemical analysis of blood
- E. Cordocentesis

21. In a 22-year-old woman with Rh (-) negative blood, the man is Rh (+) positive. No antibodies to Rh were detected until 32 weeks. At 35 weeks of gestation, no antibodies to Rh were detected during retesting. What is the frequency of further determination of antibodies?

- A. Once a month
- B. Once every two weeks
- C. Once every three weeks
- D. Once a week
- E. Further definition is impractical

22. On the second day of the child from physiological urgent childbirth appeared icteric skin and mucous membranes. Indirect bilirubin - 152 $\mu\text{mol} / \text{l}$. The mother has blood group O (I) Rh⁻, the child - A (II) Rh⁺. The mechanism of jaundice?

- A. Intrauterine infection.
- B. Impaired bile outflow.
- C. Disorders of bilirubin metabolism.
- D. Fetoplacental insufficiency.
- E. Hemolysis of erythrocytes

23. The pregnant woman turned to the doctor of the women's consultation with complaints about the decrease in the motor activity of the fetus within 34-35 weeks. Ultrasound revealed: the placenta is thickened, 52 mm, granular, with calcinates, the head and torso of the fetus have a double contour, the diameter of the abdomen is increased, the motor activity of the fetus is sluggish, the fetal heart rate is 160-170 / min. Pregnant blood group O (I) Rh (-). Rh antibody titer 1: 128. What tactics?

- A. Premature birth by cesarean section
- B. Introduce 1 dose (300 µg) of anti-Rho (D) immunoglobulin
- C. Carry out a skin graft from a man
- D. Carry out infusion antihypoxic therapy for the fetus
- E. Repeat ultrasound after 4 days

24. A 24-year-old woman at the age of 16 weeks applied for an appointment due to a history of reproductive losses (stillbirth, early infant death). The study was not performed due to a burdensome history. In the phenotype of the pregnant woman pay attention: high growth, developed mammary glands. At cytogenetic research the karyotype of the woman - 45, X / 46, XX / 47, XXX. Ultrasound examination of the fetus revealed marker signs of chromosomal pathology. What are the tactics of managing a pregnant woman?

- A. Abortion
- B. Carrying out of ultrasound research of a fetus with the analysis of syndromes
- C. Carrying out cytogenetic research of a man
- D. Carrying out molecular cytogenetic research
- E. Carrying out invasive methods of prenatal diagnosis (amniocentesis)

25. In a re-pregnant woman with Rh-isosensitization revealed a decrease in the titer of Rh antigen from 1:32 to 1: 8 during pregnancy 33-34 weeks. Ultrasound revealed a double contour of the head, enlargement of the fetal liver, placental thickness of 50 mm. The patient is shown:

- A. Premature birth
- B. Conducting a course of desensitizing therapy
- C. Plasmaphoresis
- D. Repeated (after 2 weeks) ultrasound examination
- E. Introduction of anti-rhesus gamma globulin

Answers: 1- B; 2-C; 3- A; 4-D; 5- A; 6-E; 7-C; 8-E; 9- C; 10-B; 11-C; 12- E; 13—D; 14-A ;15- A ; 16-A; 17-A; 18- A; 19- A; 20- C; 21- D; 22- E; 23- A; 24- E; 25- A.

Situational tasks:

2. Secondipara, O (I), Rh - negative blood type at 36-37 weeks of gestation was hospitalized in the Department of Pathology of Pregnant Women. The titer of natural antibodies - 1: 256, immune antibodies - 1: 4, hemolysins - 1: 2. Ultrasound: hepatosplenomegaly, ascites, placental thickness 56 mm, polyhydramnios were detected in the fetus. What diagnosis is most likely, and what are the tactics of the patient?

The correct answer is isoantigenic incompatibility of maternal and fetal blood by Rh factor. Hemolytic disease of the fetus. Premature birth by cesarean section.

2. In a second gravida woman with Rh-isosensitization revealed a decrease in the titer of rhesus antibodies from 1:16 to 1: 8 at a gestational age of 25-26 weeks. Ultrasound revealed a double contour of the head, enlargement of the liver, thickening of the placenta to 50 mm. What are the next tactics?

The correct answer is to terminate the pregnancy

3. A pregnant woman with Rh-isosensitization (titer 1:16) was diagnosed with type I diabetes. What are the next tactics?

The correct answer is to terminate the pregnancy

4. Second gravida with 0 (I), Rh-positive blood at 36-37 weeks of gestation was hospitalized in the Department of Pathology of Pregnant Women. The titer of natural antibodies 1: 256, immune antibodies 1:64, hemolysins - 1: 2. At what time of gestation should the patient give birth?

The correct answer is urgent

5. Second gravida hospitalized in the pathology department of pregnant women at gestational age of 32-33 weeks. Blood group A (II), Rh-negative. History of two births with Rh-positive full-term fetuses. The antibody titer in this pregnancy is 1:16, does not increase. At what time of gestation is it necessary to give birth to a patient?

The correct answer is at 37-38 weeks

6. A first-pregnant woman with Rh-negative blood had a medical abortion at 10-11 weeks. What are the doctor's next tactics?

The correct answer is the introduction of anti Rh-immunoglobulin.

7. Rh-factor sensitization was detected in a second pregnant woman during registration in the woman's consultation. The woman was diagnosed with chronic pyelonephritis, mild iron deficiency anemia. History of two blood transfusions, 2 miscarriages in early gestation. What is the most likely cause of Rh factor sensitization?

The correct answer is a blood transfusion without taking into account the Rh factor.

8. Prima gravida with Rh-negative blood at a gestational age of 40 weeks is in the second period of childbirth. When is it necessary to administer anti Rh immunoglobulin to prevent Rh-sensitization?

The correct answer is within 72 hours after delivery.

9. A mother with O (I), Rh-negative blood type and a father with A (II), Rh-positive blood type gave birth to a child with A (II) Rh-negative blood type with signs of hemolytic jaundice. What is the most likely cause of this condition?

The correct answer is a conflict according to the ABO system.

10. A full-term newborn developed moderate jaundice one day after birth. The mother is pregnant with O (I), Rh-negative blood type, the father with B (III), Rh-positive blood type. Coombs' direct test with umbilical cord blood is negative, the mother has no anti-rhesus antibodies. What is the diagnosis of a newborn?

The correct answer is hemolytic disease of the newborn according to the ABO system.

4. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 4-5 people each. We work in women's consultation rooms with gynecological patients, we give tasks:

And the I subgroup - to make a preliminary diagnosis.

Subgroup II - to make a plan for the management of a pregnant patient.

Subgroup III – to assess answers of subgroups I and II and makes adjustments.

3.2. Recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills, etc.)

Isoantigenic incompatibility of maternal and fetal blood

Isoimmunization – one of the clinical forms of immune pregnancy failure that arises conditional upon incompatibility of maternal and fetal organisms for different antigens and leads to severe disorders in the state of fetus and baby.

The main forms are:

- Rh- isoimmunization;
- AB0- isoimmunization.

Rh isoimmunization – humoral immune answer to fetus erythrocytal antigenes of Rh group. Antibodies (Ab) get through placenta and cause extravascular hemolysis and anemia conditioning erythroblastosis of fetus.

Risk factors:

- Artificial abortion in anamnesis;
- Spontaneous abortion in anamnesis;
- Rh-positive blood type transfusion in anamnesis;
- Ectopic pregnancy;
- Absence of specific prophylactics of Rh incompatibility after the end of previous pregnancy;
- Rh incompatibility during previous pregnancies.

Risk of isoimmunization is heightened by:

- Placental abruption;
- Surgery (manual removal of placenta, caesarean section, amniocentesis) in anamnesis or during existent pregnancy;
- Virus infection (herpes, cytomegalovirus).

AB0 incompatibility develops in conditions of incompatibility of maternal and fetal blood groups and presence of Ab to erythrocytes of fetal blood group. Group-specific Ab may be produced in maternal organism as an answer to hemotherapy, vaccines and therapeutic serums, contact with bacteria that contain A and B antigenic factors.

In most cases immune incompatibility happens when maternal blood type is 0(I) and fetal blood type is A(II), seldom B(III) or AB(IV). AB0 isoimmunization can be the cause of different forms of hemolytic disease (HD) of newborn from subclinical

form to severe erythroblastosis and antenatal fetal death. Although whilst in AB0 incompatibility fetal erythrocytes are quickly destroyed in maternal organism and Ab synthesis doesn't catch so as a rule the form of the disease is mild.

It is wise to make AB0-specified Ab test in women with recurrent miscarriage or antenatal fetal death in anamnesis.

Ab0 incompatibility smoothes pregnancy course whilst in Rh incompatibility. Rh incompatibility arises more often if mother and fetus have the same or common blood types of AB0 system.

Diagnostics of immune conflict

Anamnesis: blood transfusion without regard to Rh group, abortions, stillbirth or babies with HD, data of specific prophylactics of isoimmunization during previous pregnancies.

Rh-Ab titre test: rise and instability of Rh-Ab titre indicates on Rh incompatibility. In titre 1:32 and higher HD arises more often, the risk of antenatal fetal death is high.

AB0-specific Ab test is performed in pregnant women with O(I) blood type that have spontaneous abortions, stillbirth, child death from HD in anamnesis.

Diagnostics of HD of fetus

Ultrasound examination allows to visualize symptoms of an early and fully developed hydrops fetalis.

Symptoms of an early stage of hydrops fetalis:

- polyhydramnion;
- hepatosplenomegaly.

Symptoms of a fully developed hydrops fetalis:

- growth of echogenicity of fetal intestines;
- cardiomegaly and pericardial effusion;
- ascites and hydrothorax;
- "Buddha" posture;
- motion activity deminussion;
- placenta thickening.

Ultrasonic scanning is carried out in pregnant women from the risk group for Rh incompatibility:

- before 30 weeks of pregnancy once a month;
- after 30 weeks of pregnancy twice a month;
- on appearance of fetal damage symptoms every day up to delivery.

Cardiotocography – symptoms of chronic hypoxia of fetus and decrease of compensatory ability of fetoplacental complex.

Transabdominal amniocentesis is carried out after 26 weeks of pregnancy.

A question of necessity of amniocentesis is solved depending upon Ab titre and anamnesis data. If there are indications to amniocentesis a woman must be treated in the health care institution of the 3rd level.

Indications to amniocentesis:

- Ab titre 1:64 and higher;
- 4-fold titre growth in repeated test in 2 weeks;
- Ab titre growth and ultrasonic symptoms of HD of fetus;

- stillbirth, children with HD in anamnesis.

Contraindications:

- threatening premature birth;
- fever.

Amniotic fluid test allows to estimate fetal anemia severity.

In the case of development of fetal HD, rise of the concentration of bilirubin in amniotic fluid and growth of amniotic fluid optical density (AFOD) indicates severity level of the HD.

If AFOD is 0,1 or lower then pregnancy can be prolonged, if AFOD is 0,15 or over then delivery preparation should be started.

Amniotic Fluid Optic Density	Bilirubin concentration in amniotic fluid, mg/l	Fetus state
0,15 – 0,20	0 – 2,8	Risk of fetal HD development is low
0,21 – 0,34	2,9 – 4,6	Risk of fetal HD development is mild
0,35 – 0,70	4,7 – 9,5	Risk of fetal HD development is high
Over 0,70	Over 9,5	Risk of fetal HD development is extremely high

Cordocentesis – umbilical cord blood taking through anterior abdominal wall of a woman (is carried out at the health care institution of the 3rd level if there are trained specialists). In fetal blood we measure:

- hemoglobin and hematocrit;
- blood group and Rh-factor;
- bilirubin level;
- reticulocytes amount;
- serum protein;
- fetal erythrocytes-fixed Ab.

If fetal blood is Rh-negative further analysis are not necessary.

Postnatal diagnostics of hemolytic disease of newborn (HDN) – blood group, Rh-factor and bilirubin level, speed of hourly bilirubin level rise, Hb and Ht levels are measured in blood of umbilical cord vessels. Coombs direct test is carried out on peripheral blood of fetus.

Tactics of pregnancy care and delivery management

On the stage of antenatal clinic:

Rh-Ab titre is measured in blood on the first visit, in 20 weeks and later every 4 weeks.

If pregnant woman has 0(I) blood type we measure her husband's blood type and identify the risk group for newborn for AB0 incompatibility.

On the stage of maternity obstetric service:

Delivery in women with Rh-negative blood type with isoimmunization is carried out prematurely depending on blood Ab titre.

Indications to premature delivery in Rh-incompatibility:

- Ab titre 1:64 (critical level);
- 4-fold titre rise in repeated test;

- AFOD 0,35-0,70 and over, bilirubin level in amniotic fluid is 4,7-9,5 mg/l;
- ultrasonic symptoms of HD of fetus;
- stillbirth or babies with HD in anamnesis.

Straight after baby's birth umbilical cord is clamped to prevent of anti-Rh Ab getting into baby's bloodstream, placental end of umbilical cord is not clamped (to decrease the risk and volume of transfusion from mother to child). In the case of caesarean section manual removal of placenta is not performed.

Prophylactics of Rh-immunization

Prophylactics during pregnancy without previous immunization of pregnant woman is carried out by intramuscular injection of 1 dose (300 mcg) of anti-Rh (D) immunoglobulin:

- at the term of pregnancy of 28-32 weeks;
- in case of symptoms of threatened spontaneous abortion before 28 weeks of pregnancy;
- after amniocentesis or chorion biopsy;
- after molar pregnancy removal;
- after ectopic pregnancy;
- after abortion (not later than in 48 hours);
- after mistaken transfusion of Rh-positive blood to Rh-negative woman;
- after platelet concentrate transfusion;
- in clinical situations that are accompanied by fetus cells arriving in maternal bloodstream;
- placenta abruption, uterine bleeding (of an unknown etiology);
- trauma of pregnant woman (e.g. car crash).

In pregnancy term less than 13 weeks dose of anti-Rh (D) immunoglobulin is 75 mcg, in pregnancy term over 13 weeks – 300 mcg.

Prophylactics after birth of Rh-positive baby: intramuscularly 1 dose (300 mcg) of anti-Rh (D) immunoglobulin during first 72 hours.

Contraindications to injection of anti-Rh (D) immunoglobulin – anamnesis data of anaphylactic or severe system reactions to human immunoglobulin.

Prophylactics of HD caused by AB0 incompatibility is not performed during pregnancy.

Unspecific drug prophylactics and treatment of Rh incompatibility is not performed in pregnant women.

Jaundice of the newborn – appearing of visible yellow tincture of skin, sclerae and/or mucosae as a result of bilirubin blood level rise in newborn.

- **Early jaundice** – appears during the first 36 hours after birth. Jaundice that appeared during the first 24 hours after birth is always a symptom of pathology.
- **“Physiological” jaundice** – appears after the first 36 hours after birth and is characterized by total bilirubin level rise in blood serum not more than up to 205 mmol/l.
- **Complicated “physiological” jaundice** – physiological jaundice that is accompanied by changes in a state of newborn.

- **Prolonged (protracted) jaundice** – is diagnosed after the 14th day in mature newborns and after the 21th day in premature newborns.
- **Late jaundice** – appears after the 7th day of newborn's life.

Methodics of clinical examination and staging of jaundice

Skin colour: check for yellow discoloration of skin should be held on a fully naked baby in condition of sufficient (optionally daylight) illumination.

Yellow skin tinction spread: It is wise to use modified Kramer's scale for estimation of jaundice appear stages and correlation with bilirubin blood level. An alternative to the visual estimation with Kramer's scale can be bilirubin skin level analysis with percutaneous bilirubinometry.

Time of jaundice appear:

Child age (hours)	Jaundice localization	Conclusion
24	Any	
24-48	Extremities	“dangerous jaundice”
>48	Foots, arms	

Immediate phototherapy should be started after symptoms appearing of a “dangerous jaundice”.

Clinical state of a newborn

- **Clinical state of newborn should be estimated on appearance of jaundice:**
 - Grade of child adequacy, reflex activity.
 - Adequacy of breast feeding that should take place not less than 8 times a day.
 - Skin turgor state and mucosae wetness
 - Liver and spleen sizes.
 - Miction rate and urine character.
- It is extremely important to check newborns with jaundice for symptoms of central neural system disorders (kernicterus):
 - Early symptoms – appearance of lethargy, drowsiness, torpidity and sucking reflex repression.
 - Acrimony, muscular hypertonia, high sound scream, possible temperature rise at a later period.
 - At terminal stage child develops opisthotonus, convulsions, apnea, monotonous high-pitch cry, deep stupor or coma.

3.3. Requirements for the results of work.

- to give an advice for pregnant woman with Rh negative blood.
- to evaluate the patient.
- to make a management of pregnancy course and postpartum period for women's with O(I) and Rh neative blood .
- to write the clinical diagnosis in pregnant women with Rh - incompatibility of mother and fetus;
- to write a plan of survey pregnant with Rh-negative blood type;

- to write tactics pregnant with Rh – and ABO incompatibility of blood between mother and fetus;
- to make an oral report on the thematic patient.
- to do analysis and discussion of the results of the patient's examination.
- to do multimedia presentation on the topic of the lesson (review of literature using modern sources; videos, etc.).

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Situational task:

2. Second- Gravida with blood type O (I) Rh - negative at term 36-37 weeks of gestation was hospitalized. Natural antibodies titer - 1: 256, immune antibodies - 1: 4, hemolysin - 1: 2. Ultrasound results: fetal revealed hepatosplenomegaly, ascites, placental thickness of 56 mm, polyhydramnios.

What is the most likely diagnosis and what tactics?

Correct answer – Rh-incompatibility between the blood of mother and fetus in Rh-factor. Hemolytic disease of the fetus. Early delivery by Caesarean section.

2. Pregnant with Rh-incompatibility has a reduction in titer Rh antibodies from 1:16 to 1: 8 at term gestation 25-26 weeks. With ultrasound revealed the outline of the head, liver enlargement, thickening of the placenta to 50 mm. What subsequent tactic?

Correct answer - abortion

3. In pregnant women with Rh-incompatibility (titer 1:16) discovered type I diabetes. What subsequent tactic?

Correct answer - abortion

4. Multigravida with O (I), Rh- positive blood was admitted to hospital at 36-37 weeks gestation. Natural antibody titer of 1: 256, 1:64 immune antibodies, hemolysin - 1: 2. In what term of gestation should be taken labor?

Correct answer - immediately

5. Multigravida was hospitalized in the department of pathology of pregnancy at term gestation 32-33 weeks. Blood group A (II), Rh-negative. In the history She gave a birth to 2 Rh-positive mature babies. Antibody titers during this pregnancy 1:16, not increased. In what gestation period is necessary to gently delivery patient?

The correct answer – at 37-38 weeks

6. Primagravida with Rh-negative blood affiliation made medical abortion at 10-11 weeks of term. What subsequent tactic of doctor?

The correct answer - the prescription of Anti-Rh immunoglobulin.

7. In Multigravida during registration in Women's consultation detected sensitization by Rh-factor. The woman discovered chronic pyelonephritis, iron deficiency anemia mild. In the history of two hemotransfuziyi 2 mymovylnyh abortion in early nd habitats. What is the most probable cause sensitization by Rh-factor?

The correct answer is - without blood transfusion Rh-factor.

8. Primagravida with Rh-negative blood at term gestation of 40 weeks nahodytsya in the second stage of labor. When you need to enter Antirhesus Rh-immunoglobulin to prevent Rh-sensitization?

Correct answer - to train the first 72 hours after birth.

9. The mother of O (I), Rh-negative blood type and the father of A (II), Rh-positive blood type baby with A (II) Rh-negative blood type with signs of hemolytic jaundice. What is the most likely cause of this condition?

Correct answer is conflict ABO system.

10. In newborn baby one day after birth developed mild jaundice. Mother is Primipara with O (I), Rh-negative blood type, the father has B (III), Rh-positive blood type. The direct Coombs test of umbilical cord blood is negative, no antirhesus maternal antibodies. What is the diagnosis in a newborn?

Correct answer - hemolytic disease of the newborn ABO system.

5. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

“5”	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
“4”	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
“3”	The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
“2”	The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not

	demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.
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Topic 18.

Obstetric bleeding in pregnancy, labour and postpartum period.

Haemorrhagic shock. DIC - syndrome. Intensive therapy and resuscitation in case of obstetric haemorrhage.

LEARNING OBJECTIVES

The overall aim of this topic is to gain basic knowledge about the etiology, pathogenesis, clinics, diagnostics and treatment of pathological conditions that may cause obstetric haemorrhage. During the course of teaching the material, students develop clinical thinking on this topic, which allows them to further solve problems associated with obstetric haemorrhage.

Basic concepts:

Equipment

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

I. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

The incidence of obstetric haemorrhage is 5-10%, but it is the most common cause of maternal disease, disability and mortality (20-25%). One of the most important factors is the increase in the number of cesarean sections. The profuse obstetrical haemorrhage during some minutes can become fatal because of belated elimination of blood and its components deficiency. During haemorrhage at the III trimester of pregnancy, the acute fetus hypoxia which requires immediate labour when there is no time for waiting of stable normalization of hemodynamic index and the fulfilment of full capacity of infusion-transfusion therapy often occurs. Physiological postnatal haemorrhage after the ending of the III labour stage should be no more than 0.5% of a woman's body weight (>0,5% - pathological).

All other bleeding during pregnancy is pathological. Massive obstetric haemorrhage is more often associated with placenta previa or premature placental abruption, anomalies of placentation, postnatal hypo- and atony of uterus, embolism by amniotic fluids, uterus rupture. The profuse obstetrical haemorrhage can lead to haemorrhagic shock or accompanied by disorders of homeostasis system.

II. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- pathological conditions may cause obstetrical bleeding,
- evaluate laboratory researches: analysis of blood, urine, reaction to determine HCG and others and US data for extra-uterine pregnancy, hydatidiform mole, placenta previa and premature detachment of a normally located placenta,
- learn data of clinics-laboratory researches for miscarriages, extra-uterine pregnancy, trophoblastic disease, placenta previa and premature detachment of a normally located placenta.
- make a plan for research and therapy for miscarriages, extra-uterine pregnancy, trophoblastic disease, placenta previa and premature detachment of a normally located placenta.
- pathogenesis, clinics, diagnostics and treatment of miscarriages, extra-uterine pregnancy, trophoblastic disease, placenta previa and premature detachment of a normally located placenta.
- pathogenesis, clinics, diagnostics and treatment of haemorrhagic shock.
- pathogenesis, clinics, diagnostics and treatment of DIC—syndrome.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Assess the general condition of pregnant woman
- determining the volume of blood loss (Libov's method, Nelson's formula, Algovver's shock index, Moore's hematocrit method)
- management of the third stage of labor
- routine observation and evaluation of the integrity of the placenta and its membranes;
- manual removal of the placenta
- identify Kulencampf's, "phrenicus", Blumberg symptoms.
- external massage of the uterus, external maneuvers for delivering placenta.
- Catheterization of peripheral or central vein.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. At survey of a placenta which was just allocated, presence of defect in the size 2x3 see fixed. Bleedings are not present. What tactics is most justified?

- A. External massage of a uterus.
- B. Assignment of uterotonic agents
- C. * Manual audit of a cavity of the uterus.
- D. Observation over the puerpera
- E. Tool audit of a cavity of the uterus

2. Twice pregnant 25 years. In the third period of labors the bleeding without attributes of branch of a placenta has appeared. At manual branch of a placenta presence of a placenta, evolved in a myometrium fixed. Tactics of the doctor?

- A. * Laparotomy, a hysterectomy.
- B. Tool secretion of an afterbirth
- C. Application of uterotonic agents
- D. A hemotransfusion.
- E. Prophylaxis of a postnatal inflammation of a uterus

3. At the puerpera a massive bleeding after a birth of two at a birth through natural patrimonial ways. The children's place and patrimonial ways are whole. The uterine fundus is higher than a an umbilicus , the uterus at a palpation soft, does not react to introduction of agents reducing a uterus. What most authentic reason of a bleeding?

- A. Damage of a cervix of a uterus
- B. *Atony of a uterus
- C. A hysterrrhesis
- D. A delay of parts of a placenta
- E. A hypotonia of a uterus

4. At the parturient woman with the serious form of a preeclampsia right after the bleeding began birthes of a fetus. The afterbirth is whole, patrimonial ways are whole. The uterine fundus is lower than a umbilicus 2 sm, dense. At external massage of a uterus the bleeding has amplified, a blood is liquid and without clots. What diagnosis can be assumed?

- A. A hysterorrhesis.
- B. A hypotonic bleeding
- C. A delay in a uterus of parts of a fetus
- D. *A coagulopathic bleeding, the DIC syndrome
- E. An embolism amniotic waters

5. At carrying out of operation the caesarian section in connection with a complete placental presentation, after erasion of a placenta has arisen an appreciable bleeding from a site of a placental platform. The rests of a placental tissue which do not leave a napkin, a uterus soft, badly reduced are marked. The diagnosis of a true partial increment of a placenta is put. Specify the most rational tactics concerning a stopping of a bleeding.

- A. To enter intravenously uterotonics.
- B. To remove it is acute the rests of a placental tissue.
- C. To carry out sewing together of sites of a bleeding.
- D. To carry out a dressing of the main vessels.
- E. * To carry out operation of a hysterectomy without appendages.

6. Primapara, 22 y.o., after delivery of a newborn, 4000 g mass, the hemorrhage form patrimonial paths has started. Bloodloss – 20 % of CBV (Circulating blood volume), BP 100/60 mm, shock index – 1. Diagnosis:

- A. Hemorrhagic shock I degree
- B. Hemorrhagic shock III degree
- C. Thrombushemorrhagic shock
- D. *Hemorrhagic shock II degree
- E. Septic shock

7. In Woman-in-labor in the early puerperal period hemorrhage appeared. Bloodloss is 1500 ml (1,8 %). General state is severe, the consciousness is confused, anergic stupor, anxiety, body t° - 35,7°C, pale skin, acrocyanosis. Tachicardia 130-140 b/min, CVP (Central venous pressure) – 20 mm, RR (respiration rate) 40 in min, diuresis per hour 15-20 ml/h, Ht –0, 25, shock index – 1,4, Hb –70 g/l. What should be the doctor's tactics?

- A. Cold on the lower abdomen.
- B. *Laparotomy. Total hysterectomy without appendages.
- C. Manual revision of uterine cavity and massage of the uterus.
- D. Applying of ligating clamps on parametrium.
- E. Introduction of ether tampon.

8. At Multypara with placental presentation the uterine hemorrhage have appeared. Total bloodloss – 500 ml, BP 100/60 mm, Ps – 100 in 1 min, pale skin. Determine the shock index:

- A. 1.5
- B. 0.5
- C. *1.0
- D. 0.8
- E. 2.0

9. At woman-in-labor in early puerperal period hemorrhage appeared from patrimonial paths have appeared. Total bloodloss –1000 ml, BP –90/70 mm, Ps – 120 b/min, pale skin, cold sweat, oliguria. Determine the grade of hemorrhagic shock:

- A. 0
- B. I
- C. *II
- D. III
- E. IV

10. At woman-in-labor in early puerperal period hemorrhage appeared from patrimonial paths have appeared. Total bloodloss –1000 ml, BP –90/70 mm, Ps – 120 b/min, pale skin, cold sweat, oliguria. Determine the total volume of infusive therapy in connection with total bloodloss:

- A. 2
- B. * 1.5
- C. 2.5
- D. 1
- E. 3

III. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Student groups are divided into 3 subgroups of 3-4 people each. They work in the classroom, maternity ward, maternity ward, neonatal unit with pregnant women and newborns.

Task:

Student groups are divided into 3 subgroups of 3-4 people each. They work in the classroom, maternity ward, maternity ward, neonatal unit with pregnant women and newborns.

- Subgroup I – determining the volume of blood loss (Libov's method, Nelson's formula, Algoover's shock index, Moore's hematocrit method)
- Subgroup II – management of the third stage of labor

- Subgroup III - to assess the responses of subgroups I and II and make adjustments.

Atypical situations of tasks:

1. Pregnant 22 years in a duration of gestation of 37 weeks; in an anamnesis a late misbirth. At night suddenly began a bleeding from sexual ways, up to 200 ml. A position of a fetus is longitudinal, the head above an input in a small pelvis. Heartbeat of a fetus is clear, rhythmical, 140 hits / minutes. At vaginal research it is revealed, that the canal of a cervix of a uterus passes 1 transversal finger. What reason of a bleeding?

Answer: I pregnancy, 37 week of gestation term. Longitudinal lie with head presentation of the fetus. Labor I, in term, first stage of labor. A placental presentation.

2. In a maternity home has arrived a pregnant with complaints to a whining back pain and spreading bloody discharge from a vagina. A duration of gestation of 36-37 weeks. Objectively: the sizes of a pelvis normal, a circle of a stomach – 102 sm, height of standing of a uterine fundus – 38 sm. Above an input in a pelvis there is a big soft part of a fetus, in a uterine fundus - more dense of the round form. Heartbeat of a fetus 160 heart-rate., is higher than a umbilicus at the left. P.V.: the cervix of a uterus dense, is open on 5 sm, the amniotic bubble, edge of a placenta is determined, presents the pelvic end. What obstetric tactics is applicable at the further conducting pregnant?

Answer: I pregnancy, 36-37 weeks of gestation term. Longitudinal lie with head presentation of the fetus. Labor I, before the term, first stage of labor. Laparotomy. Caesarian section

3. 37 weeks primigravida in term. A fetus alive. A pelvis 26-28-31-20. three days ago at absence of patrimonial activity of 50-60 ml has appeared bloody discharge from sexual ways. In two day the bleeding has repeated. A vaginal examination: the cervix of a uterus is short, the canal passes a finger. Behind internal fauces the spongiform tissue is determined. The head of a fetus is mobile above an input in a small pelvis. After research the bleeding has amplified. The diagnosis?

Answer: I pregnancy, 37 week of gestation term. Longitudinal lie with head presentation of the fetus. Labor I, in term, first stage of labor. Placental presentation

4. In a maternity home it is delivered pregnant, showing complaints to a headache and pains in epigastric area. Pulse 100 in 1 mines, BP 170/100 mm.hg., edemas of the person, a stomach, legs. The sizes of a uterus corresponds to term of the worn pregnancy, it is intense and morbid at a palpation, palpitation of a fetus is muffled, discharge from a vagina is bloody. What obstetric tactics is applicable at the further conducting pregnant?

Answer: cesarean section urgently

5. Pregnant 25 years it is delivered in a maternity home with pregnancy of 34 weeks and complaints on bright bloody discharge with clots which have appeared after the act of a defecation. The head of a fetus at a uterine fundus. Palpitation of a fetus - 140 hits in one minutes. Patrimonial activity is absent. A vaginal examination: the cervix of a uterus in length of 3 mm, fauces passes the end of a finger, through a vagina massive formation of a soft consistence is palpated, discharge is bloody, bright. What diagnosis the most authentic?

Answer: I pregnancy, 34 week of gestation term. Longitudinal lie with head presentation of the fetus. Labor I, before the term, first stage of labor. A placental presentation.

3.2. Educational materials, recommendations (instructions) for performing tasks

Classification

1. Threat of an abortion (abortus imminens);
2. Incipient abortion (abortus incipiens) ;
3. Inevitable spontaneous abortion (abortus protrahens);
4. Incomplete spontaneous abortion;
5. Complete spontaneous abortion;
6. Abortion which did not take place (missed abortion).

Clinics-diagnostic criteria

Symptoms of a miscarriage:

- pain syndrome: pain, connected to the contraction of the uterus;
- increased uterus tone;
- bleeding of different degrees of severity;
- structural changes in the uterine cervix.

The last two symptoms are the basis for the differential diagnostics of the stages of a miscarriage. During a threat of an abortion there are no bleeding and structural changes in the cervix.

Bleeding during spontaneous abortion, incipient abortion, inevitable abortion, incomplete spontaneous abortion

Clinical picture:

- cramp-like, spasmodic pain;
- bleeding of different severity.

Diagnostics:

- evaluation of the pregnant woman's general condition;
- examination of the cervix uterus with mirrors, bimanual examination;
- evaluation of the volume of blood loss.

Treatment:

- instrumental curettage of the uterus under intravenous narcosis (essential – histological test of the received material);
- preparations, which contract the uterus (10 units of oxytocin droplet i\ v or 0,5 mkg methylergometrine i\ v or i\ m);
- if the bleeding continues - 800 mkg misoprostole rectally;
- antibacterial therapy if indicated.

Extra-uterine pregnancy (ectopic, EP) – an implantation of the fertilized ovum outside the uterine cavity. The most frequent localization of an EP – fallopian tubes.

Risk factors:

- Inflammatory diseases of the uterus and uterine appendages in the anamnesis.
- cicatrical adhesions in the organs of the small pelvis due to operations in the past on the internal genitals, pelviperitonitis, abortions.
- Hormonal dysfunction of the ovaries.
- Genital infantilism.
- Endometriosis.

- Prolonged use of intrauterine contraceptives.
- Auxiliary reproductive technologies.

Diagnostics.

Clinical signs.

1. Signs of pregnancy: delay or missed menstruation, swelling of the breasts, change in taste, smell and other sensations characteristic for pregnancy, signs of early gestosis (nausea, vomiting, etc.), positive immunological reactions to pregnancy (HCG in blood serum and urine).

2. Menstrual dysfunction: spotting, bloody vaginal discharge: - after a delay in menstruation; with the beginning of the next menstruation; before the next expected menstruation.

3. Pain syndrome: unilateral spasmodic or constant pain in the lower abdomen; sudden intensive pain in the lower abdomen; peritoneal symptoms in the lower abdomen of different degrees of severity; irradiating pains to the rectum, perineum area and sacrum.

4. Signs of intra-abdominal bleeding (in case of EP): dullness of percussion sound in the flanks and abdomen; positive Kulencampfa symptom (presence of signs of irritation of the peritoneum with the absence of local muscular pressure in the lower areas of the abdomen); when the patient is in horizontal position there is a positive bilateral "phrenicus" symptom, and in a vertical position - dizziness, loss of consciousness; in case of considerable hemoperitoneum – positive Blumberg symptom; progressing decrease in haemoglobin, erythrocytes, haematocrit from blood analysis results.

5. Decrease in the patient's general condition (in case of EP): weakness, dizziness, loss of consciousness, cold sweats, collapse, hemodynamic dysfunction, faintness, reflex vomiting, meteorism, diarrhea.

Data from gynecologic exam: cyanosis of the mucous membrane of the vagina and cervix uterus, the sizes of the uterus are less than for the expected pregnancy term, unilateral increase and tenderness of the uterine appendages, bulging of the vaginal fornix (in the case of hemoperitoneum), acute pain during palpation of the posterior vaginal fornix ("Douglas' cry"), pain during cervical excursion.

Specific laboratory tests: qualitative or quantitative test for HCG.

Instrumental methods of examination: ultrasound (absence of the fetal egg in the uterine cavity; visualization of the embryo outside of the uterine cavity; detection of a non-uniform structure in the field of projection of the fallopian tubes; significant amount of free fluid in the Douglas pouch); laparoscopy (retor-shaped thickening of the fallopian tubes with a crimson - cyanotic colour; rupture of the fallopian tubes, bleeding from the ampular opening or from a ruptured place in the fallopian tubes, presence of coagulated or fresh blood in the abdominal cavity and in the Douglas pouch, presence of elements of the fetal egg in the abdominal cavity).

Diagnostic curettage of the walls of the uterine cavity:

- Absence of elements of the fetal egg in the curettage material;
- Presence of decidual tissue in the curettage material.

Diagnostic curettage of the walls of the uterine cavity is performed in the absence of an ultrasound and with informed consent from the patient for this manipulation.

In case of small term of delay in menstruation, and it is in interest of the woman to keep the uterine pregnancy and the absence of symptoms of an intra-abdominal bleed it

is necessary to choose conservative tactics, observing the clinical signs, ultrasound in dynamics, level of HCG in blood serum.

Puncture of abdominal cavity through the posterior vaginal fornix.

It is performed when there is no ultrasound for the diagnostics of a tubal abortion. The presence of fresh blood in the punctate - one sign of EP.

In case of clinical signs of an intra-abdominal bleed, puncture of the abdominal cavity through the posterior vaginal fornix is not performed – it delays the beginning of laparotomy.

Differential diagnostics.

Diagnostics of ectopic pregnancy are simple in patients with amenorrhea, signs of pregnancy, pain in the lower abdomen and bleeding. But it is necessary to exclude the following conditions:

1. Twisting of an ovarian cyst or acute appendicitis.
2. Aborted uterine pregnancy.
3. Hemorrhage in the yellow body.

Clinical signs	Progressing ectopic pregnancy	Tubal abortion	Rupture of the fallopian tubes
Signs of pregnancy	positive	positive	positive
Patient's general condition	Satisfactory	Periodically faints, short-term losses of consciousness, frequent periods of unsatisfactory general condition	Collaptoid state, clinical picture for massive blood loss, progressive deterioration of the general condition
Pain	Absent	Attacks which periodically repeat	Present in the beginning of acute attack
Discharge	Absent or insignificant bloody discharge	Dark bloody discharge, which appears after pain attack	Absent or insignificant bloody discharge
Vaginal examination	Uterus does not correspond to the estimated pregnancy term, near the uterus is a retro- verted formation, tender, fornix is	The same, pain in the uterus is not defined, formation without clear contours, posterior fornix is not palpable	The same, "tender uterus" symptoms, pain in the abdomen and uterine appendages on the affected side, bulging at the posterior fornix
Additional methods of examination	Ultrasound, levels of β -HCG, laparoscopy	Culdocentesis, laparoscopy	Is not performed

Treatment for EP.

Principles for conducting patients with ectopic pregnancy:

1. Suspicion of ectopic pregnancy is an indication for urgent hospitalization.
2. Early diagnostics helps reduce the amount of complications and gives the possibility of alternative methods of treatment.

3. In the case of the established diagnosis of EP it is necessary to perform urgent operative intervention (laparoscopy, laparotomy). Operative treatment is the optimum. In modern practice, conservative methods of treatment are possible.

4. In the case of expressed clinical picture of ectopic pregnancy, presence of hemodynamical dysfunctions, hypovolemia the patient is to be immediately hospitalized for emergency surgical intervention using laparotomy access. If the clinical picture is not clear, there are no signs of hypovolemia and internal bleeding – ultrasound of the pelvic organs and/or laparoscopy.

5. On the pre-admission stage in case of EP the volume of urgent help is determined by the general condition of the patient and the volume of blood loss. Infusion therapy (volume, speed of introduction of solutions) depends on the stage of hemorrhagic shock.

6. Poor condition of the patient, presence of expressed hemodynamic dysfunctions (hypotonia, hypovolemia, hematocrit less than 30%) - absolute indications for operative intervention by laparotomy access with the removal of the fallopian tubes and providing antishock therapy.

7. Provide complex approach to treatment of women with extra-uterine pregnancy which includes:

- a) Operative treatment;
- b) Control of bleeding, hemorrhagic shock, blood loss;
- c) Conducting the postoperative period;
- d) Rehabilitation of reproductive function.

8. Operative treatment can be provided with laparotomy or laparoscopic access.

Advantages of laparoscopic access include:

- decrease in the time of the operation;
- decrease the duration of the postoperative period;
- decrease the duration of stay in the hospital;
- decrease the amount cicatricial changes in the anterior abdominal wall;
- cosmetic effect.

9. The performance of organ-saving operations during EP is accompanied by risk in the postoperative period of development of persistence of the trophoblast, which is the result of incomplete removal from the fallopian tubes and abdominal cavity. The most effective method of prevention of this complication is careful washing of the abdominal cavity with 2-3 liters of physiological solution and unitary introduction of 7.5 - 100 mg methotrexate i/m during the first 24-48 hours after the operation.

Operations used in the case of tubal pregnancy:

1. Salpingostomy (tubotomy). Longitudinal salpingostomy is performed. After the removal of the fetal egg, salpingostomy is usually not sutured. In the case the chorionic villi do not grow into the muscular membrane of the fallopian tube, only curettage is performed.

2. Segmentary resection of the fallopian tubes. The segment of the fallopian tubes is removed where the fetal egg is located, then an anastomosis is made between two ends of the tube. If it is impossibility to perform salpingo – salpingo anastomosis then it is possible to tie off both ends and perform anastomosis later.

3. Salpingectomy. This operation is performed for a tubal pregnancy accompanied by massive bleeding. The operation and hemotransfusion is performed in that case simultaneously.

Conservative treatment of EP.

Treatment of progressing EP with methotrexate can be done only in third level institutions of public health services where it is possible to determine β – subunit of HCG in blood serum and perform a trans-vaginal ultrasound.

Indications for the use of methotrexate in the case of EP.

In order to avoid the introduction of methotrexate during a normal uterine pregnancy or an abortion which has not taken place, it is prescribed only in the following cases:

1. Increased level of β – subunit of HCG in blood serum after organ-saving operations on the fallopian tubes, performed due to progressing extra-uterine pregnancy.

2. Stabilization or increased level of β – subunit of HCG in blood serum during 12-24 hours after separate diagnostic curettage or vacuum aspiration if the size of the fetal egg at the area of the uterine appendages does not exceed 3,5 cm.

3. During trans-vaginal ultrasound it is discovered that the fetal egg has a diameter no more than 3,5 cm at the area of the uterine appendages and the level of β – subunit of HCG is 1500 IU/l, the absence of the fetal egg in the uterine cavity.

Postoperative period.

If the placenta is found in the abdominal cavity after the operation, its condition is evaluated with an US and the determining the level of subunits of HCG. In these cases, there is a very high risk of intestinal obstruction, fistula, sepsis. The use of methotrexate is counter-indicated, as it is accompanied by severe complications, first of all - sepsis. The reason for sepsis is massive necrosis of the placenta.

Bleeding during the second half of the pregnancy:

- placenta previa;
- premature detachment of a normally located placenta;
- rupture of the uterus

Placenta previa - complication during pregnancy where the placenta is located in the lower segment of the uterus lower than the presented part of the fetus, blocking fully or partially the internal uterine os. During physiological pregnancy, the lower edge of the placenta does not reach any closer than 7 cm to the internal os. Placenta previa is seen in 0,2-0,8 % of all delivers.

Classification of placenta previa

1. Complete presentation - the placenta completely blocks the internal os.
2. Incomplete presentation - the placenta partially blocks the internal os:
 - a) Lateral presentation - 2/3 of the area of the internal os is blocked;
 - b) Marginal presentation – the edge of the placenta meets the internal os.
3. Low placenta previa (placement) – the placenta is implanted in the lower uterine segment less than 7 cm from the internal os without blocking it.

In connection with migration of the placenta or its growth, the type of presentation can change as the pregnancy continues.

Clinical-diagnostic criteria:

The risk group for placenta previa is women who have transferred:

- endometritis with cicatricial dystrophic changes in the endometrium;
- abortions, complicated by inflammatory processes;
- benign uterine tumours, in particular submucous myoma nodes;
- action of chemical products on the endometrium;

- women with hypoplastic uterus.

Clinical symptoms

Pathognomonic symptom – bleeding, which can periodically repeat during the pregnancy between 12 and 40 weeks, occurring spontaneously or after physical activity, having risky character:

- with the beginning of uterine contractions at any term during the pregnancy;
- it is not accompanied by pain;
- it is not accompanied by increased tonus of the uterus.

The severity of the condition is caused by volume of blood loss:

- during complete presentation - massive;
- during incomplete - it varies from small to massive.

Anemia, as a result of bleeding, occurs, repeatedly. During this pathology, the lowest contents of haemoglobin and erythrocytes occurs in comparison with other complications during pregnancy which are accompanied by bleeding.

Frequently, incorrect positioning of the fetus occurs: diagonal, transverse, breeched presentation, incorrect insertion of the head. Premature birth is possible.

Diagnostics

1. Anamnesis.

2. Clinical displays - occurrence of repeated bleeding, not accompanied by pain and increased uterus tonus.

Obstetrical examination:

a) External examination:

- High standing of the presented part;
- Diagonal, transverse fetal position;
- The tonus of the uterus is not increased;

b) Internal examination (performed only in the conditions of an operation room):

- Doughy tissue in the fornix, swelling, pulsation of vessels;
- Impossible to palpate the presented part through the fornix.

In case of bleeding of specific character, the presentation is not meaningful because the obstetrical tactics are determined by the volume of blood loss and the condition of the woman.

US is of great importance to determine the location of the placenta and to establish a correct diagnosis.

Placenta previa with bleeding is an urgent indication for hospitalization.

Algorithm of examining a pregnant woman with bleeding in the hospital:

- Specify the anamnesis;
- Evaluate the general condition, volume of blood loss;
- General instrumental tests (blood type, Rhesus factor, general blood analysis, coagulogram);

- External obstetrical examination;
- Examination of the uterine cervix and vagina in an operational room with the help of vaginal mirrors to exclude such reasons for bleeding as cervical polyp, cervical cancer, rupture of a varicose node, evaluate vaginal discharge;
- Additional methods of examination (US) if indicated, if there is no need for urgent delivery.

Treatment:

Treatment tactics depend on the volume of blood loss, conditions of the patient and fetus, character of the presented part, term of the pregnancy, maturity of the fetus's lungs.

Principles for conducting patients with placenta previa:

1. In case of small blood loss (250 ml), absence of symptoms of hemorrhagic shock, fetal distress, absence of labor activity, immaturity of the fetus's lungs before 37 weeks term - waiting tactics.
2. Bleeding that has stopped - US, prepare the fetus's lungs. The purpose of waiting tactics – prolong the pregnancy to term of a viable fetus.
3. In case of progressing uncontrollable bleeding (more than 250 ml), accompanied by symptoms of hemorrhagic shock, fetal distress, regardless of the pregnancy term, condition of the fetus (live, distress, dead) - urgent (emergency) delivery.

Clinical variants:

1. Blood loss (up to 250 ml), there are no symptoms of hemorrhagic shock, fetal distress, term of pregnancy - less than 37 weeks:
 - hospitalization;
 - tocolytic therapy when indicated;
 - quicken the maturing of the fetus's lungs before 34 weeks of pregnancy (dexamethasone 6 mg every 12 hours for 2 days);
 - monitoring the woman and fetal condition.
 - If bleeding progresses more than 250 ml – delivery by Cesarean section.
2. Considerable blood loss (more than 250 ml) with premature term of pregnancy – regardless of the presented part – emergency Cesarean section.
3. Blood loss (up to 250 ml) with mature pregnancy:

Under the conditions of an operational room, determine the presentation:

- In case of partial placenta previa, intact amniotic sac and cephalic presentation, active uterine contractions, perform amniotomy. If the bleeding stops, delivery can be performed vaginally. After the birth of the baby - i/m introduction 10 units of oxytocin, carefully observe the contractions of the uterus and character of vaginal discharge. If bleeding continues - Cesarean section;
 - During complete or incomplete placenta previa, wrong fetal position (pelvic, diagonal or transverse) perform a Cesarean section;
 - During incomplete placenta previa, dead fetus perform amniotomy, if the bleeding stops – vaginal delivery.
4. Blood loss (more than 250 ml) mature pregnancy regardless of the presentation - emergency Cesarean section.

5. Complete placenta previa: diagnosed by US, without bleeding – hospitalization till mature term for delivery, Cesarean section at 37-38 weeks.

In the early postnatal period - careful supervision of the woman's condition. If the bleeding reoccurs after Cesarean section and the volume of blood loss is more than 1% of body weight - urgent relaparotomy, hysterectomy without the appendages, if necessary – ligation of the internal iliac arteries by an expert.

Compensation for the blood loss, treatment of hemorrhagic shock and DIC - syndrome is performed when indicated.

Postnatal secondary (late) bleeding

Main causes for late postnatal bleedings:

- delay of parts of the placenta or its membranes;
- discharge of necrotic tissue after delivery;
- separation of sutures on the wound on the uterus (after C-section or ruptured uterus).

More often late postnatal bleeding arises 7-12 days after delivery.

Algorithm for medical help:

1. Evaluation of blood loss (appendix N 1).
2. Catheterization of peripheral or central vein.
3. Instrumental revision of the uterine cavity under i\ v narcosis.
4. I\ v introduction of uterotonics (oxytocin 10-20 units in physiological solution - 400,0 or 0,5 mkg of methylergometrine).
5. If the bleeding continues – misoprostol 800 mkg rectally.
6. Restore blood volume.
7. If blood loss > 1,5% of the woman's body weight – laparotomy, hysterectomy, if it still continues – ligation of the internal iliac arteries.

Disorders of blood coagulation (postnatal afibrinogenemia, fibrinolysis):

- restore blood volume;
- correct hemostasis.

Prevention of postnatal bleedings:

1. During pregnancy:

- evaluate the risk factors for the occurrence of bleedings;

Factors which assist in the occurrence of bleedings in the postnatal period

Previous pregnancy	Factors, which occurred during the pregnancy	Factors, which occurred during the delivery
Primipara	Complete placental entation	Stimulation of delivery
More than 5 deliveries in anamnesis	Placental detachment	Long or difficult delivery
Pathology in attachment or discharge of placenta	Hydramnion	Fast delivery
Operations on the uterus in the anamnesis, including sections	Multiple pregnancy	Emergency Cesarean section
Long or difficult delivery in anamnesis	Intrauterine fetal death	Delivery with obstetrical complications

Background diseases – cardio-vascular diseases, diabetes, coagulation disorders	Severe pre-eclampsia, hypertension	Chorioamnionitis
Anemia	Hepatitis	DIC – syndrome
Hysteromyoma	Conditions connected with anemia	General or epidural anesthesia

- Diagnostics and treatment of anemia;
- Hospitalization, readiness to give medical help to pregnant women of high risk for bleedings: antenatal bleeding, bleedings in previous deliveries, hydramnion, multiple pregnancy, large fetus.

2. During delivery:

- anesthesia during labor;
- avoidance of long deliveries;
- active conduction of the third period of labor;
- use of uterotonic preparations during the third period of labor;
- routine observation and evaluation of the integrity of the placenta and its membranes;
- prevention of traumatism during labor.

3. After labor:

- Inspection and examination of the birth canal;
- Attentive supervision throughout 2 hours after delivery;
- In woman of high risk - iv introduction of 20 units of oxytocin for 2 hours after the delivery.

Methods for determining the volume of blood loss

1. Libov's Method

Volume of blood loss is determined by weighing the napkins used, which are soaked in blood

Volume of blood loss = $B / 2 \times 15 \%$ (blood loss less than 1000 ml) or $\times 30\%$ (blood loss more than 1000 ml).

Where B - weight of the napkins, 15 % and 30 % - error size (amniotic fluid, physiological solution).

2. Nelson's formula

The percentage ratio of the total amount of blood loss is figured:

$$\frac{0,036 \times \text{original blood volume}}{\text{body weight}} \times \text{hematocrit}$$

$$\text{original blood volume (ml/kg)} = \frac{24}{0,86 \times \text{original hematocrit}} \times 100$$

3. Determine the blood loss by the density of blood and the hematocrit

Blood density, kg/ml	Hematocrit	Volume of blood loss,
1057-1054	44-40	Up to 500
1053-1050	38-32	1000
1049-1044	30-22	1500
Less than 1044	Less than 22	More than 1500

4. Algovert's Shock index

$$\frac{\text{Heart rate}}{\text{BPs}}$$

Shock index =

Where BPs – systolic blood pressure

Normally Algovert's index = 1.

By determining the index size it is possible to conclude about the size of blood loss

Algovert's index	Volume of blood loss (% blood volume)
0,8 and less	10 %
0,9-1,2	20 %
1,3-1,4	30 %
1,5 and more	40 %

Note: Algovert's index is not informative in patients with hypertension

5. Moore's hematocrit method

$$BL = BV(n) \times (Ht(n) - Ht(a)) / Ht(n)$$

Where:

BL – blood loss; BV (n) – normal blood volume; Ht (n) – normal hematocrit (in woman – 42);

Ht (a) – actual hematocrit determined after blood loss is stopped and hemodynamics are stabilized

For rough amount of blood loss in pregnant women it is possible to use the modified Moore's formula:

$$BL = M \cdot 75 \cdot \frac{0,42 - Ht(a)}{0,42}$$

Where: BL – blood loss; (ml); M – woman's body weight (kg); Ht (a)- patient's actual hematocrit (l/l)

3.3. Requirements for the results of work.

- To perform an fetal heart tones auscultation.
- To prescribe an adequate treatment of fetal hypoxia.
- Ultrasonography assessment.
- To evaluate of fetal heart tones during electronic fetal monitoring.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

1. 10 minutes after delivery a woman discharged placenta with a tissue defect 5x6 cm large. Discharges from the genital tracts were profuse and bloody. Uterus tonus was low, fundus of uterus was located below the navel. Examination of genital tracts revealed that the uterine cervix, vaginal walls, perineum were intact. There was uterine bleeding with following blood coagulation. Your actions to stop the bleeding:

- A. *To make manual examination of uterine cavity
- B. To apply hemostatic forceps upon the uterine cervix
- C. To introduce an ether-soaked tampon into the posterior fornix
- D. To put an ice pack on the lower abdomen
- E. To administer uterotonics

2. A 22-year-old woman, gravida 1, para 0 arrived with complaints of sharply painful contractions that occur every 3-4 minutes and last for 35-40 seconds. Amniotic sac is intact. The fetus is in transverse lie, fetal heartbeats are not affected. Contraction ring is acutely painful, located obliquely at the level of umbilicus. What is the most likely diagnosis?

- A. Excessive uterine activity during labor
- B. Discoordinated labor
- C. *Threatening uterine rupture
- D. Uterine tetany

3. A 24-year-old patient (gravida 2, para 2) has just delivered vaginally an infant weighing 4,300 g after a spontaneous uncomplicated labor. She has had no problems during the pregnancy and labor. The placenta delivers spontaneously. There is immediate brisk vaginal bleeding of greater than 500 ml. Although all of the following can be the cause for postpartum hemorrhage, which is the most frequent cause of immediate hemorrhage as seen in this patient?

- A. *uterine atony
- B. retained placental fragments
- C. coagulopathies
- D. uterine rupture
- E. vaginal and/or cervical lacerations

4. A 24-year-old woman (gravida 2, para 0, abortus 1) is seen in the emergency department because of vaginal bleeding and abdominal cramps. Her LMP was 10 weeks ago. History is unrevealing except for an induced abortion 2 years ago without complications. She presently denies instrumentation for abortion. Physical examination reveals a BP of 110/70 mm Hg, pulse 120, and temperature 38,8°C. The abdomen is

tender with slight rebound in the lower quadrants. The pelvic examination reveals blood in the vault and a foul-smelling discharge from the cervix, which is dilated to 2 cm. The uterus is 8- to 10-week size and tender, and no adnexal masses are palpated. What is the most likely diagnosis?

- A. pelvic inflammatory disease (PID)
- B. septic abortion
- C. twisted ovarian cyst choriocarcinoma
- D. *septic abortion
- E. hydatidiform mole

5. A 24-year-old woman (gravida 2, para 0, abortus 1) is seen in the emergency department because of vaginal bleeding and abdominal cramps. Her LMP was 10 weeks ago. History is unrevealing except for an induced abortion 2 years ago without complications. She presently denies instrumentation for abortion. Physical examination reveals a BP of 110/70 mm Hg, pulse 120, and temperature 38.8°C. The abdomen is tender with slight rebound in the lower quadrants. The pelvic examination reveals blood in the vault and a foul-smelling discharge from the cervix, which is dilated to 2 cm. The uterus is 8- to 10-week size and tender, and no adnexal masses are palpated. Which of the following is definitive initial therapy in this case?

- A. hysterectomy
- B. bed rest and antibiotics
- C. hysterotomy
- D. outpatient antibiotics
- E. *curettage after antibiotics

6. A 26-year-old woman complains of bloody discharges from the genitals for the last 14 days, abdominal pain, general fatigue, weakness, weight loss, fever, chest pain, obstructed respiration. 5 weeks ago she underwent an induced abortion in the 6-7 week of gestation. Objectively: the patient is pale and inert. Bimanual examination revealed that the uterus was enlarged up to 8-9 weeks of gestation. In blood: Hb - 72 g/l. Urine test for chorionic gonadotropin gave the apparently positive result. What is the most likely diagnosis?

- A. Uterine carcinoma
- B. *Chorioepithelioma
- C. Metroendometritis
- D. Uterus perforation
- E. Uterine fibromyoma

7. A 26-year-old woman whose last menstrual period (LMP) was 2½ months ago develops bleeding, uterine cramps, and passes tissue per vagina. Two hours later, she is still bleeding heavily. What is the indicated procedure?

- A. *uterine curettage
- B. vaginal packing
- C. compression of the hemorrhoids
- D. intravenous (IV) fibrinogen
- E. hysterectomy

8. A 26-year-old woman whose last menstrual period (LMP) was 2½ months ago develops bleeding, uterine cramps, and passes tissue per vagina. Two hours later, she is still bleeding heavily. What is the most likely diagnosis?

- A. inevitable abortion
- B. premature labor
- C. twin pregnancy
- D. *incomplete abortion
- E. threatened abortion

9. A 27-year-old G3P3 has delivered a 4200 g female after a 16-hour labor in which contractions were augmented with oxytocin. The placenta delivered intact. Her perineum has a second-degree laceration. After repair of the laceration, the patient continues to bleed heavily. She has lost 350 ml of blood. At this step you should assess uterine tone and do which of the following?

- A. place a second large bore IV line
- B. place a foley catheter
- C. *do a manual exploration of the uterus for retained products of conception
- D. inspect the cervix and upper vagina for lacerations
- E. do a bedside ultrasound to evaluate for retained products

10. A 28-year-old female patient complains of having haemorrhage from the genital tracts for 1 month. 6 months ago she had natural delivery and gave birth to a girl weighing 3100g. Objectively: the uterus is enlarged to 9-10 weeks, mobile, painless, of heterogenous consistency. Examination reveals vaginal cyanosis, anaemia and body temperature rise up to 37, 8oC. There is a significant increase in hCG concentration in the urine. What is the likely diagnosis?

- A. Uterine fibromyoma
- B. *Uterine chorionepithelioma

- C. Pregnancy
- D. Hydatidiform mole
- E. Endometritis

PRACTICAL LESSON № 35.

Pregnancy and labour in women with extragenital diseases. Maternal-foetal blood incompatibility. Perinatal infections. Prevention of vertical HIV transmission.

LEARNING OBJECTIVE is to gain basic knowledge about physiological changes in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge.

BASIC CONCEPTS:

- Clinical manifestations, the characteristics of the course and methods of diagnostics of general diseases of cardiovascular, respiratory, alimentary, urinary, hemopathy and endocrine pathologies in pregnant women.
- Characteristics of the disease course and pregnancy supervision, indications for hospitalization in different extragenital pathology.
- Prenatal and intranatal risk factors, perinatal incidence of disease and morbidity.
- The methods of delivery in different extragenital pathology.
- Characteristic of course and possible complications in delivery process in obstetric patients with different extragenital pathology.
- Etiopathogenesis of HD of the fetus and infant.
- Classification and clinic of HD.
- Methods of ante- and postnatal diagnosis of HD
- Principles of isoimmunization therapy and HD in the antenatal and early neonatal periods
- Methods of isoimmunization prevention

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments.
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 6 h

I. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Pregnancy causes considerable changes in all systems and organs of mother, worsening the course of her present diseases, that leads to apparent risk of the woman's life. Knowledge of the given subject is necessary in order timely to diagnose and treat possible complications of different systems of mother's organism, and for the prevention aiming in optimal strategy of pregnancy and delivery management.

Among the clinical forms of immunopathology of the vaginosis of the most known and learned a small amount of hemolytic diseases (HD) to the fetus and non-malignancy, which develops in the midst of the insane organisms of the mothers and antibodies of the fetus after The knowledge of the nutrition of the etiopathogenesis of ailments, the peculiarities of obstetric and perinatal tactics, allows in the significant world to change the number of unwelcoming inheritances for the fetus, because of the relevance of the inception of this pathology.

II. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Pelvis from anatomical and obstetric points of view.
- Pelvic floor.
- The dimensions of the fetal head and body.
- Signs of fetal maturity.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

Prenatal and intranatal risk factors, perinatal incidence of disease and morbidity.

The methods of delivery in different extragenital pathology.

Characteristic of course and possible complications in delivery process in obstetric patients with different extragenital pathology.

Etiopathogenesis of HD of the fetus and infant.

Classification and clinic of HD.

Methods of ante- and postnatal diagnosis of HD

Principles of isoimmunization therapy and HD in the antenatal and early neonatal periods

Methods of isoimmunization prevention

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. The posterior rectus fascia (sheath) ends at the

- (A) insertion of the rectus muscles
- (B) insertion of the anterior rectus sheath
- (C) arcuate line (semicircular line, linea semicircularis, line of Douglas)
- (D) area approximately 3-4 cm below the umbilicus
- (E) area approximately 2-3 cm above the pubic symphysis

2. Sacrospinous ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

3. Sacrotuberous ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

4. Ilioinguinal ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

5. Arcuate ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

6. Formed by the superior and inferior pubic rami and covered by a central membrane through which a nerve, artery, and vein pass

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen

- (D) sacrospinous ligament
- (E) sacral foramina

7. The internal pudendal vessels and pudendal nerve exit the pelvis but then reenter through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

8. Divides and demarcates the greater and lesser sciatic foramen

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

9. The piriformis muscle, gluteal vessels, and posterior femoral cutaneous nerves pass through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

10. Four anterior and four posterior openings through which pass small nerves

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

11. Which of the following statements is FALSE?

- (A) The ischium has a body and two rami
- (B) The internal surface of the body of the ischium provides attachments for the levator ani muscle and coccygeus muscle
- (C) The superior ramus is located cephalad to the inferior ramus in the standing position
- (D) The superior ramus forms the dorsolateral portion of the obturator canal
- (E) The ischial tuberosity is the lowest portion of the pelvis in the erect or sitting posture and bears the weight of the human frame in the sitting position

12. Regarding the pubis, which of the following statements is FALSE?

- (A) The pubis has a body and two rami
- (B) The superior edge of the body of the pubis, lateral to the midline, has a raised area called the anterior iliac crest a common landmark

- (C) The inferior ramus is the attachment of the adductor magnus and brevis, and obturator internus muscles
- (D) The inferior rami form the lower portion of the pubic arch
- (E) Inferiorly, the pubic bone is the attachment for the urogenital diaphragm

13. The sacrum

- (A) is formed from 11 or 12 small fused vertebrae
- (B) has an uppermost anterior portion called the obstetrical conjugate
- (C) in women has a concave pelvic surface
- (D) is separated from the vertebrae that make up the coccyx by the sacrococcygeal joint
- (E) most often is the limiting factor in determining the size of the pelvic outlet

14. Which of the following is a muscle of the external genitalia?

- (A) the gluteus
- (B) the sartorius
- (C) the superficial transverse perineal
- (D) the deep transverse perineal
- (E) the levator ani

15. The term pudenda includes the

- (A) mons pubis
- (B) vulva
- (C) labia
- (D) external genitalia
- (E) all the above

16. The term perineum describes

- (A) the entire area between the thighs from the symphysis to the coccyx, bounded inferiorly by the skin and superiorly by the levator muscles of the pelvic diaphragm
- (B) the anus and perianal area
- (C) the superficial skin layer of the vulva
- (D) the tendon joining the muscles deep to the external genitalia
- (E) bulbocavernosus, ischiocavernosus, and transverse perineal muscles as a complex

17. The clitoris

- (A) consists of a single crurum, a short body, and the glans clitoris, with overlying skin called the prepuce
- (B) is attached to the pubic bone by a suspensory ligament
- (C) contains within the shaft the corpora cavernosa, a collection of dense connective tissue that serves as support for the anterior-inferior portion of the vagina
- (D) is supplied very sparsely with nerves originating primarily from the terminal branch of the ilioinguinal nerve in most women
- (E) plays a secondary role in erotic stimulation in most women when compared to the role of the vagina

18. Which of the following statements regarding the muscles of the external genitalia is TRUE?

- (A) The bulbocavernosus muscle surrounds the distal vagina and vestibule on each side as a single continuous strip of muscle, much like other sphincters
- (B) The ischiocavernosus muscle takes origin from the ischial tuberosity and inferior ischial ramus and inserts upon the inferior pubic ramus on each side of the pelvis
- (C) The superficial transverse perineal muscle arises from the ischial tuberosity and inferior ischial ramus and inserts between the posterior vagina and anterior rectum
- (D) The perineal body serves as a central connection for all the superficial muscles of the external genitalia except the transverse perineal muscle which inserts directly on the external anal sphincter
- (E) The muscles of the external genitalia are usually spared at the time of episiotomy when the levator ani muscle is routinely divided

19. Which of the following statements about the vagina is FALSE?

- (A) The vagina is a 7-10 cm canal connecting the internal and external genitalia from the vestibule to the uterine cervix
- (B) It is a hollow, distensible, fibromuscular tube with the apex (vault) having an H-shaped lumen and the external opening being flattened in the dorsal-ventral dimension
- (C) The body of the vaginal tube is flattened in its normal resting state
- (D) The mid-portion of the vaginal axis is nearly perpendicular to the lower sacrum in the adult human female in a standing position
- (E) The posterior fornix (back wall of the vagina) is approximately 2 cm longer than the front wall and is directly connected to the peritoneal pouch (posterior cul de sac, retrouterine space, or pouch of Douglas) directly behind the uterus

20. When the infantile uterus is examined, one finds that

- (A) the cervix is larger than the corpus (body of the uterus)
- (B) the position is always anteflexed
- (C) the cervix is the same size as the corpus
- (D) the body is larger than the cervix
- (E) it is as large as the adult organ in the immediate newborn period

21. The portio vaginalis of the cervix is that part which

- (A) extends cephalad from the vagina
- (B) protrudes into the vagina
- (C) forms an internal isthmus
- (D) is normally covered with endocervical epithelium
- (E) all the above

22. Which of the following statements regarding the uterus is FALSE?

- (A) The uterus has a body (corpus), composed mainly of smooth muscle, and a cervix, composed mainly of connective and elastic tissues, that are joined by a transitional portion (isthmus)
- (B) It is an estrogen-dependent organ measuring about 7.5 cm long by 5 cm in width, and 4 cm anterior to posterior diameter in an adult female
- (C) After puberty the uterus weighs about 50 grams in the nullipara and 70 grams in the multipara

(D) It lies between the bladder anteriorly and the pouch of Douglas in front of the rectum posteriorly, with the cervical portion extending into the abdomen and into the vagina

(E) The opening at the distal tip of the cervix is called the internal os

23. The uterus and adnexa are normally mobile structures, but they do have some relatively fixed anatomic characteristics. Which, if any, of the following statements about their relationship and/or positions is FALSE?

(A) Antelexion means that the uterus is bent forward on itself

(B) The ovaries can be normally found caudad to the cervix

(C) The round ligaments are normally attached to the uterus anterior to the insertion of the fallopian tubes

(D) Adnexa refers to the tube, ovary, and their connecting structures

(E) All statements are true

24. Regarding the anatomy of the fallopian tube, which of the following statements is FALSE?

(A) Fallopian tubes are a conduit from the peritoneal to the uterine cavity

(B) Each fallopian tube traverses the superior portion of the broad ligament attached by a mesentery (mesosalpinx)

(C) The fallopian tube has four distinct areas in its 8-12 cm length: the portion that runs through the uterine wall (interstitial or cornual portion), the part immediately adjacent to the uterus (isthmus portion), the mid-portion of the tube (ampulla), and the distal portion containing the finger-like fimbria that expels the ovum (infundibular portion) to begin its passage toward the ovary

(D) The longest of the fimbriae (fimbria ovarica) is attached to the ovary

(E) Each tube is covered by peritoneum and consists of three layers: serosa, muscularis, and a nonciliated mucosa

25. Which of the following statements about the ovary is FALSE?

(A) The ovaries normally change in size through-out a woman's lifetime

(B) The ovary is supported in its normal anatomic position by the infundibulopelvic ligament and the ovarian ligament

(C) The ovary produces both hormones and germ cells

(D) The ovary lies in the ovarian fossa of the true pelvis, overlying the iliac vessels

(E) The ovary produces the estrogens and androgens that regulate sexual desire in the human female

26. The pelvic peritoneum covers all of the following pelvic structures EXCEPT the

(A) fimbria of the fallopian tube

(B) uterine fundus

(C) round ligament

(D) uterorectal pouch of Douglas

(E) uterosacral ligament

27. Which of the following statements regarding the female urethra is FALSE?

- (A) The urethra is a hollow, multi-layered tube 2.5 to 5 cm long, connecting the bladder with the outside world
- (B) The urethral-vesical junction is located at the level of the mid-trigone
- (C) There is no true anatomic sphincter within the urethra
- (D) The lower two-thirds of the urethra is contiguous with the anterior vaginal wall
- (E) The intrinsic “increased” resting tone of the urethra provides part of the continence mechanism for urinary control

28. The nerve supply to the vulva may be characterized as being

- (A) mediated via the pudendal nerve
- (B) a complex arrangement of Meissner’s corpuscles
- (C) most dense of the prepuce of the clitoris
- (D) derived mainly from the nerves of spinal cord segments S-2,3,4
- (E) all the above

29. Which of the following statements regarding the innervation of the vagina is true?

- (A) The upper two-thirds of the vagina is largely innervated by sympathetic fibers from the presacral nerve
- (B) The vagina receives only parasympathetic fibers from the hypogastric plexus and pelvic splanchnic nerves. It is one of the few organs without sympathetic innervation
- (C) The upper vagina has more touch and pain fibers than the lower vagina
- (D) The vagina has more nerve endings per surface area than the clitoris, and therefore is probably the major organ involved in achievement of female orgasm

30. Branches of the internal iliac artery include all of the following EXCEPT the

- (A) pudendal artery
- (B) obturator artery
- (C) superior gluteal artery
- (D) ovarian artery
- (E) inferior vesical artery

31. Which of the following statements regarding the vessels of the vagina is FALSE?

- (A) The arterial supply of the vagina comes from the cervicovaginal branch of the uterine artery, inferior vesical, middle hemorrhoidal, and internal pudendal arteries
- (B) Venous drainage of the vagina is accomplished through an extensive plexus rather than through well-defined channels
- (C) The lymphatic drainage is such that the superior portion of the vagina (along with the cervix) drains into the external iliac nodes, the middle portion into the internal iliac nodes, and the lower third mainly into the superficial inguinal nodes and internal iliac nodes
- (D) Being a relatively avascular organ, the vagina is predisposed to atrophic changes in older patients

32. Opens the abdomen through the linea alba and can be extended from symphysis pubis to xiphoid without dividing the muscles of the abdomen

- (A) midline incision
- (B) Pfannenstiel incision

- (C) Maylard incision
- (D) Cherny incision
- (E) paramedian incision

33. A low transverse incision extended downward and through the anterior rectus fascia, with the anterior rectus sheath separated from the underlying muscles, from the pubis to near the level of the umbilicus

- (A) midline incision
- (B) Pfannenstiel incision
- (C) Maylard incision
- (D) Cherny incision
- (E) paramedian incision

III. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

- Subgroup I – play situational tasks as patients
- Subgroup II - play situational tasks as doctors
- Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Tests:

Direction: For each of the multiple- choice questions select the lettered answer that is the one best response in each case.

1. Pregnant with blood group B (III) Rh (-) 24 weeks of pregnancy revealed titer Rh antibody 1: 8. The first pregnancy ended antenatal fetal death due to Rh-conflict. The general condition is satisfactory. Tonus of uterus is normal. Position of the fetus is longitudinal, presenting part is head, heart rate - 146 beats / min. No edema. Your tactics?

- A. Natural labor, waiting tactics.
- B. Repeat analysis for Rh antibodies after 2 weeks
- C. Send for consultation to therapist.
- D. Send for consultation to immunologist.
- E. Dynamic observation in antenatal clinic.

2. A pregnant 22 years old. Pregnancy is first. The examination determined Rh negative blood type A (II) in December. From history was found that as a child she spent hemotherapy. A man has Rh-positive blood type 0 (I) gr. How often do research to determine the blood of pregnant rhesus antibodies?

- A. Definition of antibodies in the blood of pregnant each month.
- B. Determination of antibody 1 per month in the first half of pregnancy and 2 times a month in the second half.

- C. Determination of antibodies in the blood of pregnant women during her first visit, at 20 weeks term, then every 4 weeks
- D. Determination of antibody every two weeks.
- E. Determination of antibodies twice during pregnancy.

3. Second gravida has the blood group 0 (I) Rh (-), at term 35 weeks of pregnancy was diagnosed antenatal fetal death. Three days ago determined titer Rh antibody 1: 128, ultrasound signs of hepatosplenomegaly, ascites of the fetus, placenta edema, non-stress test was abnormal. From the proposed delivery refused pregnant. What is the reason antenatal fetal death?

- A. Rh - immunisation
- B. Intrauterine infection
- C. Congenital defect of the fetus
- D. ABO conflict
- E. Fetal hypoxia

4. Second gravida, in term 34 weeks of gestation during next visit complained of shortness of breath and a rapid increase in the abdomen. OBJECTIVELY: height of fundus of the uterus is 40 cm, abdominal circumference is 102 cm. Presenting part is head, its movable above the pelvic inlet, fetal heart 132 bpm. / Min. During ultrasound examination was diagnosed polyhydramnios, ascites and hydrothorax in the fetus, placenta is thick. Choose tactics management of pregnancy.

- A. Determine fetal biophysical profile
- B. Determine blood flow in the vessels of the umbilical cord with dopplerometry
- C. ECG
- D. Labor induction
- E. amniocentesis is necessary to do

6. Second gravida C., at 28 weeks of pregnancy has the Rh- antibodies titer 1: 8. She gave birth child with symptoms of hemolytic disease. When should you check Rh- antibodies titer?

- A. Re-determination of antibodies in 1 week
- B. Re-determination of antibodies in 1 month
- C. Re-determination of antibodies in 3 weeks
- D. Re-determination of antibodies in 1 day
- E. Re-determination of antibodies after 2 weeks

7. A. A pregnant, 34 weeks gestation, is at the department of pathology. She has Rh- antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh- antibodies 1: 2 in 14 weeks. What should you do?

- A. Re-determination of antibodies in 1 day
- B. Cordocentesis
- C. Early delivery
- D. Blood transfusion
- E. ECTG

8. 24 years old pregnant with Rh-negative blood, has been registered in the antenatal clinic at 9 - 10 weeks. Pregnancy is third; first pregnancy finished normally six years ago, the child is healthy; second - miscarriage at 16 - 17 weeks of pregnancy. After birth detected diabetes class "B". The titer of Rh-antibodies 1: 16-1: 32. Correct tactic is:

- A. prolongation of pregnancy, prescribe needed dose of insulin.
- B. prolonging pregnancy, dietotherapy
- C. prolongation of pregnancy with regular determination of blood glucose.
- D. prolongation of pregnancy with the introduction of the suspension lymphocytic blood man.
- E Stop pregnancy (abortion).

9. Time to give anti-D-immunoglobulin in puerperium period is:

- A. In the first 24 hours after birth.
- B. In the early postnatal period.
- C. During the first 72 hours.
- D. During the first 96 hours.
- E. After 1 month postpartum.

10. Secundipara, 26 y.o. addressed to the department of pathology pregnancy in the term 32-33 weeks. Blood A (II), Rh-negative. From the history she gave birth for two Rh-positive healthy kids. Antibody titers during pregnancy is on the level 1:32, not growing. The patient must be delivery:

- A. gestational age 34-35 weeks.
- B. At 37-38 weeks.
- C. Immediately.
- D. At 40 weeks.
- E. Since the beginning of the spontaneous labor.

3.2. Educational materials, recommendations (instructions) for performing tasks

Pregnant woman's cardiovascular system

Pregnancy cause serious changes in mother's cardiovascular system, burdening course of all existing diseases, what can make a danger for woman's life.

Presence of cardiovascular pathology reflects at clinical course of the pregnancy, childbirth and puerperal period. Pregnant woman with cardiovascular diseases during pregnancy can have adaptation failure. In this group of women is observed high maternal mortality and high perinatal mortality. In-time diagnostic in the beginning of pregnancy, prevention of complications and supporting therapy are preventive therapy of critical conditions at labours with cardiovascular diseases.

Managing delivery through natural delivery tracts subject to pregnancy term and heart pathology data:

Under absence of cardiac insufficiency or under minimal signs – delivery through natural delivery tracts using spasmolytics, and analgetics.

Under deterioration hemodynamic indications during childbirth against the background cardiotropic therapy – shutdown second period of pregnancy by application of obstetric forceps.

At patients with cardiac insufficiency IIA, IIB and III stages:

Delivery at 37-38 weeks with preliminary labor induction. This tactic is recommended if in process of antepartum preparation turns on well to increase hemodynamic indications correspondingly 1 stage of cardiac insufficiency and fetal condition is satisfactory;

Premature delivery in terms of 28-36 weeks of pregnancy under absence of positive results of treatment during 12-14 days, if happens increase or presence of persistent pulmonary hypertension; stabilization hemodynamic indications after pulmonary edema or thromboembolism during 2 weeks; active rheumatism;

Delivery leads under presence of therapist, anaesthetist and constant monitor's control after mother and fetal conditions, CVP control, ECG data, rheopulmonography, hystero-ography, fetal cardiotocography.

In postnatal and early postnatal periods – bleeding prevention with oxytocin and methylergometrine.

Delivery by cesarean section

Indications for cesarean section because of heart diseases:

Combined insufficiency of aortic and mitral valves;

Mitral stenosis II-III stages;

Valve prosthesis under effect absence from treating cardiac insufficiency;

Arterial thromboembolism, carried during pregnancy;

Bacterial endocarditis;

Paravalvular fistula;

Multivalve heart prosthesis;

Complications or unsatisfactory effects from surgical correction of heart defect;

Restenosis, recanalization, traumatic insufficiency after mitral commissurotomy;

Pulmonary edema, carried during pregnancy;

Aortal coarctation, also after surgical correction;

Contra-indications for cesarean section:

Severe decompensation under megalocardia;

Liver cirrhosis;

Severe damages of heart rhythm;

Complex innate malformations of blue type;

Severe pulmonary hypertension;

Cesarean section must be done with serious preparations.

Diseases of respiratory system

Bronchial asthma – is observed at 1% of pregnant women, almost 1/3 of patients observe improvement of disease, 1/3 – worsening, 1/3 – does not have any changes in disease course. Progress of asthma during pregnancy usually comes after carried respiratory disease, mostly at late terms.

Treating BA in pregnant women

Treatment program consists from next components:

Teaching patients;

Objective mark and monitoring lungs function;

Revealing and elimination factors which cause aggravation of disease;

Basic pharmacotherapy;

Aggravation treatment plan;

Preparation and managing childbirth at pregnant women with BA;

Managing childbirth at pregnant woman with BA

Patients must get basic therapy (intal, corticosteroids, prolonged bronchial spasmolytic), which they were using before childbirth;

Patients, who previously took system steroids, are recommended hydrocortisone introduction each 8 hours and during 24 hours after childbirth;

Under operative delivery is excepted use of thiopentone, morphine, alfa-tubocurarin (these drugs can cause asthmatic fit); peridural anesthesia can be used, as like as general anesthesia;

In postnatal period is excepted using PGE-2 alfa and ergometrine, which can cause asthmatic fit. High caution must be followed under prescription pain-killers and antipyretics at patients with aspirin asthma.

Diseases of digestive apparatus

Managing tactics for pregnancy and delivery under gastric ulcer.

Under uncomplicated ulcerous disease pregnancy is possible and even causes positive influence on disease course. Disease does not cause any negative influence on fetal development and delivery can originate through natural delivery tracts.

In case when pregnancy accompanies with relapse of ulcerous disease in 2 weeks before delivery it is necessary to make a preventive course of treatment.

In cases when conservative therapy appeared to be insufficient is recommended to course delivery through natural delivery tracts with simultaneously introducing thin gastric tube in gastric for control after gastric material searching for possible bleeding.

If gastrorrhagia starts in first delivery period, it is an indication for urgent laparotomy, cesarean section and operative treatment of gastric ulcer with following drainage of abdominal cavity. If ulcer bleeding appears at second pregnancy term this needs an urgent delivery under careful anaesthetization by forceps operation with following operative ulcer treatment.

If gastric bleeding stopped after using conservative methods, it is recommended to make delivery at the background of antiulcer therapy. Relapses of bleeding are indications for urgent operative intervention.

Under origin of ulcer disease complications during pregnancy is possible operative intervention with following saving pregnancy.

Managing tactics for pregnancy and childbirth under biliary dyskinesia

Among diseases of digestion system diseases of biliary system occur one of the main places. Pregnancy can cause negative influence on dyskinesia course. Usually aggravation of condition can be observed during first part of the pregnancy. Mostly suffer women with different neurotic and psychoneurotic reactions, signs of emotional and vegetovascular lability.

Pregnancy also predispose for forming gallstones because of gall stagnation in gall bladder because of uterus pressure and decrease of moving activity of gall bladder, because of hyperestrogenemia.

One of the main tasks for treating pregnant woman with biliary dyskinesia by hypertension type is elimination of neurotic disorders, creation favourable conditions for work, elimination of conflict situations.

For normal functional condition of CNS is set sedative drugs; favourable influence sometimes cause novocaine 1% by tablespoonful 3-4 times a day before 20-30 min before meal or 2% solution intramuscularly by 3-4ml every day.

Hypotonic biliary dyskinesia can show itself under pregnancy, but does not cause any effect on pregnancy course.

In treating such patients is reasonable managing diet #5 with cholecystokinetics and other products, which promote bowel emptying, which reflex gall evacuation from gall bladder.

From medicamental agents are recommended cholagogue preparations from cholecystokinetic group, mineral waters with primary high mineralization, significant content of sulphate or chlorides what mostly stimulates cholepoiesis.

Pregnancy and delivery managing tactics under chronic cholecystitis

Diagnosis of exacerbation during pregnancy estimates on the ground of anamnesis, objective data and results of instrumental examination methods. But estimation of gathered data must be done according to possible changes under normal pregnancy.

Treatment principles during aggravation:

Diet #5;

M- anticholinergic drugs;

Inotropic spasmolytics (drotoverin, papaverine);

Under presens of accompanying hypotensial, hypokinetic dyskinesia – prokinetics, cholekinetics;

Herbat therapy;

Antibacterial therapy, antiparasitic therapy;

Delivery must be done according to obstetric situation under in-time pregnancy.

Pregnancy tactics managing under cholelithiasis

Target of conservative treatment of pregnant woman under cholelithiasis exacerbation is improvement of gall outflow and motor function of gall bladder and its ducts and also fight with infection. In this case usually treatment does not differ from usual treatment for cholecystitis.

If cholestasis cannot be prevented conservatively, it is an indication for operative treatment independently from pregnancy term. Cholecystectomy should be done in the end of II term because of less possibility of spontaneous abortion. Delivery can be done through natural delivery tracts.

Diseases of urinary system in pregnant woman

Among extragenital diseases of pregnant woman kidney's pathology occurs second place. Their frequency vary from 0,1% till 10%. Kidney's disease render unfavourable influence in pregnancy and childbirth course and postnatal period and fetal condition. Under pyelonephritis in 40% of cases pregnancy complicates with late gestosis.

Pregnancy complicates course of pyelonephritis and glomerulonephritis, what is complicated with hormonal, humoral and anatomic changes in organism:

Because of hormonal influence on special receptor in ureter, during pregnancy are observed disorders of urodynamics in upper urinary tracts;

Because of uterine compression by pregnant uterus appears ectasias of upper urine tracts (most to the right);

During pregnancy can be observed slackening of ligamentous apparatus forming nephroptosis, what promote vesicoureteral reflux and kidney infection.

Medical examination of pregnant women with urine system diseases

1 stage – nephrologist consultation, if is needed – ambulatory examination. On this stage is done initial clinical-laboratory estimation of the status for deciding the question about saving pregnancy. If is needed for more complex examination patients are guided into nephrological department.

2 stage – hospitalization in nephrological department. During first 4-5 days exempt besides common clinical examinations determine daily proteinuria, glomerular filtration rate, clierens and excretion of urine acid, blood ferments, also USD of kidneys and other examinations are done.

On the first stage or after ending examinations on the second stage set indications for preventive treatment. For this is set acetylsalicylic acid in small doses – up to 125mg/day, curantyl – 225mg/day for preventing placental insufficiency and connected with it complications at the second part of pregnancy.

3 stage – ambulatory observation after pregnant women from risk group. Periodicity of observations depends on circumstances, but doctor must examine pregnant woman not less than 1 time per month. If is needed – iteratively hospitalization in nephrological department.

4 stage – examination in postnatal period ambulatory or in nephrological department.

Pregnancy managing tactics

In-time and rightly treated pyelonephritis does not cause any danger for pregnancy and fetal. But patients with pyelonephritis must be refered to high risk of gestation complications group.

Determine III risk stages:

I risk stage – patients with noncomplicated pyelonephritis, appeared during pregnancy;

II risk stage – patients with chronic pyelonephritis, which was before pregnancy;

III risk stage - patients with pyelonephritis and hypertension or azotemia, pyelonephritis of just one kidney.

Patients with I and II risk stages can have pregnancy. They must stay in clinic registration. Under III risk stage pregnancy is contraindicated.

Sick pregnant women with pyelonephritis must be hospitalized under each exacerbation, under gestosis signs or fetal condition deterioration (hypoxia, hypotrophy).

Delivery

Under pyelonephritis is recommended delivery through natural delivery tracks. During pregnancy are prescribed spasmolytics, analgesics, and fetal asphyxia prevention. Delivery be cesarean section must be done only by obstetric indications.

Treatment of the patients with pyelonephritis under pyelonephritis

Restoration of urine passage;

Diet with sour drinks;

Herbal diuretics;

Antibiotic therapy;

In I term penicillin and oxacylin(3-4g per day) or ampicillin (0,5x4 in a day)during 8-10 days are predicted.

Starting from II pregnancy term cephalosporins can be prescribed, treatment course 4-8 days.

Aminoglycosides can be used only after 20th gestation week, but in 2-5% of patients this drugs cause nephrotoxic or ototoxic action, that's why they can be prescribed only under saved kidney functional ability and hearing diseases absent.

Chemoprophylaxis – urosulfan, ethazol, nevigramon;

Deintoxication and infusion therapy;

Vitamin therapy;

Sedative therapy;

Pregnancy managing tactics under glomerulonephritis

There are III risk stages:

I (minimal) risk stage – patients with latent form;

II (evident) - nephrotic form;

III (maximal) – pregnant women with hypertension and combined forms of chronic glomerulonephritis, with acute glomerulonephritis, with exacerbation of chronic glomerulonephritis, with all forms of disease with azotemia. Under III risk stage pregnancy is contra-indicated.

Under latent form of chronic glomerulonephritis pregnancy is possible.

Patients with nephritic form of glomerulonephritis impress on badly because of severe edemas and

expressed biochemical shifts. But mostly they can be treated symptomatically.

Pregnancy is not forbidden if are possible conditions for thorough observation and long stationary treatment.

Under hypertension and combined forms because of kidney and cardiovascular system function damages pregnancy is contra-indicated. If acute glomerulonephritis was carried more than 1 year ago before pregnancy and was achieved full restoration, pregnancy can be saved and usually it runs without complications.

Under latent form of glomerulonephritis women can delivery in-time and independently.

Under nephritic, hypertension and combined forms develops fetal hypoxia and also appears threat of antenatal death. That is the reason for early delivery by cesarean section.

Pregnancy tactics for pregnancy complicated with urolithiasis

Pregnant women with urolithiasis must be observed in antenatal clinic by obstetrician-gynecologist and urologist.

Indications for hospitalization:

Often colic attacks;

Pyelonephritis addition;

Late gestosis addition;

Deterioration of fetal condition;

Symptoms of abortion;

Treatment should be done by conservative methods.

Indications for operation:

Anuria, caused by ureter occlusion with stone;

Septic condition, caused by calculous pyelonephritis;
Pyonephrosis;

Blood diseases

Anemia – pathologic condition, which is characterized with decreased number of red blood cells and/or haemoglobin in blood.

Classification

Etiology

Anemia caused by feeding:

asiderotic anemia;

B12 - folic anemia;

Folic deficit anemia;

Hemolytic anemia:

Because fermentative damages;

Talasemia;

Drepancytic anemia;

Other inherited hemolytic anemias;

Acquired hemolytic anemias;

Aplastic anemia:

Erythroblastopenia;

Other aplastic anemias;

Acute posthemorrhagic anemia;

Anemias under chronic diseases:

Under neoformations;

Other chronic diseases;

By degree of severity:

Severity stage	Haemoglobin concentration	Hematocrit
Light	109-90g/l	37-31%
Middle	89-70g/l	30-24%
Severe	69-49g/l	23-13%
Very severe	< 40g/l	< 13%

Frequency of anemia's is 15-20% of all diseases during pregnancy, and last years has tendency for growth.

The most widespread among pregnant women is asiderotic anemia (95%).

Treatment and prevention of asiderotic anemia in pregnant women

Pregnant women are assigned adequate diet with increased content of Fe, proteins, vitamins and microelements, iron-containing meds are assigned only in severe forms. Only intolerance of oral Fe preparations or insufficient absorption in intestine are indications for intramuscular introduction. (250mg on each 1g/l of haemoglobin less than normal).

Red blood cells mass transfusion can be done only by vital indications before pregnancy.

Folic deficit anemia can be observed at multipara women under multiply pregnancy, preeclampsia, long use of antiepileptic or oral contraceptives.

Megaloblastic anemia, caused by cyancobalamin insufficiency (vit B12), in pregnant woman can be observed very rarely (under atrophy of stomach mucus membrane or its resection).

Hemolytic anemia can be observed in 1,5% of all pregnant woman anemia cases. Hypoplastic anemia takes 0,44%. Under sickle-cell anemia is very high frequency of maternal mortality and half of pregnancies ends with abortion, stillbirth or neonatal death.

Leukemia is a contra-indication for pregnancy. In 25% after delivery was observed fatal outcome.

Idiopathic thrombocytopenic purpura (Werlhof's disease)

Is characterized with forming in spleen antibodies against own red blood cells. This pathologic process can be decreased by corticosteroids (prednisolon – 20-60mg/day), which are assigned during all pregnancy. If there is no effect – splenectomy.

Preparing pregnancy for delivery under blood diseases:

Examination of red blood condition;

Examinations of hemostasia system (concentration of fibrinogen; coagulation time; protrombin); under any changes in hemostasia system consultation of haematologist is needed.

Consultations of other specialists under present in pregnant woman extragenital pathology;

In-time treatment of pregnancy complications;

Assignment of complex antianemic therapy, vitamin therapy if is needed – hemotransfusions.

Making plan for managing childbirth according anemia severity stage, obstetric anamnesis, extragenital pathology.

Childbirth management:

Delivery must be managed con conservatively;

Monitore all life indications;

Prevention of fetal asphyxia

Prevention of hypo-, and atonic bleeding;

Prebention of infections in case if inopportune water passages;

Complications during pregnancy under anemia

Premature or late waters passage.

powerless labor from 9,8 till 37% (because of chronic hypoxia);

Slow delivery with infection development;

Premature placental separation;

Atonic an hypertonic bleeding in postnatal period. Introduction of uterotonics. Till third day doctor must be prepared for manual extraction of placenta and examination of the uterus cavity if it is neede.

DIC-syndrome;

Infection during delivery and postnatal period. In 12% of cases postnatal period complicates with septic diseases.

Intrauterin fetal asphyxia, intra- and neonatal death of the fetal, stillbirth.

Managing tactics for postnatal period for women with anemia

Prescription of antianemic therapy immediately after childbirth.

Prevention of hypogalactia, mastitis and other pyoseptic diseases.

For increasing effect from antianemic therapy and hypovitaminosis E and A is recommended use of tocopherols 50mg in a day under anemia of I stage, and under II-III stages – vit E, intramuscularly during 2-4 days.

Enhanced feeding in postnatal period. Breast feeding of child not less 10-11 months.

Endocrine diseases in pregnant woman

By WHO, in pregnant woman differ three main types of pancreatic diabetes: DM I type (insulin depending), II type (insulin independent) and diabetes of pregnant woman.

Clinical signs of DM in pregnant woman

Clinical symptoms of DM are: thirst, polyuria, loss of weight, weakness, skin and vaginal itch, neurodermatitis, furunculosis, carbuncles, cataract, pyorrhea, caries.

Rigors, quickened heart rate, hyperhidrosis, depended on food intake, - appearance of them during starvation and disappearance under intake of carbohydrates are character for hypoglycemia.

Hypertension reactions during pregnancy make preconditions for progressing such complications as diabetic glomerulosclerosis, retinopathy, neuropathy. Decrease of organism resistance in aggregate with changed position of abdominal cavity and small pelvis organs promote ascending urinal tract infection.

In first term of pregnancy DM has no features. In second part of pregnancy in most patients course of DM become worse: increases thirst, polyuria, increases sugar level in blood and urine and increases organism necessity in insulin. Appearance of acidosis is a dangerous complication, which tells us about deep disorders in metabolic processes; acidosis is a precursor of diabetic coma.

Deterioration of DM course in second pregnancy term is because:

Increased kidney capacity for sugar, what leads to significant sugar loss with urine;

Insufficiency of carbohydrates assimilability, what leads to acidosis and coma;

Hyperfunction of front lobe of hypophysis. Increased production of ACTH by hypophysis and placenta leads to stimulation of kidneys cortex activity and increased level of cortisol; cortisol assists changing glycogen into glucose, what increases hyperglycemia and glycosuria.

Increased number of somatotropin leads to stimulation in pancreas development of L-cells, which produce glycogen which an antagonist of insulin.

Dig meaning in DM course during pregnancy has functional condition of liver. In patients with DM liver function is inadequate (liver is poor with glycogen and its cells undergeo fatty degeneration). This explains inclination to acidosis. It is known that patient condition increases before childbirth – sugar level in blood decreases, then decreases in urine and necessity in insulin decreases.

Complications during pregnancy and delivery in patients with DM.

All observed complications depends from vascular changes in mother and from compensation stage of carbohydrate metabolism. Mostly complications are observed at II and III terms of pregnancy. To this complications are carried gestosis (up to 50%); hydramnion (up to 50-60%); pyelonephritis (30%); antenatal fetal death (50%); premature delivery (31,1%); malformations of development (6-10%) etc.

Managing pregnancy:

Diet;

daily ration calorie content – 30-35 kcal/kg, under obesity – 25 kcal/kg, under body mass deficit – 40 kcal/kg;

carbohydrates must contain 45-50% of day calorage, proteins – 20-30%, fat – 25-30%; fully are excluded easy digestible carbonhydrates, are recommended meals fullli wth cellulose;

feeding regiment

breakfast – 25% of all day calories;

second breakfast – 25% of all day calories;

lunch - 35% of all day calories;

dinner – 15% of all day calories; besides main food intakes are recommended 1-2 additional food intakes;

insulinization (human insuln); measure of efficiency are euglycemia fasting and during the day, absence of ketoacidosis and episodes of hyperglycemia;

if is needed – correction of insulin therapy and absence of obstetric complications – hospitalization in endocrinologic department;

under pregnancy complications present – hospitalization in extragenital pathology department;

Contra-indications for saving pregnancy under DM:

Insulin-dependent DM with presence of fast progressive vascular complications (angiopathy, retinopathy, neuropathy, glomerulosclerosis);

Presence of labile (inclined to ketoacidosis) or insulin-dependent forms of DM, which is noncompensated;

Prior long decompensation with hepatodystrophy, pyoinflammatory processes.

Combination of DM and mother Rh immunization;

Combination of DM and tuberculosis;

Combination of DM with cardiovascular system diseases with blood circulation abnormality and active rheumatism.

Selection of delivery methodic

Delivery at most patients with DM is made through natural maternal passages.

Complications during delivery

Birth activity slackening;

Progressive fetal hypoxia;

Forming of clinically narrow pelvis, laboured excretion of shoulders and head under big fetal;

Postnatal period

At 25% of pregnant woman DM course after delivery did not changed at 25% is observed temporary deterioration of common condition at the expense of subinvolution of uterus, infection processes, diet abnormality or incorrect dose of insulin.

In first 2-3 days after delivery need in insulin decreases to 4-5 units. Starting from 3-4 days after delivery, dose of introducing insulin restores till previous numbers. To the third twenty-four hours after childbirth takes place normalization of ACTH, cortisol, catecholamine and all this leads to hypoglycemia in 50% of pregnant woman, especially after decreasing level of insulin.

After childbirth is needed prescription of antibiotic with immune correctors, anticoagulants, plasma transfusion, glucose solutions.

Discharge from department is possible after glycemia correction and adjustment of insulin dosage. Usually up to 7-10th day after delivery insulin doses became as like as they were before pregnancy.

Cushing's syndrome

Etiology. Excess secretion of corticosteroids can be caused by pituitary adenoma, suprarenal gland tumor (adenoma, cancer), and also ectopic ACTH-producing tumor.

Clinical picture. Patients have lipopexia on face (moon face), occiput, in girdle of superior extremity (bull's hump) and stomach. In 30-75% of cases - amenorrhea is observed. Other symptoms include purple stretches on the stomach, hirsutism, arterial hypertension and proximal muscles weakness. In 40% of patients with Cushing's syndrome psychic disorders can be observed.

Prognosis for pregnant woman is unfavourable – in 50-60% cases pregnancy ends with artificial abortion, premature delivery or fetal death.

Treatment: depends on disease reason and pregnancy term. If Cushing's syndrome was diagnosed in I pregnancy term, it is an indication for abortion and suprarenal gland and hypophysis tumor resection. In II pregnancy term - spontaneous abortions. If pregnancy can be saved question about treatment is decided individually. If disease is diagnosed in III pregnancy term than before delivery is assigned metirapon and after – radical treatment.

Adrenocortical insufficiency (Addison's disease)

Etiology:

Autoimmune affection of adrenal glands;

Tuberculosis of adrenal glands;

Necrosis of adrenal glands tissue (haemorrhage, mycotic lesion);

Metastasis in adrenal glands;

Hypoadrenal crisis – raucous fall of corticosteroids level.

Clinical signs: appetite loss, nausea, vomiting, stomach ache, hypovolemia, arterial hypotension, shock.

Treatment: emergency – fast blood volume restoration+hydrocortisone each 6 hours by 100mg intravenously during 24 hours! After condition improvement and stabilization high dose of hydrocortisone gradually decrease.

Managing childbirth and postnatal period.

High risk of fetal death under treatment absence (40-50%);

High risk of hypoadrenal crisis;

In early terms of pregnancy is needed to differentiate nonspecific symptoms (nausea, vomiting) with vomiting of pregnant;

During delivery introduce increased dose of hydrocortisone (100mg each 6 hours during delivery);

After childbirth dose gradually decrease till supporting level;

Breast feeding is not forbidden;

Under in-time started suprarenal insufficiency treatment non complications are observed, because suprarenal glands start to produce hormones since III pregnancy term;

True hypertaldosteronism

(Conn's syndrome).

Is characterized with arterial hypertension, hypokaliemia, increased secretion of aldosterone and significant decrease of rennin activity in plasma combination.

Causes:

Adenoma of adrenal gland (60%);

Hyperplasia of adrenal gland cortex;

Cancer of adrenal glands;

In pregnant woman observes very rarely. Because of this influence on pregnancy is studied not enough. It is known that aldosterone penetrate placenta. In normal pregnancy course level of aldosterone and deoxycorticosterone increases, but regulation of hormone secretion stays at the former level.

Treatment: under adrenal gland cortex hyperplasia – hypotension preparations with potassium diuretics.

Pheochromocytoma.

is a tumor from chromaphine tissue, which produce a lot of adrenalin and noradrenaline.

Clinical picture:

head ache, hyperhidrosis, tachycardia, uneasiness, stenocardia;

paroxysmal character of manifestation;

complains on weakness between attacks;

presence of hypertension crisis's (50%) – from few times per month up to few times per day, duration from one minute to few hours;

body mass loss (increased basal metabolism);

Treatment: during pregnancy patient take therapy of alfa- adrenoreceptor blocking agent (under treatment absence is high level of mother and fetal mortality).

Isoantigenic incompatibility of maternal and fetal blood

Isoimmunization – one of the clinical forms of immune pregnancy failure that arises conditional upon incompatibility of maternal and fetal organisms for different antigens and leads to severe disorders in the state of fetus and baby.

The main forms are:

Rh- isoimmunization;

AB0- isoimmunization.

Rh isoimmunization – humoral immune answer to fetus erythrocytal antigenes of Rh group. Antibodies (Ab) get through placenta and cause extravascular hemolysis and anemia conditioning erythroblastosis of fetus.

Risk factors:

Artificial abortion in anamnesis;

Spontaneous abortion in anamnesis;

Rh-positive blood type transfusion in anamnesis;

Ectopic pregnancy;

Absence of specific prophylactics of Rh incompatibility after the end of previous pregnancy;

Rh incompatibility during previous pregnancies.

Risk of isoimmunization is heightened by:

Placental abruption;

Surgery (manual removal of placenta, caesarean section, amniocentesis) in anamnesis or during existent pregnancy;

Virus infection (herpes, cytomegalovirus).

AB0 incompatibility develops in conditions of incompatibility of maternal and fetal blood groups and presence of Ab to erythrocytes of fetal blood group. Group-specific Ab may be produced in maternal organism as an answer to hemotherapy, vaccines and therapeutic serums, contact with bacteria that contain A and B antigenic factors.

In most cases immune incompatibility happens when maternal blood type is 0(I) and fetal blood type is A(II), seldom B(III) or AB(IV). AB0 isoimmunization can be the cause of different forms of hemolytic disease (HD) of newborn from subclinical form to severe erythroblastosis and antenatal fetal death. Although whilst in AB0 incompatibility fetal erythrocytes are quickly destroyed in maternal organism and Ab synthesis doesn't catch so as a rule the form of the disease is mild.

It is wise to make AB0-specified Ab test in women with recurrent miscarriage or antenatal fetal death in anamnesis.

Ab0 incompatibility smoothes pregnancy course whilst in Rh incompatibility. Rh incompatibility arises more often if mother and fetus have the same or common blood types of AB0 system.

Diagnostics of immune conflict

Anamnesis: blood transfusion without regard to Rh group, abortions, stillbirth or babies with HD, data of specific prophylactics of isoimmunization during previous pregnancies.

Rh-Ab titre test: rise and instability of Rh-Ab titre indicates on Rh incompatibility. In titre 1:32 and higher HD arises more often, the risk of antenatal fetal death is high.

AB0-specific Ab test is performed in pregnant women with O(I) blood type that have spontaneous abortions, stillbirth, child death from HD in anamnesis.

Diagnostics of HD of fetus

Ultrasound examination allows to visualize symptoms of an early and fully developed hydrops fetalis.

Symptoms of an early stage of hydrops fetalis:
polyhydramnion;

hepatosplenomegaly.

Symptoms of a fully developed hydrops fetalis:
growth of echogenicity of fetal intestines;
cardiomegaly and pericardial effusion;
ascites and hydrothorax;
“Buddha” posture;
motion activity diminution;
placenta thickening.

Ultrasonic scanning is carried out in pregnant women from the risk group for Rh incompatibility:

before 30 weeks of pregnancy once a month;

after 30 weeks of pregnancy twice a month;

on appearance of fetal damage symptoms every day up to delivery.

Cardiotocography – symptoms of chronic hypoxia of fetus and decrease of compensatory ability of fetoplacental complex.

Transabdominal amniocentesis is carried out after 26 weeks of pregnancy.

A question of necessity of amniocentesis is solved depending upon Ab titre and anamnesis data. If there are indications to amniocentesis a woman must be treated in the health care institution of the 3rd level.

Indications to amniocentesis:

Ab titre 1:64 and higher;

4-fold titre growth in repeated test in 2 weeks;

Ab titre growth and ultrasonic symptoms of HD of fetus;
stillbirth, children with HD in anamnesis.

Contraindications:

threatening premature birth;
fever.

Amniotic fluid test allows to estimate fetal anemia severity.

In the case of development of fetal HD, rise of the concentration of bilirubin in amniotic fluid and growth of amniotic fluid optical density (AFOD) indicates severity level of the HD.

If AFOD is 0,1 or lower then pregnancy can be prolonged, if AFOD is 0,15 or over then delivery preparation should be started.

Amniotic Fluid Optic Density Bilirubin concentration in amniotic fluid, mg/l
Fetus state

0,15 – 0,20	0 – 2,8	Risk of fetal HD development is low
0,21 – 0,34	2,9 – 4,6	Risk of fetal HD development is mild
0,35 – 0,70	4,7 – 9,5	Risk of fetal HD development is high
Over 0,70	Over 9,5	Risk of fetal HD development is extremely high

Cordocentesis – umbilical cord blood taking through anterior abdominal wall of a woman (is carried out at the health care institution of the 3rd level if there are trained specialists). In fetal blood we measure:

hemoglobin and hematocrit;
blood group and Rh-factor;

bilirubin level;
reticulocytes amount;
serum protein;
fetal erythrocytes-fixed Ab.

If fetal blood is Rh-negative further analysis are not necessary.

Postnatal diagnostics of hemolytic disease of newborn (HDN) – blood group, Rh-factor and bilirubin level, speed of hourly bilirubin level rise, Hb and Ht levels are measured in blood of umbilical cord vessels. Coombs direct test is carried out on peripheral blood of fetus.

Tactics of pregnancy care and delivery management

On the stage of antenatal clinic:

Rh-Ab titre is measured in blood on the first visit, in 20 weeks and later every 4 weeks. If pregnant woman has 0(I) blood type we measure her husband's blood type and identify the risk group for newborn for AB0 incompatibility.

On the stage of maternity obstetric service:

Delivery in women with Rh-negative blood type with isoimmunization is carried out prematurely depending on blood Ab titre.

Indications to premature delivery in Rh-incompatibility:

Ab titre 1:64 (critical level);

4-fold titre rise in repeated test;

AFOD 0,35-0,70 and over, bilirubin level in amniotic fluid is 4,7-9,5 mg/l;

ultrasonic symptoms of HD of fetus;

stillbirth or babies with HD in anamnesis.

Straight after baby's birth umbilical cord is clamped to prevent of anti-Rh Ab getting into baby's bloodstream, placental end of umbilical cord is not clamped (to decrease the risk and volume of fetomaternal transfusion). In the case of caesarean section manual removal of placenta is not performed.

Prophylactics of Rh-immunization

Prophylactics during pregnancy without previous immunization of pregnant woman is carried out by intramuscular injection of 1 dose (300 mcg) of anti-Rh (D) immunoglobulin:

at the term of pregnancy of 28-32 weeks;

in case of symptoms of threatened spontaneous abortion before 28 weeks of pregnancy;

after amniocentesis or chorion biopsy;

after molar pregnancy removal;

after ectopic pregnancy;

after abortion (not later than in 48 hours);

after mistaken transfusion of Rh-positive blood to Rh-negative woman;

after platelet concentrate transfusion;

in clinical situations that are accompanied by fetus cells arriving in maternal bloodstream;

placenta abruption, uterine bleeding (of an unknown etiology);

trauma of pregnant woman (e.g. car crash).

In pregnancy term less than 13 weeks dose of anti-Rh (D) immunoglobulin is 75 mcg, in pregnancy term over 13 weeks – 300 mcg.

Prophylactics after birth of Rh-positive baby: intramuscularly 1 dose (300 mcg) of anti-Rh (D) immunoglobulin during first 72 hours.

Contraindications to injection of anti-Rh (D) immunoglobulin – anamnesis data of anaphylactic or severe system reactions to human immunoglobulin.

Prophylactics of HD caused by AB0 incompatibility is not performed during pregnancy.

Unspecific drug prophylactics and treatment of Rh incompatibility is not performed in pregnant women.

Jaundice of the newborn – appearing of visible yellow tinction of skin, sclerae and/or mucosae as a result of bilirubin blood level rise in newborn.

Early jaundice – appears during the first 36 hours after birth. Jaundice that appeared during the first 24 hours after birth is always a symptom of pathology.

“Physiological” jaundice – appears after the first 36 hours after birth and is characterized by total bilirubin level rise in blood serum not more then up to 205 mmol/l.

Complicated “physiological” jaundice– physiological jaundice that is accompanied by changes in a state of newborn.

Prolonged (protracted) jaundice – is diagnosed after the 14th day in mature newborns and after the 21th day in premature newborns.

Late jaundice – appears after the 7th day of newborn’s life.

Methodics of clinical examination and staging of jaundice

Skin colour: check for yellow discoloration of skin should be held on a fully naked baby in condition of sufficient (optionally daylight) illumination.

Yellow skin tinction spread: It is wise to use modified Kramer’s scale for estimation of jaundice appear stages and correlation with bilirubin blood level. An alternative to the visual estimation with Kramer’s scale can be bilirubin skin level analysis with percutaneous bilirubinometry.

Time of jaundice appear:

Child age (hours)	Jaundice localization	Conclusion
24	Any	
24-48	Extremities	“dangerous jaundice”
>48	Foots, arms	

Immediate phototherapy should be started after symptoms appearing of a “dangerous jaundice”.

Clinical state of a newborn

Clinical state of newborn should be estimated on appearance of jaundice:

Grade of child adequacy, reflex activity.

Adequacy of breast feeding that should take place not less than 8 times a day.

Skin turgor state and mucosae wetness

Liver and spleen sizes.

Diction rate and urine character.

It is extremely important to check newborns with jaundice for symptoms of central neural system disorders (kernicterus):

Early symptoms – appearance of lethargy, drowsiness, torpidity and sucking reflex repression.

Acrimony, muscular hypertonia, high sound scream, possible temperature rise at a later period.

At terminal stage child develops opisthotonus, convulsions, apnea, monotonous high-pitch cry, deep stupor or coma.

3.3. Requirements for the results of work.

Which are clinical signs, course features and diagnostic methods of cardiovascular diseases at pregnant woman?

What are the methods for delivery under cardiovascular pathology at pregnant woman?

Which are clinical signs, course features and diagnostic methods of respiratory diseases at pregnant woman?

What are the methods for delivery under respiratory diseases at pregnant woman?

Which are clinical signs, course features and diagnostic methods of diseases of digestion system at pregnant woman?

Which are clinical signs, course features and diagnostic methods of kidney diseases at pregnant woman?

Indications for hospitalization under kidney diseases?

Which are clinical signs, course features and diagnostic methods of blood diseases at pregnant woman?

What are the possible complications during pregnancy at labour with blood disease?

Which are clinical signs, course features and diagnostic methods of endocrine system diseases at pregnant woman?

What are the possible complications during childbirth at labors with endocrine diseases?

Describe the AB0 and Rh systems.

Explain the pathogenesis of essential hypertension fetus and infant.

Bring GC classification of the fetus and infant.

Describe the clinical characteristics of different forms of GC.

List the diagnostic methods GC fetus and infant.

Describe the main treatment of hemolytic disease in the antenatal period.

State the principles of treatment of hemolytic disease in the early neonatal period.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. Pregnant with blood group B (III) Rh (-) 24 weeks of pregnancy revealed titer Rh antibody 1: 8. The first pregnancy ended antenatal fetal death due to Rh-conflict. The general condition is satisfactory. Tonus of uterus is normal. Position of the fetus is longitudinal, presenting part is head, heart rate - 146 beats / min. No edema. Your tactics?

A. Natural labor, waiting tactics.

B. Repeat analysis for Rh antibodies after 2 weeks

C. Send for consultation to therapist.

D. Send for consultation to immunologist.

E. Dynamic observation in antenatal clinic.

2. A pregnant 22 years old. Pregnancy is first. The examination determined Rh negative blood type A (II) in December. From history was found that as a child she spent hemotherapy. A man has Rh-positive blood type 0 (I) gr. How often do research to determine the blood of pregnant rhesus antibodies?

- A. Definition of antibodies in the blood of pregnant each month.
- B. Determination of antibody 1 per month in the first half of pregnancy and 2 times a month in the second half.
- C. Determination of antibodies in the blood of pregnant women during her first visit, at 20 weeks term, then every 4 weeks
- D. Determination of antibody every two weeks.
- E. Determination of antibodies twice during pregnancy.

3. Second gravida has the blood group 0 (I) Rh (-), at term 35 weeks of pregnancy was diagnosed antenatal fetal death. Three days ago determined titer Rh antibody 1: 128, ultrasound signs of hepatosplenomegaly, ascites of the fetus, placenta edema, non-stress test was abnormal. From the proposed delivery refused pregnant. What is the reason antenatal fetal death?

- A. Rh - immunisation
- B. Intrauterine infection
- C. Congenital defect of the fetus
- D. ABO conflict
- E. Fetal hypoxia

4. Second gravida, in term 34 weeks of gestation during next visit complained of shortness of breath and a rapid increase in the abdomen. OBJECTIVELY: height of fundus of the uterus is 40 cm, abdominal circumference is 102 cm. Presenting part is head, its movable above the pelvic inlet, fetal heart 132 bpm. / Min. During ultrasound examination was diagnosed polyhydramnios, ascites and hydrothorax in the fetus, placenta is thick. Choose tactics management of pregnancy.

- A. Determine fetal biophysical profile
- B. Determine blood flow in the vessels of the umbilical cord with dopplerometry
- C. ECG
- D. Labor induction
- E. amniocentesis is necessary to do

6. Second gravida C., at 28 weeks of pregnancy has the Rh- antibodies titer 1: 8. She gave birth child with symptoms of hemolytic disease. When should you check Rh- antibodies titer?

- A. Re-determination of antibodies in 1 week
- B. Re-determination of antibodies in 1 month
- C. Re-determination of antibodies in 3 weeks
- D. Re-determination of antibodies in 1 day
- E. Re-determination of antibodies after 2 weeks

7. A. A pregnant, 34 weeks gestation, is at the department of pathology. She has Rh-antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh-antibodies 1: 2 in 14 weeks. What should you do?
- A. Re-determination of antibodies in 1 day
 - B. Cordocentesis
 - C. Early delivery
 - D. Blood transfusion
 - E. ECTG
8. 24 years old pregnant with Rh-negative blood, has been registered in the antenatal clinic at 9 - 10 weeks. Pregnancy is third; first pregnancy finished normally six years ago, the child is healthy; second - miscarriage at 16 - 17 weeks of pregnancy. After birth detected diabetes class "B". The titer of Rh-antibodies 1: 16-1: 32. Correct tactic is:
- A. prolongation of pregnancy, prescribe needed dose of insulin.
 - B. prolonging pregnancy, dietotherapy
 - C. prolongation of pregnancy with regular determination of blood glucose.
 - D. prolongation of pregnancy with the introduction of the suspension lymphocytic blood man.
 - E Stop pregnancy (abortion).
9. Time to give anti-D-immunoglobulin in puerperium period is:
- A. In the first 24 hours after birth.
 - B. In the early postnatal period.
 - C. During the first 72 hours.
 - D. During the first 96 hours.
 - E. After 1 month postpartum.
10. Secundipara, 26 y.o. addressed to the department of pathology pregnancy in the term 32-33 weeks. Blood A (II), Rh-negative. From the history she gave birth for two Rh-positive healthy kids. Antibody titers during pregnancy is on the level 1:32, not growing. The patient must be delivery:
- A. gestational age 34-35 weeks.
 - B. At 37-38 weeks.
 - C. Immediately.
 - D. At 40 weeks.
 - E. Since the beginning of the spontaneous labor.

PRACTICAL CLASS №19: MISCARRIAGE. PRETERM LABOR.

LEARNING OBJECTIVE is to gain basic knowledge about definition of preterm labor and delivery, current concepts in the pathophysiology of preterm labor, risk factors for preterm labor: obstetrics history infection, demographics, psychosocial factors, long term prediction of preterm labor: fetal fibronectins, cervical length, inflammatory markers risk scoring systems, management of preterm labor: tocolysis use of corticosteroids, antibiotics, prevention of preterm labor: progesterone, cervical

cerclage, obstetrics issues in preterm labor: mode of delivery, care of premature neonate, methods of obstetrical abdominal examination: inspection, palpation, auscultation in order to provide successful obstetric outcome.

BASIC CONCEPTS: Causes of spontaneous abortion at different gestational ages. Classification, symptoms, diagnosis, treatment and prevention of spontaneous abortion. Cervical insufficiency: diagnosis, management. Prevention of miscarriage. Preterm labor: causes, prediction, diagnosis, management. Management of PPRM. Prevention of preterm delivery.

EQUIPMENT

- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

W. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Preterm birth is the single most important factor effecting perinatal outcomes in terms of morbidity and mortality. Preterm labor is defined by WHO as the onset of regular uterine contractions, between viability and 37 weeks' gestation, associated with cervical effacement and dilatation. Current guidelines from many progressive countries describe a "threshold of viability" between 22 and 26 weeks; thus, preterm birth occurs between 22-26 weeks and 37 weeks' gestation. Up to 30-40% of cases of preterm birth are iatrogenic due to deliberate induction of labor or pre labor caesarean section for conditions causing maternal or fetal compromise. The remainder of the cases of preterm birth follow spontaneous preterm labor, with or without preterm prelabor membrane rupture, and the initiating factors are the subject of much scientific interest and debate.

X. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Ability to collect data on patient complaints, medical history, life history;
- Ability to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- Ability to select the leading clinical symptom or syndrome;
- Ability to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;

- Ability to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- Ability to diagnose emergencies;
- Ability to determine tactics and provide emergency medical care;
- Ability to provide consultations on family planning, determine the tactics of physiological pregnancy, physiological labor and the postpartum period;
- Ability to assess mother's condition; to carry out diagnostic and tactical measures in each period of labor; to examine woman in labor; assess the condition of the fetus during childbirth; to conduct the postpartum period;
- Ability to assess the patient, and the necessary examination before using a contraceptive; demonstrate family planning counseling skills;
- Ability to formulate and bring to the mother, relatives and specialists recommendations for the most effective mode of delivery; to provide the necessary information about changes in a female body in the postpartum period;
- Ability to keep medical records.

List of didactic units:

- Causes of spontaneous abortion at different gestational ages.
- Classification, symptoms, diagnosis, treatment and prevention of spontaneous abortion.
- Cervical insufficiency: diagnosis, management.
- Prevention of miscarriage.
- Preterm labor: causes, prediction, diagnosis, management.
- Management of PPRM.
- Prevention of preterm delivery.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

1. Patient '30 admitted to the gynecology department with complaints of recurrent pulling abdominal pain, blood spotting from the genital tract. In the history of two spontaneous abortions. Vaginal study: cervix up to 3 cm, cyanotic, the outer jaws pass fingertip, uterus is soft increased to 6.7 weeks of pregnancy, applications are not palpable, vaults deep. Last menstruation 2 months ago. What should appoint a more accurate diagnosis?

- +A. Pelvic ultrasound
- B. Measurement of basal temperature
- C. Determine the contents of HCG in urine
- D. Identify the 17 level in the urine ketosteroids
- E. All of the above

2. Patient '22 admitted to the gynecology department with complaints of recurrent pulling pain in the abdomen and in the lumbar region, badly bleeding from the genital tract. Vaginal study: cervix length 2.5 cm, cyanotic, the outer jaws passes fingertip, uterus is soft, increased to 6-7 weeks. pregnancy, applications are not defined, vaults deep. Last menstruation 2 months ago. What is the most likely diagnosis?

- A. menstrual disorders
- + B. Threatened abortion

- C. Abortion run
- D. Incomplete abortion
- E. Ectopic Pregnancy

3. Primigravida in the period 11-12 weeks of gestation complains of intense cramping abdominal pain and significant bleeding from the genital tract. Abdomen soft, painless. Vaginal cancer research body increased to 11-12 weeks of pregnancy, periodically tones. Cervical canal passing to 2 cm. Profuse bleeding. What is the most likely diagnosis?

- A. Threatened abortion
- + B. Spontaneous abortion
- C. Incomplete abortion
- D. Full abortion
- E. Cervical pregnancy

4. Primigravida admitted to the gynecology department with complaints of recurrent abdominal pain and bleeding from the genital tract. Vaginal study: cervix length of 2.5 cm, cyanotic, the uterus passes fingertip, uterus is soft consistency, increased to 6.7 weeks of pregnancy, applications are not defined, the vault free. Tactics doctor?

- +A. To prescribe hormone therapy
- B. Assign antibiotic therapy
- C. Assign uterotonic therapy
- D. To appoint sedative therapy
- E. Dilation and Curettage

5. Examining the patient in the women's clinic, the doctor discovered that the uterus is increased to 5-6 weeks of pregnancy, asymmetric in the left corner of the uterus palpable protrusion. Uterus soft consistency, but decreased during the study become hard and then again become soft. What is the most likely diagnosis?

- +A. The uterine pregnancy
- B. Threatened abortion
- C. Abortion run
- D. Uterine fibroids
- E. Ectopic Pregnancy

6. Women, 28 years old admitted to the gynecology department complaining of abdominal pain left and minor bleeding during the last 2 days. 2 In the history of childbirth. Last menstruation 6 weeks ago. Menstrual disorders still have not watched. Protected from pregnancy using intrauterine device. BP during hospitalization 110/70 mmHg, hemoglobin 124 g / l. What is most informative method of investigation?

- A. Radiography "Sella turcica"
- B. Determination of HGH in urine
- C. Functional diagnostic tests
- + D. Transvaginal pelvic ultrasound
- E. Dilation and curettage

7. Primigravida at term of gestation 5-6 weeks. There was spontaneous abortion at home. Vaginal study: external genitalia are developed, female type, with no signs of inflammation, free vagina, cervix formed, the cervical canal passes fingertip, uterus firm, painless palpation slightly increased in size. Applications are not palpable uterine, vaginal vault free. What is the most likely diagnosis?

- A. Threatened abortion

- B. Abortion run
- C. incomplete abortion
- +D. Complete abortion
- E. Cervical pregnancy

8. Patient, 24 years old delivered to hospital by ambulance with complaints of cramping abdominal pain, heavy with clots bleeding from the genital tract, weakness. BP 100/60 mm Hg. Art., pulse 90 beats / min. Last normal menstruation 2 months ago. During examination of the cervix in the speculum defined remnants of embryonic tissue. Bimanual examination: uterus size is increased to 6 weeks of pregnancy, painless, cervical canal passes finger. What is the most likely diagnosis?

- A. Abortion run
- +B. Incomplete abortion
- C. Complete abortion
- D. cervical abortion
- E. dysfunctional uterine bleeding

9. Pregnant '22 was registered with the LCD on 11-12 weeks of pregnancy. In recent days hauling felt pain in the lower abdomen, but the doctor is not addressed. An hour ago, there were cramping abdominal pain and bleeding. Vaginal study: vagina filled with blood clots, uterine cervix exposed to 2 cm, the uterus increased to 11-12 weeks of pregnancy, dense. Bold blood, abundant. What are the doctor's tactics?

- A. Observations
- B. hormone therapy (progesterone)
- C. tocolysis
- D. Blood transfusion
- + E. Curettage

10. Secundi Para at gestation term 18 weeks, was admitted to the hospital with complaints of recurrent pulling pain in the abdomen and in the lumbar region, dark bloody discharge from the genital tract, nausea, weakness. Vaginal study: uterus increased to 12 weeks of pregnancy. With ultrasound, fetal cardiac activity is not visualized, the displacement of the skull bones, spine bending angulate fetus. What is the most likely diagnosis?

- A. Threatened abortion
- B. Abortion run
- C. incomplete abortion
- D. Full abortion
- + E. missed abortion

Y. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Tests:

11. A pregnant 26-year-old woman was admitted to a hospital for abdominal pain and bleeding from the genital tract. Bimanual examination revealed that uterus was the size of 9 weeks of pregnancy, the cervical canal let a finger through. Fetal tissues could be palpated in the orifice. There was moderate vaginal bleeding. What is the tactics of choice?

+A. Instrumental extraction of fetal tissue

B. Surveillance

C. Administration of hormones

D. Hemostatic and antianemia therapy

E. Therapy for the maintenance of pregnancy

12. A 36-year-old female presented to a gynecological hospital with a significant bleeding from the genital tract and a 1-month delay of menstruation. Bimanual examination revealed soft barrel-shaped cervix. Uterus was of normal size, somewhat softened. Appendages were unremarkable on both sides. Speculum examination revealed that the cervix was cyanotic, enlarged, with the the external orifice disclosed up to 0,5 cm. Urine HCG test was positive. What is the most likely diagnosis?

+A. Cervical pregnancy

B. Uterus gestation

C. Abortion in progress

D. Threatened miscarriage

E. Ectopic pregnancy

13. A pregnant woman is 28 years old. Anamnesis: accelerated labor complicated by the II stages degree cervical rupture. The following two pregnancies resulted in spontaneous abortions at the terms of 12 and 14 weeks. On mirror examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external orifice is open 1 cm wide, the internal orifice is half-open; the uterus is enlarged to the 12th week of pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis would you make?

+A. Isthmic-cervical insufficiency, habitual non carrying of pregnancy

B. Threatened spontaneous abortion

C. Incipient abortion, habitual non carrying of pregnancy

D. Cervical hysteromyoma, habitual non carrying of pregnancy

E. Cervical pregnancy, 12 weeks

14. A 10 weeks of pregnant woman was admitted to a hospital for recurrent pain in the lower abdomen, bloody discharges from the genital tracts. The problems developed after a case of URTI. The woman was registered for antenatal care. Speculum examination revealed cyanosis of vaginal mucosa, clean cervix, open cervical canal discharging blood and blood clots; the lower pole of the gestational sac was visible. What tactics should be chosen?

+A. Curettage of the uterus

B. Pregnancy maintenance therapy

C. Expectant management, surveillance

D. Hysterectomy

E. Antiviral therapy

15. A pregnant woman is 28 years old. Anamnesis: accelerated labor complicated by the II stages of degree cervical rupture. The following two pregnancies resulted in spontaneous abortions at the terms of 12 and 14 weeks. On mirror examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external orifice is open 1 cm wide, the internal orifice is half-open; the uterus is enlarged to the 12th week of

pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis can be made?

- A. Cervical hysteromyoma, habitual non carrying of pregnancy
- B. Incipient abortion, habitual non carrying of pregnancy
- + C. Isthmic-cervical insufficiency, habitual non carrying of pregnancy
- D. Threatened spontaneous abortion
- E. Cervical pregnancy 12 weeks

16. A woman with the pregnancy term of 8 weeks complains of elevated temperature up to 37.6°C, skin rash that can be characterized as macular exanthema, enlargement of posterior cervical and occipital lymph nodes, small amount of bloody discharge from the genital tracts. She was examined by the infectious diseases specialist and diagnosed with rubella. What tactics should the obstetrician-gynecologist choose?

- + A. Abortion
- B. Treatment of incipient abortion
- C Prescription of hemostatic therapy
- D. Prescription of antibacterial therapy
- E. Prescription of antiviral therapy

17. A 25-year-old woman was brought into the gynecological department with profuse bloody discharge from her genital tracts. She is 12 weeks pregnant; the pregnancy is planned. Within the last 3 days she was experiencing pains in her lower abdomen that eventually started resembling cramps, she developed bleeding. Her skin is pale, pulse -88/min., blood pressure -100/60 mm Hg, body temperature - 36.8°C. Vaginal examination: the uterus size corresponds with 11 weeks of pregnancy, the cervical canal allows inserting 1 finger and contains fragments of the fertilized ovum, the discharge is bloody and profuse. What is the most likely diagnosis?

- + A. 12-week pregnancy, spontaneous abortion in progress
- B. 12-week pregnancy, threatened spontaneous abortion
- C. Full-term pregnancy, term labor
- D. Disturbed menstrual cycle, hyper polymenorrhagia
- E. Disturbed menstrual cycle, amenorrhea

18. A 17-year-old G2P0 woman with no prenatal care at 29 weeks' gestation presents with painful contractions and pressure. Her cervix is 2 cm dilated, 60% effaced, and breech at -2 station. There is no evidence of ruptured membranes. Her contractions are every 3 minutes. FHT are 150 with accelerations. Maternal vital signs are temperature 36.8 degrees, pulse 96, BP 110/72. What should you do?

- F. prepare for a cesarean delivery
- G. observe to look for cervical change
- H. give IV sedation
- I. begin to colitis agents +
- J. start antibiotics

19. A 31-year-old woman (gravida 6, para 0-2-3-1) comes to you at 10 weeks' gestation with the history of having had progressively earlier deliveries, all without painful contractions. Her first child was born at 34 weeks and survived, the next delivered at 26 weeks, the next two at 22 weeks, and the last one at 20 weeks. No congenital abnormalities were found. On examination, her uterus is 10-12-weeksize, FHTs are present with Doppler, and the cervix is soft, three-quarters effaced, and 2-

cm dilated. With this information, your first diagnosis is intrauterine gestation and which of the following?

- F. incompetent cervical os +
- G. genetic disease
- H. fibroid uterus
- I. premature labor
- J. progesterone lacks

3.2. Educational materials, recommendations (instructions) for performing tasks

Abdominal pain in pregnancy: pregnancy related (<24wks). The diagnosis of acute abdominal pain in pregnancy can be challenging. It is often difficult to differentiate between gynecological, non-gynecological, and pregnancy-related causes of abdominal pain. Some of the routine surgical investigations and procedures carry a risk to the fetus but this needs to be balanced against the risk of delayed diagnosis and treatment which would be harmful to both mother and child.

Miscarriage. Can be associated with lower abdominal dull ache to severe continuous or colicky pain. Vaginal bleeding is present in most cases. Positive urine pregnancy test, pelvic examination, and USS are helpful in diagnosis.

Ectopic pregnancy. Usually, unilateral lower abdominal pain at <12wks gestation. Associated with brownish vaginal bleeding. Shoulder tip pain is suggestive of hemoperitoneum (bleeding ectopic). Serum HCG, USS, and laparoscopy are diagnostic.

Constipation. Physiological changes in pregnancy result in the slowing of gut peristalsis. Signs and symptoms Varied but colicky lower abdominal pain (L>R) is the most common. Management. Diet. Osmotic laxatives. Glycerin suppositories.

Round ligament pain. This pain is attributed to stretching of the round ligaments. Incidence 20–30% of pregnancies. Signs and symptoms. Commonly presents in 1st and 2nd trimester. Pain is often bilateral and located on the outer aspect of the uterus. Radiating to the groin. Aggravated by movement (especially getting up from a chair or turning over in bed). Treatment. Reassurance. Simple analgesia. Support belts may help.

Urinary tract infection. UTIs are more common in pregnancy and are an important association of preterm labor. Signs and symptoms. Suprapubic/lower abdominal pain. Dysuria, nocturia, and frequency. Investigations. Urine dipstick: nitrites strongly suggest a UTI blood, leucocytes, and protein raises index of suspicion. Midstream sample urine (MSU). Management. Antibiotics. Analgesia. Fluid intake.

Fibroids—red degeneration. Uterine fibroids occur in 20% of women of reproductive age. They may increase in size during pregnancy, compromising blood supply to central areas and causing pain. This is known as red degeneration. Incidence. 15% of

pregnant women who have fibroids. Signs and Symptoms. Usually occurs between the 12th and 22nd week of pregnancy. Constant pain localized to one area of the uterus coinciding with the site of the fibroid (may be severe pain). May have a low-grade pyrexia. Investigations. USS (identifies fibroids but cannot confirm red degeneration). FBC (may show leukocytosis). Treatment. Analgesia (pain should resolve in 4–7 days; however, it may be severe and prolonged, so advice from pain specialists should be sought). Placental abruption differs in that the fibroid uterus is soft except at the site of the fibroid and the FH is normal. Myomectomy must not be performed in pregnancy as it will bleed ++ (the only exception being for a torted pedunculated fibroid).

Abdominal pain in pregnancy: pregnancy related (>24wks). Labor Signs and symptoms. Usually presents with regular painful contractions. Preterm labor may present with a history of vague abdominal pain which the woman may not associate with uterine activity. Consider a VE in pregnant women with abdominal pain. Braxton Hicks contractions These are spontaneous benign contractions of the uterus, commonly occurring in the 3rd trimester. Signs and symptoms. Painless and infrequent tightening's of the uterus. VE reveals uneffaced and closed cervix. Investigations. Exclusion of precipitants of preterm labor. Fibronectin assay if uncertain whether preterm labor. Treatment. Reassurance. Symphysis pubis dysfunction. Signs and symptoms. Pubic pain relating to upper thighs and perineum. Aggravated by movement. Difficulty walking resulting in a waddling gait. Treatment. Analgesia and physiotherapy.

Reflux esophagitis. Relaxation of the esophageal sphincter occurs in pregnancy and the pressure of the gravid uterus on the distal end of the esophagus results in an increased incidence of reflux esophagitis. Gastric ulceration is less common due to decreased gastric acid secretion. Incidence 60–70% of pregnant women. Risk factors. Polyhydramnios. Multiple pregnancy. Signs and symptoms. Epigastric/retrosternal burning pain exacerbated by lying flat. Management. Exclude pre-eclampsia. Antacids, H₂receptor antagonists. Dietary and lifestyle advice (avoidance of supine position).

Uterine rupture. This usually occurs during labor but has been reported antenatally. Risk factors. Previous CS or other uterine surgery. Congenital abnormalities of the uterus. Induction or use of oxytocin in labor. Failure to recognize obstructed labor. Signs and symptoms. Tenderness over sites of previous uterine scars. Fetal parts may be easily palpable. Fetus, not palpable on VE. Vaginal bleeding may be evident. Signs of maternal shock may be present. CTG may show fetal distress and change in apparent uterine activity (contractions may seem to disappear on the tachograph). Investigations. FBC. Cross-match blood. Management. Maternal resuscitation. Urgent laparotomy to deliver fetus and repair uterus.

Other causes of abdominal pain in pregnancy. Placental abruption. Pre-eclampsia/HELLP. Abdominal pain in pregnancy: bowel related. Appendicitis. This is the most common surgical emergency in pregnant patients. Its incidence is 1:1500–2000 pregnancies with equal frequency in each trimester. Pregnant women have the same risk of appendicitis as non-pregnant women. Signs and symptoms. Classically periumbilical pain shifting to right lower quadrant. Pain moves towards the right upper

quadrant during the 2nd and 3rd trimesters due to displacement of the appendix by a gravid uterus. Nausea and vomiting. Anorexia. Guarding and rebound tenderness present in 70% of patients. Rovsing's sign and fever are often absent in the pregnant patient. Investigations. White cell count (WCC) and C-reactive protein (CRP) are often. USS: to exclude other causes of pain; CT/MRI may be considered. Management. Diagnostic laparoscopy/laparotomy and appendicectomy. Fetal loss is 3–5% with an unruptured appendix, to 20% if ruptured. Intestinal obstruction. It is the third most common non-obstetric reason for laparotomy during pregnancy. It complicates 1:1500–3000 pregnancies. Incidence, increases as the pregnancy progresses.

Adhesions are the commonest cause. Signs and symptoms. Acute abdominal pain. Vomiting. Constipation. Pyrexia. Diagnosis. Erect abdominal X-ray (AXR) showing gas-filled bowel with little gas in large intestine. USS (abdominal and pelvic). Treatment. Conservative treatment ('drip and suck'). Surgery for any acute obstructive cause or when not responding to conservative management.

ABDOMINAL PAIN IN PREGNANCY: BOWEL RELATED. Causes of intestinal obstruction. Adhesions. Volvulus. Intussusception. Hernia. Neoplasm. Abdominal pain in pregnancy: other causes. Acute cholecystitis. This is the second most common surgical condition in pregnancy (progesterone diminishes smooth muscle tone and predisposes to cholestasis leading to gallstone formation). The incidence of gallstones is 7% in nulliparous and 19% in multiparous women. The incidence of acute cholecystitis is 1–8:10 000 pregnancies. Signs and symptoms. Colicky epigastric/right upper quadrant pain. Nausea and vomiting. Murphy's sign may be positive in acute cholecystitis. Jaundice (indicating obstruction of the common bile duct). Signs of systemic infection (fever and tachycardia). Investigations. FBC, LFTs, CRP (WCC and alkaline phosphatase are i in pregnancy). Bilirubin (identify patients with concomitant biliary tree obstruction). USS biliary tract (may demonstrate calculi or a dilated biliary tree). Management. Conservative approach is the most common management. Analgesics and antiemetics. Hydration. Antibiotics. Cholecystectomy preferably by laparoscopic approach may be indicated in patients with recurrent biliary colic, acute cholecystitis, and obstructive cholelithiasis (usually after delivery). Adnexal torsion This occurs when an enlarged ovary twists on its pedicle. Torsion of the ovary and other adnexal structures is more common in pregnant than non-pregnant women. Signs and symptoms. Sudden-onset unilateral colicky lower abdominal pain. Nausea and vomiting. There may be systemic symptoms such as fever. Investigations. WCC and CRP: may be elevated. USS of pelvis may show an adnexal mass and Doppler studies may show impaired blood flow. Management. If suspected, urgent laparotomy should be performed to either remove or untwist the adnexa. This may either preserve the ovary or prevent a non-viable ovary from becoming gangrenous. Pancreatitis. This occurs more frequently in the 3rd trimester and immediate post-partum period. It can occur in early pregnancy associated with gallstones. Although rare, it is more common in pregnancy than in non-pregnant women of a similar age. Incidence 1:5000 pregnancies. Risk factors. Gallstone disease. High alcohol intake. Hyperlipidaemia. Signs and symptoms. Epigastric pain commonly radiating to the back. Pain exacerbated by lying flat and relieved by leaning forwards. Nausea and vomiting. Investigations. Serum amylase and lipase levels. USS to establish presence of

gallstones. Management. Conservative treatment is the mainstay: IV fluids. Electrolyte replacement. Parenteral analgesics, e.g. morphine (pethidine is contraindicated). Bowel rest with or without nasogastric suction. Early surgical intervention is recommended for gallstone pancreatitis in all trimesters as >70% of patients will relapse before delivery. Laparoscopic/open cholecystectomy. Endoscopic retrograde cholangio-pancreatography (ERCP) has a limited role in pregnancy because of radiation exposure to the fetus. If pancreatitis is severe, liaise with high dependency unit/intensive care unit (HDU/ITU). Non-abdominal causes of abdominal pain. Other conditions unrelated to abdominal structures may also present with abdominal pain: Lower lobe pneumonia. Diabetic ketoacidosis. Sick cell crisis. Women with social problems and domestic abuse may repeatedly attend with undiagnosable pain and it is important to ask them about this directly but sympathetically. Preterm birth is defined as delivery between 24 and 37 wks. Risk factors for preterm delivery. Previous preterm birth or late miscarriage. Multiple pregnancy. Cervical surgery. Uterine anomalies. Medical conditions, e.g. renal disease. Pre-eclampsia and IUGR (spontaneous and iatrogenic). Preterm labour: overview Delivery <34 wks is more useful as adverse outcomes are rare after then. 1/3 is medically indicated (e.g. PET), and 2/3 spontaneous. Accounts for 5–10% of births but 750% of perinatal deaths. It also causes long-term handicap—blindness, deafness, and cerebral palsy. The risk is higher the earlier the gestation. The incidence is \uparrow over the years. >50% of women with painful preterm contractions will not deliver preterm: fetal fibronectin/transvaginal USS may help in diagnosis. Acute preterm labour. Preterm labour associated with cervical weakness (avoid the term ‘incompetence’) classically presents with increased vaginal discharge, mild lower abdominal pain, and bulging membranes on examination. Preterm labour associated with factors such as infection, inflammation, or abruption presents with lower abdominal pain, painful uterine contractions, and vaginal loss. Spontaneous rupture of membranes (SRM) is a common presentation of/antecedent for preterm labour. In practice it is often less clear-cut than this, and infection and cervical weakness are related and often coexist. History. Ask about pain/contractions—onset, frequency, duration, severity. Vaginal loss: SRM or PV bleeding. Obstetric history (check hand-held notes). Examination. Maternal pulse, temperature, respiratory rate. Uterine tenderness (suggests infection/abruption). Fetal presentation. Speculum: look for blood, discharge, liquor. Takes swabs. Gentle VE. Investigations FBC, CRP (raised WCC and CRP suggest infection). Swabs, MSU. USS for fetal presentation (malpresentation common) and estimated fetal weight (EFW). Consider fetal fibronectin/transvaginal USS if available

Management of preterm labour. Establish whether threatened or ‘real’ preterm labour: transvaginal cervical length scan (>15mm unlikely to labour) fibronectin assay: if –ve, unlikely to labour. Admit if risk high. Inform neonatal unit. Arrange *in utero* transfer if no suitable beds available. Check fetal presentation with USS. Steroids (12mg betametasone IM—two doses 24h apart). Antenatal steroids reduce rates of respiratory distress, intraventricular haemorrhage, and neonatal death. Consider tocolysis (drug treatment to prevent labour and delivery) not >24hrs. Allow time for steroid administration and/or *in utero* transfer. Currently used tocolytics include nifedipine, and atosiban IV. X Aim should be not just prolongation of gestation (a surrogate

measure) but improvement in perinatal morbidity and mortality. Trials of tocolysis have not shown improvement in these substantive outcome measures, so some prefer to avoid them. Liaison with senior obstetricians and neonatologists is essential, especially at the margins of viability (23–26wks). A clear plan needs to be made about: mode of delivery monitoring in labour presence of pediatrician/appropriate intervention at delivery. Give IV antibiotics but only if labour confirmed. RCOG. (2004). Green-top guideline no.7. Antenatal corticosteroids to prevent respiratory distress syndrome. M www.rcog.org

Pregnancy complications.

Treatment of bacterial vaginosis (BV). Some evidence suggests this may reduce the incidence of preterm prelabour rupture of membranes (PPROM) and low birth weight in women with previous preterm birth. Clindamycin rather than metronidazole is used. Progesterone. In high risk women (e.g. previous history of late miscarriage/preterm birth), reduces recurrence. In low risk women with a short cervix, reduces preterm birth by about 50%. As a result, screening for preterm birth with cervical scanning may become universal. Effect absent/very limited in twin pregnancies. Cream or pessaries used. Cervical sutures (cerclage).X May be of benefit in selected cases. Can be inserted vaginally or, in extreme cases, abdominally. Not thought to be useful in multiple pregnancies. Elective (women with previous loss from cervical weakness). Ultrasound-indicated (in response to short cervix on transvaginal scan (TVS)). Rescue (in response to cervical dilatation). Cervical pessary These are used more often in Europe but evidence suggests they are effective. Reduction of pregnancy number. Selective reduction of triplet or higher-order multiple pregnancies (to 2) reduces the risk of preterm labour while slightly increasing the risk of early miscarriage. Methods for prediction of preterm labour. Transvaginal USS of cervix. In asymptomatic women with a singleton pregnancy: risk of delivering before 32wks is 4% if cervix is >15mm long at 23wks increasing exponentially to 78% if cervix is 5mm. In symptomatic women with a singleton pregnancy: cervix <15mm, risk of delivery within 7 days is 49% cervix >15mm, risk of delivery within 7 days <1%. Fetal fibronectin (FFN). FFN is a protein not usually present in cervicovaginal secretions at 22–36wks. Those with a +ve FFN test are more likely to deliver (test for FFN with swab and commercially available kit). Predicts preterm birth within 7–10 days of testing. Pregnancy complications. Fetal tachycardia. Speculum: offensive vaginal discharge—yellow/brown. Avoid VE as this increases the risk of introducing infection. Preterm prelabour rupture of membranes: overview. This complicates 1/3 of preterm deliveries. About 1/3 is associated with overt infection (more common at earlier gestations). History. Ask about vaginal loss. Gush. Constant trickle or dampness. Chorioamnionitis may cause few symptoms but is associated with significant neonatal morbidity and mortality. Chorioamnionitis is also associated with significant risks to the mother. Investigations. FBC, CRP (raised WCC and CRP indicate infection). Swabs (high vaginal swab (HVS), low vaginal swab (LVS)). MSU. USS for fetal presentation, EFW, and liquor volume. Preterm prelabour rupture of membranes: management. If evidence of chorioamnionitis: steroids (betametasone 12mg IM) deliver whatever the gestation broad spectrum antibiotic cover. If no evidence of chorioamnionitis, manage conservatively: admit inform special care baby unit (SCBU) and liaise with

neonatologists steroids (12mg betametasone IM—two doses 24h apart) antibiotics (erythromycin). Use of antibiotics reduces major markers of neonatal morbidity but without long-term benefits. The ORACLE trial showed erythromycin to be beneficial. Co-amoxiclav is associated with an increased risk of necrotizing enterocolitis (NEC) and should be avoided. Prognosis. Depends on: Gestation at delivery. Gestation at PPRM: PPRM at <20wks—few survivors PPRM at >22wks—survival up to 50%. Reason for PPRM: prognosis better if PPRM secondary to invasive procedure (e.g. amniocentesis), rather than spontaneous. Risks to fetus from PPRM. Prematurity. Infection. Pulmonary hypoplasia. Limb contractures.

3.3. Requirements for the results of work.

- To take a medical history (general and specific, such as menstrual, obstetrics) and record
- information in a standardized proforma (antenatal record book)
- to perform general examination, assess the health status of the mother of delivery to
- determine signs and symptoms of preterm pre labor and delivery, assess their diagnostic value
- to calculate gestational age and due date of labor
- to perform abdominal inspection and assess abdominal enlargement
- to perform abdominal palpation and note the height of the fundus above the symphysis
- and girth of abdomen at the level of umbilicus, calculate estimated fetal weight
- to identify fetal lie, presentation, position, growth pattern, volume of liquor and also any
- abnormality, detect whether the presenting part is engaged or not
- to perform auscultation of fetal heart sounds
- to assess complaints of pregnant women, explain the origins of minor ailments in
- pregnancy, give advice how to reduce the problem
- to assess results of clinical general and obstetrical examinations, lab tests in preterm pre
- labor rupture of membranes
- to develop a plan of prenatal care in preterm labor and delivery
- to counsel the women about mode of delivery and expecting outcomes

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. A 32-year-old G2P1 presents to labor and delivery at 35 weeks of gestation, complaining of regular uterine contractions about every 5 min for the past several hours. She has also noticed the passage of a clear fluid per vagina. The external fetal monitor demonstrates a reactive fetal heart rate tracing, with regular uterine contractions occurring about every 3 to 4 min. On sterile speculum exam, the cervix is visually closed. A sample of pooled amniotic fluid seen in the vaginal vault is fern and nitramine-positive. The patient has a temperature of 38.2°C, PR - 102, WBC of

19,000. You perform a bedside sonogram, which indicates oligohydramnios and a fetus whose size is appropriate for gestational age and with a cephalic presentation. What is the next appropriate step in the management of this patient?

- A. Administer betamethasone
- B. Perform emergent cesarean section
- C. Administer antibiotics +
- D. Administer tocolytics
- E. Place a cervical cerclage

2. A child was born at a gestational age of 34 weeks. The leading symptoms were respiratory distress symptoms, namely sonorous and prolonged expiration, involving additional muscles into respiratory process. The Silverman score at birth was 0 points, in 3 hours it was 3 points with clinical findings. Which diagnostic study will allow to diagnose the form of pneumopathy?

- F. X-ray of chest +
- G. Clinical blood test
- H. Determination of blood gas composition
- I. Proteinogram
- J. Immunoassay

3. A patient presents at 30 weeks' gestation in labor that cannot be stopped. Lung maturity is unlikely. Fetal lung surfactant production may be increased by a number of factors. Which of the following is proven clinically useful?

- F. Glucocorticosteroids +
- G. prolactin
- H. thyroxine
- I. estrogen
- J. alpha-fetoprotein

4. A pregnant woman is 28 years old. Anamnesis: precipitous labor complicated by the II degree cervical rupture. The following 3 pregnancies resulted in spontaneous abortions at the terms of 12, 14 and 18 weeks. On examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external os is open 1 cm wide, the internal os is half-open; the uterus is enlarged to the 12th week of pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis would you make?

- F. Cervical pregnancy, 12 weeks
- G. Isthmic-cervical insufficiency, habitual non carrying of pregnancy +
- H. Threatened spontaneous abortion
- I. Incipient abortion, habitual non carrying of pregnancy
- J. Cervical hysteromyoma, habitual non carrying of pregnancy

5. A pregnant, 34 weeks of gestation, is at the department of pathology. She has Rh-antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh-antibodies 1: 2 in 14 weeks. What should you do?

- F. Blood transfusion
- G. CTG
- H. Early delivery +
- I. Re-determination of antibodies in 1 day
- J. Cordocentesis

6. A premature birth has been defined as a fetus born
 - F. before 37 weeks' gestation +
 - G. prior to the period of viability
 - H. weighing less than 1000 g
 - I. weighing more than 1000 g but less than 2500 g
 - J. none of the above
7. A primipara with twins at 38 weeks came into maternity hospital. On exam: first baby is in footling breech presentation, the second - in oblique lie. Determine management of labor?
 - A. Vaginal delivery
 - B. Urgent caesarean section
 - C. Assign exercises for correction of baby's presentation
 - D. Planned caesarean section +
 - E. Perform external rotation
8. A woman came to the hospital in 4 hours from the start of regular contractions. The pregnancy is 3-rd, 38-39 weeks, labor is 2-nd. The size of the pelvis is normal. During external obstetric examination has found a small parts and head of fetus above pelvic inlet, there are clearly palpable two major parts of fetus, one of which is the head in the fundus of uterus. Heartbeat of fetus are clearly heard on the left below the navel, 136 beats / min and right above the navel 150 beats / min. Circumferences of the abdomen is 119 cm. The height of uterus fundus is 42 cm. The most likely component of the diagnosis?
 - A. Macrosomia +
 - B. Congenital malformations of the fetus
 - C. intrauterine growth retardation

Cases

№1. A 32-year-old G3P2 woman at 31 weeks' gestation arrives in the labor and delivery suite complaining of recurrent intermittent abdominal pain. She describes an increase in back pain yesterday and some mucous-like discharge today. She has noted no bleeding or leaking of fluid, but says she feels as if she is "starting her period." In reviewing her prenatal record, you note that her first pregnancy resulted in a 28-week vaginal delivery of a 1200 g female, who is currently 7 years old and doing well. Her second baby, a male, is a healthy 3 years old, although he was delivered at 33 weeks' gestation. On examination, she is afebrile, her BP is 120/80 mm Hg, pulse is 80 bpm and regular, and RR is 16 breaths/min. Her abdomen is gravid with a fundal height of 32 cm, and soft, although you note two contractions by palpation during your 10-minute examination with her. Sterile speculum examination is negative for nitrazine and ferning, and no blood is noted. Membranes are visualized through the cervix. On digital examination, her cervix is dilated 2-3 cm, effacement is 80%, and station of the fetal vertex is at -1. The electronic fetal monitor shows a reassuring fetal heart rate of 140 bpm with mild contractions every 3 to 4 minutes.

1. What is the most likely diagnosis?
2. Recognize risk factors that predispose to this pathology. What is your next management step?

№2. A 32-year-old G2P0 woman at 28 weeks' gestation comes into the obstetrical triage unit complaining of leakage of fluid per vagina approximately 4 hours

previously. She denied uterine contractions or vaginal bleeding. Her prenatal course has been unremarkable. She had a miscarriage at 8 weeks' gestation previously. On examination, her BP is 100/78 mm Hg, HR 82 beats per minute, RR 18 breaths/min, and temperature 36,5°C. Her heart and lung examinations are normal. The abdomen is soft and nontender. The uterus is nontender with a fundal height of 27 cm. The fetal heart tones are in the 140 bpm range. A speculum examination reveals gross pooling of fluid in the vagina, and the cervix appears to be visually closed.

1. What is the most likely diagnosis?
2. What are your next steps? Confirm the diagnosis and develop a plan of management for this patient.

Z. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

5	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
4	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
3	The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.

2	The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.
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PRACTICAL CLASS №19: MISCARRIAGE. PRETERM LABOR.

LEARNING OBJECTIVE is to gain basic knowledge about definition of preterm labor and delivery, current concepts in the pathophysiology of preterm labor, risk factors for preterm labor: obstetrics history infection, demographics, psychosocial factors, long term prediction of preterm labor: fetal fibronectins, cervical length, inflammatory markers risk scoring systems, management of preterm labor: tocolysis use of corticosteroids, antibiotics, prevention of preterm labor: progesterone, cervical cerclage, obstetrics issues in preterm labor: mode of delivery, care of premature neonate, methods of obstetrical abdominal examination: inspection, palpation, auscultation in order to provide successful obstetric outcome.

BASIC CONCEPTS: Causes of spontaneous abortion at different gestational ages. Classification, symptoms, diagnosis, treatment and prevention of spontaneous abortion. Cervical insufficiency: diagnosis, management. Prevention of miscarriage. Preterm labor: causes, prediction, diagnosis, management. Management of PPRM. Prevention of preterm delivery.

EQUIPMENT

- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

AA. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Preterm birth is the single most important factor effecting perinatal outcomes in terms of morbidity and mortality. Preterm labor is defined by WHO as the onset of regular uterine contractions, between viability and 37 weeks' gestation, associated with cervical effacement and dilatation. Current guidelines from many progressive countries describe a "threshold of viability" between 22 and 26 weeks; thus, preterm birth occurs between 22-26 weeks and 37 weeks' gestation. Up to 30-40% of cases of preterm birth are iatrogenic due to deliberate induction of labor or pre labor caesarean section for conditions causing maternal or fetal compromise. The remainder of the cases of preterm birth follow spontaneous preterm labor, with or without preterm prelabor membrane rupture, and the initiating factors are the subject of much scientific interest and debate.

BB. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Ability to collect data on patient complaints, medical history, life history;
- Ability to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- Ability to select the leading clinical symptom or syndrome;
- Ability to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- Ability to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- Ability to diagnose emergencies;
- Ability to determine tactics and provide emergency medical care;
- Ability to provide consultations on family planning, determine the tactics of physiological pregnancy, physiological labor and the postpartum period;
- Ability to assess mother's condition; to carry out diagnostic and tactical measures in each period of labor; to examine woman in labor; assess the condition of the fetus during childbirth; to conduct the postpartum period;
- Ability to assess the patient, and the necessary examination before using a contraceptive; demonstrate family planning counseling skills;
- Ability to formulate and bring to the mother, relatives and specialists recommendations for the most effective mode of delivery; to provide the necessary information about changes in a female body in the postpartum period;
- Ability to keep medical records.

List of didactic units:

- Causes of spontaneous abortion at different gestational ages.
- Classification, symptoms, diagnosis, treatment and prevention of spontaneous abortion.
- Cervical insufficiency: diagnosis, management.
- Prevention of miscarriage.
- Preterm labor: causes, prediction, diagnosis, management.
- Management of PPRM.
- Prevention of preterm delivery.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

1. Patient '30 admitted to the gynecology department with complaints of recurrent pulling abdominal pain, blood spotting from the genital tract. In the history of two spontaneous abortions. Vaginal study: cervix up to 3 cm, cyanotic, the outer jaws pass fingertip, uterus is soft increased to 6.7 weeks of pregnancy, applications are not

palpable, vaults deep. Last menstruation 2 months ago. What should appoint a more accurate diagnosis?

- +A. Pelvic ultrasound
- B. Measurement of basal temperature
- C. Determine the contents of HCG in urine
- D. Identify the 17 level in the urine ketosteroids
- E. All of the above

2. Patient '22 admitted to the gynecology department with complaints of recurrent pulling pain in the abdomen and in the lumbar region, baldly bleeding from the genital tract. Vaginal study: cervix length 2.5 cm, cyanotic, the outer jaws passes fingertip, uterus is soft, increased to 6-7 weeks. pregnancy, applications are not defined, vaults deep. Last menstruation 2 months ago. What is the most likely diagnosis?

- A. menstrual disorders
- + B. Threatened abortion
- C. Abortion run
- D. Incomplete abortion
- E. Ectopic Pregnancy

3. Primigravida in the period 11-12 weeks of gestation complains of intense cramping abdominal pain and significant bleeding from the genital tract. Abdomen soft, painless. Vaginal cancer research body increased to 11-12 weeks of pregnancy, periodically tones. Cervical canal passing to 2 cm. Profuse bleeding. What is the most likely diagnosis?

- A. Threatened abortion
- + B. Spontaneous abortion
- C. Incomplete abortion
- D. Full abortion
- E. Cervical pregnancy

4. Primigravida admitted to the gynecology department with complaints of recurrent abdominal pain and bleeding from the genital tract. Vaginal study: cervix length of 2.5 cm, cyanotic, the uterus passes fingertip, uterus is soft consistency, increased to 6.7 weeks of pregnancy, applications are not defined, the vault free. Tactics doctor?

- +A. To prescribe hormone therapy
- B. Assign antibiotic therapy
- C. Assign uterotonic therapy
- D. To appoint sedative therapy
- E. Dilation and Curettage

5. Examining the patient in the women's clinic, the doctor discovered that the uterus is increased to 5-6 weeks of pregnancy, asymmetric in the left corner of the uterus palpable protrusion. Uterus soft consistency, but decreased during the study become hard and then again become soft. What is the most likely diagnosis?

- +A. The uterine pregnancy
- B. Threatened abortion
- C. Abortion run
- D. Uterine fibroids
- E. Ectopic Pregnancy

6. Women, 28 years old admitted to the gynecology department complaining of abdominal pain left and minor bleeding during the last 2 days. 2 In the history of

childbirth. Last menstruation 6 weeks ago. Menstrual disorders still have not watched. Protected from pregnancy using intrauterine device. BP during hospitalization 110/70 mmHg, hemoglobin 124 g / l. What is most informative method of investigation?

- A. Radiography "Sella turcica"
- B. Determination of HGH in urine
- C. Functional diagnostic tests
- + D. Transvaginal pelvic ultrasound
- E. Dilation and curettage

7. Primigravida at term of gestation 5-6 weeks. There was spontaneous abortion at home. Vaginal study: external genitalia are developed, female type, with no signs of inflammation, free vagina, cervix formed, the cervical canal passes fingertip, uterus firm, painless palpation slightly increased in size. Applications are not palpable uterine, vaginal vault free. What is the most likely diagnosis?

- A. Threatened abortion
- B. Abortion run
- C. incomplete abortion
- + D. Complete abortion
- E. Cervical pregnancy

8. Patient, 24 years old delivered to hospital by ambulance with complaints of cramping abdominal pain, heavy with clots bleeding from the genital tract, weakness. BP 100/60 mm Hg. Art., pulse 90 beats / min. Last normal menstruation 2 months ago. During examination of the cervix in the speculum defined remnants of embryonic tissue. Bimanual examination: uterus size is increased to 6 weeks of pregnancy, painless, cervical canal passes finger. What is the most likely diagnosis?

- A. Abortion run
- + B. Incomplete abortion
- C. Complete abortion
- D. cervical abortion
- E. dysfunctional uterine bleeding

9. Pregnant '22 was registered with the LCD on 11-12 weeks of pregnancy. In recent days hauling felt pain in the lower abdomen, but the doctor is not addressed. An hour ago, there were cramping abdominal pain and bleeding. Vaginal study: vagina filled with blood clots, uterine cervix exposed to 2 cm, the uterus increased to 11-12 weeks of pregnancy, dense. Bold blood, abundant. What are the doctor's tactics?

- A. Observations
- B. hormone therapy (progesterone)
- C. tocolysis
- D. Blood transfusion
- + E. Curettage

10. Secundi Para at gestation term 18 weeks, was admitted to the hospital with complaints of recurrent pulling pain in the abdomen and in the lumbar region, dark bloody discharge from the genital tract, nausea, weakness. Vaginal study: uterus increased to 12 weeks of pregnancy. With ultrasound, fetal cardiac activity is not visualized, the displacement of the skull bones, spine bending angulate fetus. What is the most likely diagnosis?

- A. Threatened abortion
- B. Abortion run

- C. incomplete abortion
- D. Full abortion
- + E. missed abortion

CC. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Tests:

11. A pregnant 26-year-old woman was admitted to a hospital for abdominal pain and bleeding from the genital tract. Bimanual examination revealed that uterus was the size of 9 weeks of pregnancy, the cervical canal let a finger through. Fetal tissues could be palpated in the orifice. There was moderate vaginal bleeding. What is the tactics of choice?

- +A. Instrumental extraction of fetal tissue
- B. Surveillance
- C. Administration of hormones
- D. Hemostatic and antianemia therapy
- E. Therapy for the maintenance of pregnancy

12. A 36-year-old female presented to a gynecological hospital with a significant bleeding from the genital tract and a 1-month delay of menstruation. Bimanual examination revealed soft barrel-shaped cervix. Uterus was of normal size, somewhat softened. Appendages were unremarkable on both sides. Speculum examination revealed that the cervix was cyanotic, enlarged, with the the external orifice disclosed up to 0,5 cm. Urine HCG test was positive. What is the most likely diagnosis?

- +A. Cervical pregnancy
- B. Uterus gestation
- C. Abortion in progress
- D. Threatened miscarriage
- E. Ectopic pregnancy

13. A pregnant woman is 28 years old. Anamnesis: accelerated labor complicated by the II stages degree cervical rupture. The following two pregnancies resulted in spontaneous abortions at the terms of 12 and 14 weeks. On mirror examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external orifice is open 1 cm wide, the internal orifice is half-open; the uterus is enlarged to the 12th week of pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis would you make?

- +A. Isthmic-cervical insufficiency, habitual non carrying of pregnancy
- B. Threatened spontaneous abortion
- C. Incipient abortion, habitual non carrying of pregnancy
- D. Cervical hysteromyoma, habitual non carrying of pregnancy
- E. Cervical pregnancy, 12 weeks

14. A 10 weeks of pregnant woman was admitted to a hospital for recurrent pain in the lower abdomen, bloody discharges from the genital tracts. The problems developed after a case of URTI. The woman was registered for antenatal care. Speculum examination revealed cyanosis of vaginal mucosa, clean cervix, open cervical canal

discharging blood and blood clots; the lower pole of the gestational sac was visible. What tactics should be chosen?

- +A. Curettage of the uterus
- B. Pregnancy maintenance therapy
- C. Expectant management, surveillance
- D. Hysterectomy
- E. Antiviral therapy

15. A pregnant woman is 28 years old. Anamnesis: accelerated labor complicated by the II stages of degree cervical rupture. The following two pregnancies resulted in spontaneous abortions at the terms of 12 and 14 weeks. On mirror examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external orifice is open 1 cm wide, the internal orifice is half-open; the uterus is enlarged to the 12th week of pregnancy, soft, mobile, painless, the appendages are without changes. What diagnosis can be made?

- A. Cervical hysteromyoma, habitual non carrying of pregnancy
- B. Incipient abortion, habitual non carrying of pregnancy
- + C. Isthmic-cervical insufficiency, habitual non carrying of pregnancy
- D. Threatened spontaneous abortion
- E. Cervical pregnancy 12 weeks

16. A woman with the pregnancy term of 8 weeks complains of elevated temperature up to 37.6°C, skin rash that can be characterized as macular exanthema, enlargement of posterior cervical and occipital lymph nodes, small amount of bloody discharge from the genital tracts. She was examined by the infectious diseases specialist and diagnosed with rubella. What tactics should the obstetrician-gynecologist choose?

- + A. Abortion
- B. Treatment of incipient abortion
- C Prescription of hemostatic therapy
- D. Prescription of antibacterial therapy
- E. Prescription of antiviral therapy

17. A 25-year-old woman was brought into the gynecological department with profuse bloody discharge from her genital tracts. She is 12 weeks pregnant; the pregnancy is planned. Within the last 3 days she was experiencing pains in her lower abdomen that eventually started resembling cramps, she developed bleeding. Her skin is pale, pulse -88/min., blood pressure -100/60 mm Hg, body temperature - 36.8°C. Vaginal examination: the uterus size corresponds with 11 weeks of pregnancy, the cervical canal allows inserting 1 linger and contains fragments of the fertilized ovum, the discharge is bloody and profuse. What is the most likely diagnosis?

- + A. 12-week pregnancy, spontaneous abortion in progress
- B. 12-week pregnancy, threatened spontaneous abortion
- C. Full-term pregnancy, term labor
- D. Disturbed menstrual cycle, hyper polymenorrhagia
- E. Disturbed menstrual cycle, amenorrhea

18. A 17-year-old G2P0 woman with no prenatal care at 29 weeks' gestation presents with painful contractions and pressure. Her cervix is 2 cm dilated, 60% effaced, and breech at -2 station. There is no evidence of ruptured membranes. Her contractions

are every 3 minutes. FHT are 150 with accelerations. Maternal vital signs are temperature 36.8 degrees, pulse 96, BP 110/72. What should you do?

- K. prepare for a cesarean delivery
- L. observe to look for cervical change
- M. give IV sedation
- N. begin to colitis agents +
- O. start antibiotics

19. A 31-year-old woman (gravida 6, para 0-2-3-1) comes to you at 10 weeks' gestation with the history of having had progressively earlier deliveries, all without painful contractions. Her first child was born at 34 weeks and survived, the next delivered at 26 weeks, the next two at 22 weeks, and the last one at 20 weeks. No congenital abnormalities were found. On examination, her uterus is 10-12-weeksize, FHTs are present with Doppler, and the cervix is soft, three-quarters effaced, and 2-cm dilated. With this information, your first diagnosis is intrauterine gestation and which of the following?

- K. incompetent cervical os +
- L. genetic disease
- M. fibroid uterus
- N. premature labor
- O. progesterone lacks

3.2. Educational materials, recommendations (instructions) for performing tasks

Abdominal pain in pregnancy: pregnancy related (<24wks). The diagnosis of acute abdominal pain in pregnancy can be challenging. It is often difficult to differentiate between gynecological, non-gynecological, and pregnancy-related causes of abdominal pain. Some of the routine surgical investigations and procedures carry a risk to the fetus but this needs to be balanced against the risk of delayed diagnosis and treatment which would be harmful to both mother and child.

Miscarriage. Can be associated with lower abdominal dull ache to severe continuous or colicky pain. Vaginal bleeding is present in most cases. Positive urine pregnancy test, pelvic examination, and USS are helpful in diagnosis.

Ectopic pregnancy. Usually, unilateral lower abdominal pain at <12wks gestation. Associated with brownish vaginal bleeding. Shoulder tip pain is suggestive of hemoperitoneum (bleeding ectopic). Serum HCG, USS, and laparoscopy are diagnostic.

Constipation. Physiological changes in pregnancy result in the slowing of gut peristalsis. Signs and symptoms Varied but colicky lower abdominal pain (L>R) is the most common. Management. Diet. Osmotic laxatives. Glycerin suppositories.

Round ligament pain. This pain is attributed to stretching of the round ligaments. Incidence 20–30% of pregnancies. Signs and symptoms. Commonly presents in 1st and 2nd trimester. Pain is often bilateral and located on the outer aspect of the uterus.

Radiating to the groin. Aggravated by movement (especially getting up from a chair or turning over in bed). Treatment. Reassurance. Simple analgesia. Support belts may help.

Urinary tract infection. UTIs are more common in pregnancy and are an important association of preterm labor. Signs and symptoms. Suprapubic/lower abdominal pain. Dysuria, nocturia, and frequency. Investigations. Urine dipstick: nitrites strongly suggest a UTI blood, leucocytes, and protein raises index of suspicion. Midstream sample urine (MSU). Management. Antibiotics. Analgesia. Fluid intake.

Fibroids—red degeneration. Uterine fibroids occur in 20% of women of reproductive age. They may increase in size during pregnancy, compromising blood supply to central areas and causing pain. This is known as red degeneration. Incidence. 15% of pregnant women who have fibroids. Signs and Symptoms. Usually occurs between the 12th and 22nd week of pregnancy. Constant pain localized to one area of the uterus coinciding with the site of the fibroid (may be severe pain). May have a low-grade pyrexia. Investigations. USS (identifies fibroids but cannot confirm red degeneration). FBC (may show leukocytosis). Treatment. Analgesia (pain should resolve in 4–7 days; however, it may be severe and prolonged, so advice from pain specialists should be sought). Placental abruption differs in that the fibroid uterus is soft except at the site of the fibroid and the FH is normal. Myomectomy must not be performed in pregnancy as it will bleed ++ (the only exception being for a torted pedunculated fibroid).

Abdominal pain in pregnancy: pregnancy related (>24wks). Labor Signs and symptoms. Usually presents with regular painful contractions. Preterm labor may present with a history of vague abdominal pain which the woman may not associate with uterine activity. Consider a VE in pregnant women with abdominal pain. Braxton Hicks contractions These are spontaneous benign contractions of the uterus, commonly occurring in the 3rd trimester. Signs and symptoms. Painless and infrequent tightening's of the uterus. VE reveals uneffaced and closed cervix. Investigations. Exclusion of precipitants of preterm labor. Fibronectin assay if uncertain whether preterm labor. Treatment. Reassurance. Symphysis pubis dysfunction. Signs and symptoms. Pubic pain relating to upper thighs and perineum. Aggravated by movement. Difficulty walking resulting in a waddling gait. Treatment. Analgesia and physiotherapy.

Reflux esophagitis. Relaxation of the esophageal sphincter occurs in pregnancy and the pressure of the gravid uterus on the distal end of the esophagus results in an increased incidence of reflux esophagitis. Gastric ulceration is less common due to decreased gastric acid secretion. Incidence 60–70% of pregnant women. Risk factors. Polyhydramnios. Multiple pregnancy. Signs and symptoms. Epigastric/retrosternal burning pain exacerbated by lying flat. Management. Exclude pre-eclampsia. Antacids, H₂receptor antagonists. Dietary and lifestyle advice (avoidance of supine position).

Uterine rupture. This usually occurs during labor but has been reported antenatally. Risk factors. Previous CS or other uterine surgery. Congenital abnormalities of the uterus. Induction or use of oxytocin in labor. Failure to recognize obstructed labor.

Signs and symptoms. Tenderness over sites of previous uterine scars. Fetal parts may be easily palpable. Fetus, not palpable on VE. Vaginal bleeding may be evident. Signs of maternal shock may be present. CTG may show fetal distress and change in apparent uterine activity (contractions may seem to disappear on the tachograph). Investigations. FBC. Cross-match blood. Management. Maternal resuscitation. Urgent laparotomy to deliver fetus and repair uterus.

Other causes of abdominal pain in pregnancy. Placental abruption. Pre-eclampsia/HELLP. Abdominal pain in pregnancy: bowel related. Appendicitis. This is the most common surgical emergency in pregnant patients. Its incidence is 1:1500–2000 pregnancies with equal frequency in each trimester. Pregnant women have the same risk of appendicitis as non-pregnant women. Signs and symptoms. Classically periumbilical pain shifting to right lower quadrant. Pain moves towards the right upper quadrant during the 2nd and 3rd trimesters due to displacement of the appendix by a gravid uterus. Nausea and vomiting. Anorexia. Guarding and rebound tenderness present in 70% of patients. Rovsing's sign and fever are often absent in the pregnant patient. Investigations. White cell count (WCC) and C-reactive protein (CRP) are often. USS: to exclude other causes of pain; CT/MRI may be considered. Management. Diagnostic laparoscopy/laparotomy and appendicectomy. Fetal loss is 3–5% with an unruptured appendix, to 20% if ruptured. Intestinal obstruction. It is the third most common non-obstetric reason for laparotomy during pregnancy. It complicates 1:1500–3000 pregnancies. Incidence, increases as the pregnancy progresses.

Adhesions are the commonest cause. Signs and symptoms. Acute abdominal pain. Vomiting. Constipation. Pyrexia. Diagnosis. Erect abdominal X-ray (AXR) showing gas-filled bowel with little gas in large intestine. USS (abdominal and pelvic). Treatment. Conservative treatment ('drip and suck'). Surgery for any acute obstructive cause or when not responding to conservative management.

ABDOMINAL PAIN IN PREGNANCY: BOWEL RELATED. Causes of intestinal obstruction. Adhesions. Volvulus. Intussusception. Hernia. Neoplasm. Abdominal pain in pregnancy: other causes. Acute cholecystitis. This is the second most common surgical condition in pregnancy (progesterone diminishes smooth muscle tone and predisposes to cholestasis leading to gallstone formation). The incidence of gallstones is 7% in nulliparous and 19% in multiparous women. The incidence of acute cholecystitis is 1–8:10 000 pregnancies. Signs and symptoms. Colicky epigastric/right upper quadrant pain. Nausea and vomiting. Murphy's sign may be positive in acute cholecystitis. Jaundice (indicating obstruction of the common bile duct). Signs of systemic infection (fever and tachycardia). Investigations. FBC, LFTs, CRP (WCC and alkaline phosphatase are i in pregnancy). Bilirubin (identify patients with concomitant biliary tree obstruction). USS biliary tract (may demonstrate calculi or a dilated biliary tree). Management. Conservative approach is the most common management. Analgesics and antiemetics. Hydration. Antibiotics. Cholecystectomy preferably by laparoscopic approach may be indicated in patients with recurrent biliary colic, acute cholecystitis, and obstructive cholelithiasis (usually after delivery). Adnexal torsion This occurs when an enlarged ovary twists on its pedicle. Torsion of the ovary and other adnexal structures is more common in pregnant than non-pregnant women. Signs

and symptoms. Sudden-onset unilateral colicky lower abdominal pain. Nausea and vomiting. There may be systemic symptoms such as fever. Investigations. WCC and CRP: may be elevated. USS of pelvis may show an adnexal mass and Doppler studies may show impaired blood flow. Management. If suspected, urgent laparotomy should be performed to either remove or untwist the adnexa. This may either preserve the ovary or prevent a non-viable ovary from becoming gangrenous. Pancreatitis. This occurs more frequently in the 3rd trimester and immediate post-partum period. It can occur in early pregnancy associated with gallstones. Although rare, it is more common in pregnancy than in non-pregnant women of a similar age. Incidence 1:5000 pregnancies. Risk factors. Gallstone disease. High alcohol intake. Hyperlipidaemia. Signs and symptoms. Epigastric pain commonly radiating to the back. Pain exacerbated by lying flat and relieved by leaning forwards. Nausea and vomiting. Investigations. Serum amylase and lipase levels. USS to establish presence of gallstones. Management. Conservative treatment is the mainstay: IV fluids. Electrolyte replacement. Parenteral analgesics, e.g. morphine (pethidine is contraindicated). Bowel rest with or without nasogastric suction. Early surgical intervention is recommended for gallstone pancreatitis in all trimesters as >70% of patients will relapse before delivery. Laparoscopic/open cholecystectomy. Endoscopic retrograde cholangio-pancreatography (ERCP) has a limited role in pregnancy because of radiation exposure to the fetus. If pancreatitis is severe, liaise with high dependency unit/intensive care unit (HDU/ITU). Non-abdominal causes of abdominal pain. Other conditions unrelated to abdominal structures may also present with abdominal pain: Lower lobe pneumonia. Diabetic ketoacidosis. Sickle cell crisis. Women with social problems and domestic abuse may repeatedly attend with undiagnosable pain and it is important to ask them about this directly but sympathetically. Preterm birth is defined as delivery between 24 and 37 wks. Risk factors for preterm delivery. Previous preterm birth or late miscarriage. Multiple pregnancy. Cervical surgery. Uterine anomalies. Medical conditions, e.g. renal disease. Pre-eclampsia and IUGR (spontaneous and iatrogenic). Preterm labour: overview Delivery <34 wks is more useful as adverse outcomes are rare after then. 1/3 is medically indicated (e.g. PET), and 2/3 spontaneous. Accounts for 5–10% of births but 750% of perinatal deaths. It also causes long-term handicap—blindness, deafness, and cerebral palsy. The risk is higher the earlier the gestation. The incidence is \uparrow over the years. >50% of women with painful preterm contractions will not deliver preterm: fetal fibronectin/transvaginal USS may help in diagnosis. Acute preterm labour. Preterm labour associated with cervical weakness (avoid the term ‘incompetence’) classically presents with increased vaginal discharge, mild lower abdominal pain, and bulging membranes on examination. Preterm labour associated with factors such as infection, inflammation, or abruption presents with lower abdominal pain, painful uterine contractions, and vaginal loss. Spontaneous rupture of membranes (SROM) is a common presentation of/antecedent for preterm labour. In practice it is often less clear-cut than this, and infection and cervical weakness are related and often coexist. History. Ask about pain/contractions—onset, frequency, duration, severity. Vaginal loss: SROM or PV bleeding. Obstetric history (check hand-held notes). Examination. Maternal pulse, temperature, respiratory rate. Uterine tenderness (suggests infection/abruption). Fetal presentation. Speculum: look for blood, discharge, liquor. Takes swabs. Gentle VE. Investigations FBC, CRP (raised WCC and

CRP suggest infection). Swabs, MSU. USS for fetal presentation (malpresentation common) and estimated fetal weight (EFW). Consider fetal fibronectin/transvaginal USS if available

Management of preterm labour. Establish whether threatened or 'real' preterm labour: transvaginal cervical length scan (>15mm unlikely to labour) fibronectin assay: if -ve, unlikely to labour. Admit if risk high. Inform neonatal unit. Arrange *in utero* transfer if no suitable beds available. Check fetal presentation with USS. Steroids (12mg betametasone IM—two doses 24h apart). Antenatal steroids reduce rates of respiratory distress, intraventricular haemorrhage, and neonatal death. Consider tocolysis (drug treatment to prevent labour and delivery) not >24hrs. Allow time for steroid administration and/or *in utero* transfer. Currently used tocolytics include nifedipine, and atosiban IV. X Aim should be not just prolongation of gestation (a surrogate measure) but improvement in perinatal morbidity and mortality. Trials of tocolysis have not shown improvement in these substantive outcome measures, so some prefer to avoid them. Liaison with senior obstetricians and neonatologists is essential, especially at the margins of viability (23–26wks). A clear plan needs to be made about: mode of delivery monitoring in labour presence of paediatrician/appropriate intervention at delivery. Give IV antibiotics but only if labour confirmed. RCOG. (2004). Green-top guideline no.7. Antenatal corticosteroids to prevent respiratory distress syndrome. M www.rcog.org

Pregnancy complications.

Treatment of bacterial vaginosis (BV). Some evidence suggests this may reduce the incidence of preterm prelabour rupture of membranes (PPROM) and low birth weight in women with previous preterm birth. Clindamycin rather than metronidazole is used. Progesterone. In high risk women (e.g. previous history of late miscarriage/preterm birth), reduces recurrence. In low risk women with a short cervix, reduces preterm birth by about 50%. As a result, screening for preterm birth with cervical scanning may become universal. Effect absent/very limited in twin pregnancies. Cream or pessaries used. Cervical sutures (cerclage). X May be of benefit in selected cases. Can be inserted vaginally or, in extreme cases, abdominally. Not thought to be useful in multiple pregnancies. Elective (women with previous loss from cervical weakness). Ultrasound-indicated (in response to short cervix on transvaginal scan (TVS)). Rescue (in response to cervical dilatation). Cervical pessary These are used more often in Europe but evidence suggests they are effective. Reduction of pregnancy number. Selective reduction of triplet or higher-order multiple pregnancies (to 2) reduces the risk of preterm labour while slightly increasing the risk of early miscarriage. Methods for prediction of preterm labour. Transvaginal USS of cervix. In asymptomatic women with a singleton pregnancy: risk of delivering before 32wks is 4% if cervix is >15mm long at 23wks increasing exponentially to 78% if cervix is 5mm. In symptomatic women with a singleton pregnancy: cervix <15mm, risk of delivery within 7 days is 49% cervix >15mm, risk of delivery within 7 days <1%. Fetal fibronectin (FFN). FFN is a protein not usually present in cervicovaginal secretions at 22–36wks. Those with a +ve FFN test are more likely to deliver (test for FFN with swab and commercially available kit). Predicts preterm birth within 7–10 days of testing. Pregnancy

complications. Fetal tachycardia. Speculum: offensive vaginal discharge—yellow/brown. Avoid VE as this increases the risk of introducing infection. Preterm prelabour rupture of membranes: overview. This complicates 1/3 of preterm deliveries. About 1/3 is associated with overt infection (more common at earlier gestations). History. Ask about vaginal loss. Gush. Constant trickle or dampness. Chorioamnionitis may cause few symptoms but is associated with significant neonatal morbidity and mortality. Chorioamnionitis is also associated with significant risks to the mother. Investigations. FBC, CRP (raised WCC and CRP indicate infection). Swabs (high vaginal swab (HVS), low vaginal swab (LVS)). MSU. USS for fetal presentation, EFW, and liquor volume. Preterm prelabour rupture of membranes: management. If evidence of chorioamnionitis: steroids (betametasone 12mg IM) deliver whatever the gestation broad spectrum antibiotic cover. If no evidence of chorioamnionitis, manage conservatively: admit inform special care baby unit (SCBU) and liaise with neonatologists steroids (12mg betametasone IM—two doses 24h apart) antibiotics (erythromycin). Use of antibiotics reduces major markers of neonatal morbidity but without long-term benefits. The ORACLE trial showed erythromycin to be beneficial. Co-amoxiclav is associated with an increased risk of necrotizing enterocolitis (NEC) and should be avoided. Prognosis. Depends on: Gestation at delivery. Gestation at PPRM: PPRM at <20wks—few survivors PPRM at >22wks—survival up to 50%. Reason for PPRM: prognosis better if PPRM secondary to invasive procedure (e.g. amniocentesis), rather than spontaneous. Risks to fetus from PPRM. Prematurity. Infection. Pulmonary hypoplasia. Limb contractures.

3.3. Requirements for the results of work.

- To take a medical history (general and specific, such as menstrual, obstetrics) and record
- information in a standardized proforma (antenatal record book)
- to perform general examination, assess the health status of the mother of delivery to
- determine signs and symptoms of preterm pre labor and delivery, assess their diagnostic value
- to calculate gestational age and due date of labor
- to perform abdominal inspection and assess abdominal enlargement
- to perform abdominal palpation and note the height of the fundus above the symphysis
- and girth of abdomen at the level of umbilicus, calculate estimated fetal weight
- to identify fetal lie, presentation, position, growth pattern, volume of liquor and also any
- abnormality, detect whether the presenting part is engaged or not
- to perform auscultation of fetal heart sounds
- to assess complaints of pregnant women, explain the origins of minor ailments in
- pregnancy, give advice how to reduce the problem
- to assess results of clinical general and obstetrical examinations, lab tests in preterm pre

- labor rupture of membranes
- to develop a plan of prenatal care in preterm labor and delivery
- to counsel the women about mode of delivery and expecting outcomes

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. A 32-year-old G2P1 presents to labor and delivery at 35 weeks of gestation, complaining of regular uterine contractions about every 5 min for the past several hours. She has also noticed the passage of a clear fluid per vagina. The external fetal monitor demonstrates a reactive fetal heart rate tracing, with regular uterine contractions occurring about every 3 to 4 min. On sterile speculum exam, the cervix is visually closed. A sample of pooled amniotic fluid seen in the vaginal vault is fern and nitramine-positive. The patient has a temperature of 38,2°C, PR - 102, WBC of 19,000. You perform a bedside sonogram, which indicates oligohydramnios and a fetus whose size is appropriate for gestational age and with a cephalic presentation. What is the next appropriate step in the management of this patient?
 - F. Administer betamethasone
 - G. Perform emergent cesarean section
 - H. Administer antibiotics +
 - I. Administer tocolytics
 - J. Place a cervical cerclage
2. A child was born at a gestational age of 34 weeks. The leading symptoms were respiratory distress symptoms, namely sonorous and prolonged expiration, involving additional muscles into respiratory process. The Silverman score at birth was 0 points, in 3 hours it was 3 points with clinical findings. Which diagnostic study will allow to diagnose the form of pneumopathy?
 - K. X-ray of chest +
 - L. Clinical blood test
 - M. Determination of blood gas composition
 - N. Proteinogram
 - O. Immunoassay
3. A patient presents at 30 weeks' gestation in labor that cannot be stopped. Lung maturity is unlikely. Fetal lung surfactant production may be increased by a number of factors. Which of the following is proven clinically useful?
 - K. Glucocorticosteroids +
 - L. prolactin
 - M. thyroxine
 - N. estrogen
 - O. alpha-fetoprotein
4. A pregnant woman is 28 years old. Anamnesis: precipitous labor complicated by the II degree cervical rupture. The following 3 pregnancies resulted in spontaneous abortions at the terms of 12, 14 and 18 weeks. On examination: the uterine cervix is scarred from previous ruptures at 9 and 3 hours, the cervical canal is gaping. On vaginal examination: the cervix is 2 cm long, the external os is open 1 cm wide, the internal os is half-open; the uterus is enlarged to the 12th week of pregnancy, soft,

mobile, painless, the appendages are without changes. What diagnosis would you make?

- K. Cervical pregnancy, 12 weeks
- L. Isthmic-cervical insufficiency, habitual non carrying of pregnancy +
- M. Threatened spontaneous abortion
- N. Incipient abortion, habitual non carrying of pregnancy
- O. Cervical hysteromyoma, habitual non carrying of pregnancy

5. A pregnant, 34 weeks of gestation, is at the department of pathology. She has Rh-antibodies titer 1:32. From history, she had ectopic pregnancy with level of Rh-antibodies 1: 2 in 14 weeks. What should you do?

- K. Blood transfusion
- L. CTG
- M. Early delivery +
- N. Re-determination of antibodies in 1 day
- O. Cordocentesis

6. A premature birth has been defined as a fetus born

- K. before 37 weeks' gestation +
- L. prior to the period of viability
- M. weighing less than 1000 g
- N. weighing more than 1000 g but less than 2500 g
- O. none of the above

7. A primipara with twins at 38 weeks came into maternity hospital. On exam: first baby is in fooling breech presentation, the second - in oblique lie. Determine management of labor?

- F. Vaginal delivery
- G. Urgent caesarean section
- H. Assign exercises for correction of baby's presentation
- I. Planned caesarean section +
- J. Perform external rotation

8. A woman came to the hospital in 4 hours from the start of regular contractions. The pregnancy is 3-rd, 38-39 weeks, labor is 2-nd. The size of the pelvis is normal. During external obstetric examination has found a small parts and head of fetus above pelvic inlet, there are clearly palpable two major parts of fetus, one of which is the head in the fundus of uterus. Heartbeat of fetus are clearly heard on the left below the navel, 136 beats / min and right above the navel 150 beats / min. Circumferences of the abdomen is 119 cm. The height of uterus fundus is 42 cm. The most likely component of the diagnosis?

- D. Macrosomia +
- E. Congenital malformations of the fetus
- F. intrauterine growth retardation

Cases

№1. A 32-year-old G3P2 woman at 31 weeks' gestation arrives in the labor and delivery suite complaining of recurrent intermittent abdominal pain. She describes an increase in back pain yesterday and some mucous-like discharge today. She has noted no bleeding or leaking of fluid, but says she feels as if she is "starting her period." In reviewing her prenatal record, you note that her first pregnancy resulted in a 28-week

vaginal delivery of a 1200 g female, who is currently 7 years old and doing well. Her second baby, a male, is a healthy 3 years old, although he was delivered at 33 weeks' gestation. On examination, she is afebrile, her BP is 120/80 mm Hg, pulse is 80 bpm and regular, and RR is 16 breaths/min. Her abdomen is gravid with a fundal height of 32 cm, and soft, although you note two contractions by palpation during your 10-minute examination with her. Sterile speculum examination is negative for nitrazine and ferning, and no blood is noted. Membranes are visualized through the cervix. On digital examination, her cervix is dilated 2-3 cm, effacement is 80%, and station of the fetal vertex is at -1. The electronic fetal monitor shows a reassuring fetal heart rate of 140 bpm with mild contractions every 3 to 4 minutes.

1. What is the most likely diagnosis?
2. Recognize risk factors that predispose to this pathology. What is your next management step?

№2. A 32-year-old G2P0 woman at 28 weeks' gestation comes into the obstetrical triage unit complaining of leakage of fluid per vagina approximately 4 hours previously. She denied uterine contractions or vaginal bleeding. Her prenatal course has been unremarkable. She had a miscarriage at 8 weeks' gestation previously. On examination, her BP is 100/78 mm Hg, HR 82 beats per minute, RR 18 breaths/min, and temperature 36,5°C. Her heart and lung examinations are normal. The abdomen is soft and nontender. The uterus is nontender with a fundal height of 27 cm. The fetal heart tones are in the 140 bpm range. A speculum examination reveals gross pooling of fluid in the vagina, and the cervix appears to be visually closed.

3. What is the most likely diagnosis?
4. What are your next steps? Confirm the diagnosis and develop a plan of management for this patient.

DD. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

5	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
4	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
3	The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
2	The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

PRACTICAL CLASS №20.

“CONTRACTED PELVIS. MALPOSITION AND MALPRESENTATION. BREECH PRESENTATION”

LEARNING OBJECTIVE: is to gain basic knowledge about anatomical, physiological and biochemical changes during malposition and malpresentation fetus in labor, be familiar with risk factors for disproportions between pelvic cavity and position, presentation and size of the fetus. Management of all these situations including main part of it: establish whether threatened or ‘real’ disproportion; admit if risk high; check fetal presentation: anterior or posterior asynclitism, with one of the parietal bones preceding the sagittal suture (in posterior asynclitism, the posterior parietal bone leads. Significant degrees of asynclitism can result in labor dystocia and a higher risk of operative delivery.

BASIC CONCEPTS: Variation of female pelvis. Classification. Diagnosis of contracted pelvis. Effects of contracted pelvis on pregnancy and labor. Management. Cephalopelvic disproportion (CPD). Diagnosis, management.

Abnormal lie, position and presentation of the baby: classification, diagnosis, management. Extension of the fetal head: classification, diagnosis, management in labor.

Breech presentation: classification, diagnosis. Antenatal management. External cephalic version. Management of vaginal breech delivery. Assisted breech delivery. Management of complicated breech.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients,

medical histories.

EDUCATIONAL TIME – 4 h

1. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Secondary arrest of cervical dilatation (SACD) is much less common than the above, said to affect 6% of nulliparas and only 2% of multiparas. Although the commonest cause of SACD is still inefficient uterine activity, relative disproportion is far more likely to be the explanation than with primary dysfunction labor.

Secondary arrest does not always indicate genuine cephalon-pelvic disproportion, as inadequate uterine contractions can be correct, resulting in spontaneous vaginal delivery. However, a diagnosis of secondary arrest (especially in a multiparous woman) should prompt a search for obvious problems in the passenger (for example, hydrocephalus, brow presentation, undiagnostic shoulder presentation, large baby, malposition) and the passages (for example, a congenitally small pelvis, a deformed pelvis due to fracture following an accident, or masses in the pelvis). Unfavorable pelvic diameters are rarely a cause of cephalon-pelvic disproportion in the developed world. ///the fetus is more commonly the cause of relative disproportion by presenting a large diameter of the vertex due to a malposition or deflexion, or both. In such cases, the dystocia may be overcome. If the flexion and rotation to an occipito-anterior position can be encouraged efficient uterine contractions.

2. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Variation of female pelvis. Classification.
- Diagnosis of contracted pelvis.
- Effects of contracted pelvis on pregnancy and labor. Management.
- Cephalopelvic disproportion (CPD). Diagnosis, management.
- Abnormal lie, position and presentation of the baby: classification, diagnosis, management.
- Extension of the fetal head: classification, diagnosis, management in labor.
- Breech presentation: classification, diagnosis. Antenatal management.
- External cephalic version.

- Management of vaginal breech delivery.
- Assisted breech delivery.
- Management of complicated breech.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions

- ☐ Definition of malposition, malpresentation and cephalon-pelvic disproportion,
- ☐ current concepts in the pathophysiology of all,
- ☐ risk factors for labor and delivery,
- ☐ antenatal management,
- ☐ deciding mode of delivery,
- ☐ conducting a vaginal breech delivery,
- ☐ entrapment of the aftercoming head,
- ☐ brow and face presentation,
- ☐ shoulder presentation,
- ☐ instrumental vaginal delivery.

Tests

1. A woman is 40 weeks pregnant. The fetus is in the longitudinal lie and cephalic presentation. Pelvic size: 26-29-31-20. Expected weight of the fetus is 4800 gr. The labor contractions have been lasting for 12 hours, within the last 2 hours they were extremely painful, the parturient woman is anxious. The waters broke 4 hours ago. On external examination the contraction ring is located 2 finger widths above the navel, Henkel-Vasten sign is positive. Fetal heart rate is 160/min., muffled. On internal examination the uterine cervix is fully open, the head is engaged and pressed to the entrance into the lesser pelvis. What is the most likely diagnosis?

- + A. Threatened uterine rupture
- B. Anatomically contracted pelvis
- C. Complete uterine rupture
- D. Abruptio of normally positioned placenta
- E. Hyperactive uterine contractions

2. One of the planes of the pelvis is limited behind sacral promontory, in front – crista iliac and superior edge of the pubis symphysis, on each side - lin. terminalis. What is moment of the biomechanism of birth does the fetus make in the given pelvic plane?

- A. It does not make any of the moments.
- B. External turn of the head and internal turn of the shoulders.
- C. Extension of the head.
- D. Internal turn of the head.
- + E. Flexion of the head.

3. On the occipital area of the head of a newborn, having a dolichocephalic form, there is a patrimonial tumor with the center at the area of the small fontanel.

What head presentation did the birth occur in?

- A. Frontal.

B. Anterior type, occipital presentation.

C. Facial.

+ D. Posterior type, occipital presentation.

E. Front parietal.

4. During vaginal examination 6 hours after the beginning of parturitional activity the following was revealed: the cervix is open 5 cm, the fetal head is presented and is pressed to the input of the pelvis.

The sagittal suture is in the right diagonal diameter, the small fontanel is to the left, to the side. What moment of the biomechanism of birth is being described?

+ A. Flexion of the head.

B. Extension of the head.

C. Internal turn of the head.

D. Additional flexion of the head.

E. Internal turn the shoulders.

5. During vaginal examination, the fetal head is determined; it fills the posterior surface of the symphysis pubis and hollow of the sacrum, an inferior edge of the symphysis pubis, spines of the ischiatic bones, sacrococcygeal joints are accessible with palpation. In what plane of the small pelvis is the head located?

+ A. Plane of the narrow part of the pelvic cavity.

B. Plane of the wide part of the pelvic cavity.

C. On the input to the pelvis.

D. In the input to the pelvis.

E. In the exit of the pelvis.

6. Secondary has been in childbirth for 8 hours. Light amniotic fluid was discharged. The fetal position is longitudinal, the fetal head is not determined over the input to the pelvis. Fetal palpitation is clear, rhythmical, 140 b.p.m., over the pubis. Internal obstetrical examination: the cervix is smooth, fully open, the fetal sac is absent. The hollow of the sacrum is completely filled with the head. Spina ischiatic is not reached. The sagittal suture is in the direct diameter of the pelvis. The large fontanel is at the pubis. Contractions have begun. What period of birth is being described?

A. I period.

B. End of the I period.

+ C. Beginning of the II period.

D. End of the II period.

E. Beginning of the III period.

7. A woman in her first pregnancy had a live baby boy, weight 3200 g, length 50 cm. The umbilical cord was transected after pulsation of the vessels stopped.

When the edge of the palm is pressed on the symphysis, the umbilical cord retreats into the vagina. What sign is used for determining whether the placenta has separated from the uterus?

A. Alfelda.

+ B. Kustner-Chukalova.

C. Schröder.

D. Dovjenko.

E. Rogovina.

8. Primipara gave birth to a live mature baby boy with an estimation by the Apgar scale of 9 points. At the present moment, the umbilical cord vessels are not pulsating, the umbilical cord was cut. Bloody discharge from the genital tract is absent. Specify the period of birth:

A. Early postnatal period.

B. Opening.

C. Expulsion of fetus.

+D. Placental stage.

E. Late postnatal period.

9. Data from the internal obstetrical examination of a parturient woman: the cervix uterus is smooth, open 6 cm. The fetal sac is intact. The fetal head is presented, when pressed on, it does not make push back. During palpation of the pelvic, the pubis symphysis, innominate lines, promontory are free. The sagittal suture is in the transverse diameter, the small fontanel is to the right at the pubis. In what plane is the fetal head?

+A. Pressed to the input of the pelvis.

B. On the input of the pelvis.

C. Wide part of the pelvic cavity.

D. Narrow part of the pelvic cavity.

E. Exit of the pelvis.

10. I period of I due labor. Fetal position - longitudinal, the small segment of the head is in the input to the pelvis. Fetal palpitation is clear, rhythmical, 140 b.p.m., to the left below the navel. During internal obstetrical examination, the cervix is smooth, open 6 cm, the small segment of the fetal head is in the input to the pelvis. The sagittal suture is in the right diagonal diameter, the small fontanel is to the left closer to the pubis. Specify the position and type of position.

A. High direct standing of the sagittal suture.

B. I position, posterior type of position.

C. II position, anterior type of position.

D. II position, posterior type of position.

+E. I position, anterior type of position.

3. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 4-5 people each. We work in women's consultation rooms with patients, we give tasks:

And the I subgroup - to make a preliminary diagnosis.

Subgroup II - to make a plan for the management of a pregnant patient.

Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Test tasks

1. Secondary was delivered to the maternity hospital 6 hours after the beginning of labor. Contractions are 30-35 seconds, every 4 minutes, good force. BP is 120/80 mm hg. Pulse is 80 b.p.m., rhythmical, of satisfactory properties. The fetal heart beat is 146 b.p.m. The fetal position is longitudinal, head

presentation, I position, anterior type of position. The small segment of the fetal head is in the input to the pelvis. The height of the contraction ring is 5 cm over the pubis. When should internal obstetrical examination be performed?

+ A. Upon arrival and after amniotic discharge.

B. Every 2 hours.

C. At the beginning of the II period of birth.

D. When transferred to the postnatal ward.

E. At the end of the I period of birth.

2. In what size of the plane of the input to the pelvis is the sagittal suture during anterior position, occipital presentation, I position after performing flexion of the head?

A. Direct.

B. Left diagonal or direct.

C. Right diagonal or direct.

+D. Right diagonal or transverse.

E. Left diagonal or transverse.

3. What size of the plane of the input to the pelvis is the sagittal suture in during posterior type of position, occipital presentation, I position after flexion of the head?

A. Direct.

B. Left diagonal or direct.

C. Right diagonal or direct.

D. Right diagonal or transverse.

+ E. Left diagonal or transverse.

Methodological recommendations for practical lesson. «Health care», master's degree in the

specialty «Medicine». Discipline “Obstetrics and Gynecology”

4. In what plane of the pelvis does the fetus finishing making the internal turn of its head during anterior type of position, occipital presentation, II position?

A. Input to the pelvis.

B. The wide part of the pelvic cavity.

C. The narrow part of the pelvic cavity.

D. When going from the wide part of the cavity to the narrow part of the pelvic cavity.

+E. The exit of the pelvis.

5. In what diameter of the plane of the exit from the pelvis is the sagittal suture during extension of the head during posterior type of position, occipital presentation, I position?

+ A. Direct.

B. Left diagonal or direct.

C. Right diagonal or direct.

D. Right diagonal or transverse.

E. Left diagonal or transverse.

6. In what diameter of the plane of the exit from the pelvis does the fetal shoulders cut through and are born during the anterior type of position, occipital presentation?

+ A. Direct.

B. Right diagonal.

C. Left diagonal.

D. Transverse.

E. Direct and transverse.

7. The head of a newborn has a dolichocephalic form, extended from the front to the back. At the occipital area, there is a patrimonial tumour located in the middle between the large and small fontanel. What head presentation did the birth occur in?

A. Front parietal.

+B. Anterior type, occipital presentation.

C. Posterior type, occipital presentation.

D. Facial.

E. Frontal.

8. Primipara, 20 years old, is in the beginning of the I period of physiological birth. Contractions are 15-20 sec., every 10-15 min., weak. Fetal palpitation is not suffering. How much in cm should the cervix be open for the amniotic discharge to be timely?

A. 6-8.

+B. 8-10.

C. 4-6.

D. 2-4.

E. 1,5-2.

9. During internal obstetrical examination of a secundipara, the cervix is open 4-5 cm, when pressing with a finger on the fetal head, it pushes away and again returns to its initial position, the pelvis is free. How long is the fetal head permitted to be in this plane, in hours?

A. 5.

+ B. 6.

C. 4.

D. 3.

E. 2.

10. You are observing a parturient woman in the 1 period of birth. During internal obstetrical examination, the sagittal suture is in the right diagonal diameter, the small fontanel is closer to the pubis. How should the parturient woman lay in bed, so that the fetal head would be insert correctly?

+ A. On her left side.

B. On her back.

C. On her right side.

D. It make do difference.

E. She is only allowed to walk.

3.2. Recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills, etc.)

Pregnancy and delivery in breech presentation

Breech presentation is a presentation that is characterized by pelvic pole position of fetus over pelvic inlet.

Frequency of breech presentation in term labor with one fetus is 3-3,5%.

Classification

I. Frank breech:

- incomplete or extended breech (buttocks presentation);
- Complete or flexed breech (buttocks and feet presentation).

II. Footling breech:

- incomplete (one foot presentation);
- complete (both feet presentation);
- Kneeling presentation.

Diagnostics

Abdominal examination:

- round firm balloting head in the area of uterine fundus;
- irregularly shaped soft unbolting presenting part is palpated over/in pelvic inlet;
- Fetal heartbeat is auscultated on the left or on the right above navel

Vaginal examination during labor (Table)

Table

Differential diagnostics of different kinds of presentations based on results of vaginal examination

Presentation Vaginal examination

Frank breech • palpation of a big and soft presenting part

- identification of ischial tubers, sacral bone, anal orifice, genitalia
- possible identification of inguinal curve in incomplete breech, and feet near buttocks in complete breech
- ischial tubes and anus of fetus are in the same plane

Footling breech • palpation of heel bone, short even fingers, thumb can't be

abducted and its mobility is limited

- thumb can't be pressed down to sole

Face

presentation

- identification of firm cylinders and jaws, mouth and nose of fetus
- mouth and molar crests have triangular shape

Hand falling in

shoulder

position or

oblique lie

- thumb is easily pressed down to palm
- heel bone can't be palpated

Ultrasound (US) examination is the most informative diagnostic method. It allows not only to identify breech presentation, but also presumed weight, position of a head

(deflexion grade), placenta localization, volume of amniotic fluid, cord entanglement, abnormal development, etc. We summarize 4 variants of position of head by the size of an angle between cervical spine and occipital bone, which are very important for the choice of labor management method:

- head is flexed, angle over 110°;
- head is slightly deflexed -I grade of head deflexion, angle 100 - 110°;
- head is mildly deflexed - II grade - 90°-100°;
- Excessive head deflection - III grade of head deflexion, angle less than 90°.

Presumed diagnosis of breech presentation is stated at the term of 30 weeks and final diagnosis – at the term of 37-38 weeks.

The rate of spontaneous turn harshly lessens after the 31 st week of pregnancy that is why it is wise to correct fetal position after this term.

Pregnancy care

Antenatal clinic

Necessary recommendations to pregnant women at the term of 30 weeks to induce spontaneous turn of fetus:

- endwise position on the side opposite to fetus;
- Knee-elbow position for 15 min 2-3 times a day.

Complex of corrective gymnastic exercises in one of the existent methodic is prescribed since the 32nd up to the 37th weeks.

Contraindications to gymnastic exercises:

- threatened premature labor;
- placental presentation;
- low insertion of placenta;
- Anatomically contracted pelvis of II - III grade.

External cephalic version is not performed at the antenatal clinic.

Necessity of hospitalization to maternity obstetric clinic is determined at the term of 38 weeks basing on the next indications:

- aggravated obstetric-gynecological history;
- feto-maternal disease;
- Extra genital pathology;
- Opportunity to perform external cephalic version.

Maternity obstetric service

Diagnosis specification:

- performing of ultrasound examination;
- evaluation of state of fetus (biophysical profile - BPP, Doppler sonography if necessary);
- estimation of readiness of maternal organism to delivery (Bishops scale);
- estimation of possibility of performing of external cephalic version.

Plan of labor management is formulated in council with anesthesiologist and neonatologist and then negotiated with a patient.

External cephalic version in full-term pregnancy leads to increasing of amount of physiological deliveries in cephalic presentation.

Indications:

- Incomplete breech in full-term pregnancy and alive fetus.

Conditions:

- presumed weight of fetus < 3700,0 g,

- normal sizes of small pelvis;
- empty urinary bladder;
- US after external version is available;
- satisfactory condition of fetus on BPP and absence of abnormal development;
- normal mobility of fetus, enough quantity of amniotic fluid;
- normal uterine tonus, unbroken fetal bladder;
- readiness of operating room to emergency care in the case of complications;
- Skilled qualified specialist acquainted with procedure of version.

Contraindications:

- Fetal-maternal disease when decision making of external version (bleeding, fetal distress, preeclampsia);
- aggravated obstetric-gynecological anamnesis (recurrent miscarriage, perinatal loss, infertility in anamnesis);
- polyhydramnios or oligohydramnios;
- multiple pregnancy;
- anatomically constricted pelvis;
- cicatricial deformity of vagina and cervix;
- III grade of head deflexion on US;
- placental presentation;
- severe extragenital pathology;
- uterine scar, peritoneal commissures;
- hydrocephaly and neck tumors in fetus;
- abnormal development of uterus;
- Tumors of uterus and annexes.

Procedure of external cephalic version:

- advise position with angle of 30-40° in direction of fetal spine;
- breech of fetus is abducted from pelvic inlet by the hands of physician that are inserted between mons pubis and breech of the fetus (a);
- breech of fetus is carefully shifted in direction of fetal position (b, c);
- head is shifted in direction opposite to fetal position (d);
- Version is finished when head is shifted to pelvic inlet and breech to uterine fundus.

If the first try was unsuccessful the second try perform is not reasonable.

Complications:

- abruption placenta;
- fetal distress;
- Rupture of uterus.

Labor management

Birth in time.

Conservative labor management:

- estimate indications, make sure that there are all necessary conditions for safe vaginal delivery and no indications to caesarean section;
- follow the course of the I period of labor by filling in the portogram (do not fill in table 2 in portogram), cardiotocography registration for 15 min every 2 hours;

- in the case of breaking of waters, immediate vaginal examination should be performed to exclude prolapse of funnies;
- II period should be managed with mobilized vein for intravenous infusion of 5 IU of oxytocin in 500,0 ml of normal saline (up to 20 drops per minute);
- Episiotomy if necessary; pudendal anesthesia;
- II period of delivery should be managed in presence of anesthesiologist, neonatologist.

A. Extended and flexed breech (Tsivians manual aid method I)

I. Labour of breech and feet:

- woman should push during the cut of breech;
- if perineum isn't able to spread enough, episiotomy is performed;
- breech appear by itself up to navel;
- both thumbs of physician are on the back surface of thighs, other fingers are on lumbosacral region of fetus;
- carefully hold breech but don't pull

Don't pull fetus for inguinal curve anticipatorily without indications (fetal distress).

Hold fetus by thighs but not by sides and abdomen because liver or kidneys can be damaged.

II. Labour of hands:

- fetus which is born up to navel is taken with the thumbs on breech and sacral region and with other fingers on front surfaces of thighs;
- body is moved down until the lower angle of shoulder blade appears;
- during down-directed traction the front hand is born from under symphysis; after substantive birth of the front hand, breech is lifted to mother's abdomen to let the rear hand appear itself; if the hands of fetus cannot appear unassisted it is accounted to be nuchal arms and classical manual maneuver of shoulder labor should be performed.

Classical manual maneuver of hands labor:

- with one hand (when I position – left hand) grab legs of fetus in the region of podetial joint and lift forward and slightly to the side opposite to the spine of fetus, closer to mother's thigh (if I position – to right thigh);
- insert the second hand in vagina following the back of fetus up to mother's sacral hollow and then follow the hummers up to the elbow and extract rear hand;
- the arm is pulled at elbow;
- the front hand is extracted after its changing to the rear position and also from the side of sacral hollow;
- grab pelvis and front surfaces of thighs of fetus with both hands (thumbs on the breech, 4 fingers of each hand on thighs; don't touch abdomen of the fetus) and turn through 180°;
- back of the fetus is under symphysis;
- The second arm is freed similar to the first from the side of sacral hollow.

III. Labor of the head:

A. In a case of uncomplicated delivery, absence of nuchal arms the head is born in a flexed position:

- physician's arm is put under the body of fetus, so the body lays on an arm and elbow of physician;

- assistant helps labor of the head by maintaining mild pressure over symphysis that prevents head deflexion;
- the body is lowered under the level of perineum for the formation of fixating point in suboccipital fossa with the lower border of symphysis;
- the body is lifted over perineum level;
- Head appears substantively in a flexing position around fixating point.

B. If the classical manual maneuver of hands labor was applied for labor of shoulders and arms, the head is born with the help of Mauriceau maneuver:

- physician's arm is put under the body of fetus, so the body lays on an arm and elbow of physician;
- put index and ring fingers on the cheek-bones of fetus and middle finger into its mouth for abduction of jaw and head flexion;
- use the second hand to hold shoulders of fetus from the back side;
- carefully flex the head to sternum with index and middle fingers until the pressure on jaw results in scalp birth;
- provide traction to your side;
- assistant pushes with palmar surface of his arm over symphysis, fixating the head in flexing position;
- Carefully apply up (forward) traction for the head birth in a flexed position.

B. Footing breech:

In a case of footing breech caesarean section is performed. Vaginal birth is provided only when:

- II period of labor – Tsivians manual aid method II is applied to provide complete cervical dilatation and breech lowering;
- Second fetus birth in the case multiple pregnancy.

Indication to caesarean section:

- presumed weight of fetus is over 3700,0 g;
- footling breech;
- head deflexion of the III grade on US;
- Neck tumors of fetus and hydrocephaly.

Biomechanism of breech labor

I moment – internal breech version. Breech is engaged in its intertrochanteric diameter in one of the oblique diameters of pelvic inlet. Breech descends and performs internal version, intertrochanteric line is set in anterior-posterior diameter of pelvic outlet.

II moment – side flexion in lumbosacral part of spinal cord. Side flexion of fetus takes place according to direction of birth canal. Front breech (which serves as a guiding point) crowns but does not bear because the fixating point is set between anterior iliac spine of fetus and pubic symphysis. Posterior breech is born first, followed afterwards by the front breech and then fetus is born up to its navel.

III moment – internal shoulder version and external corpus version. Shoulders descend into pelvic cavity and are set in anterior-posterior diameter of pelvic outlet.

IV moment – side flexion in cervicothoracic part of spinal cord, during which hands and shoulder girdle are born.

V moment – internal head version. The head descends passing birth canal and is set with sagittal suture in anterior-posterior diameter of pelvic outlet. Suboccipital

fossa is fixated under the lower edge of pubic symphysis.

VI moment – head flexion and its birth.

If the state of mother and fetus is satisfactory and sizes of pelvis and fetus are normal, vaginal birth is preferred. It is necessary to divide an act of delivery into 4 stages:

1. Fetus birth up to its navel;
2. Fetus birth from navel to the lower edges of shoulder blades;
3. Shoulder birth;
4. Head birth.

Pregnancy and labor in pelvic bones anomaly

Contracted pelvis can be anatomically contracted when anatomy changes take place, and clinically contracted when functional inequality between the diameters of a head of fetus and mother's pelvis is independent to their sizes.

Etiology

There are different causes of contracted pelvis formation. Amongst them are malnutrition, physical exertions, and chronic diseases in childhood and adolescence. Significant role in skeleton anomalies formation plays rickets in childhood. Rachitic bone deformations predetermining pelvic narrowing. Bone deformations occur not only when the illness is in full bloom but also during suppressed forms when changes in other parts of the skeleton are barely visible.

Tuberculosis of bones and joints also leads to pelvic deformations. Significant deformations may be caused by pelvic bones fractures, dislocations, and vicious union in lower extremities, exostosis, pelvic bones tumors, and deformations in lumbosacral articulation.

Some role is played by mother's malnutrition during pregnancy and diseases which lead to metabolic disorders between mother and fetus.

Hormone misbalances in adolescence also contribute to pelvic bones deformation, because estrogens stimulate pelvic growth in transverse sizes and its ossification, while androgens stimulate skeleton and pelvis elongation.

Anatomically contracted pelvis is classified by form and grade of contraction.

Frequently met types of contracted pelvis:

Generally contracted pelvis:

infantile pelvis;

android pelvis;

Dwarf pelvis.

Flat pelvis:

☐ simple flat pelvis;

☐ flat rachitic pelvis;

☐ pelvis with reduced anterior-posterior diameter in the plane with greatest pelvic dimensions;

☐ Generally contracted flat pelvis.

Seldom met types of contracted pelvis:

1. Obliquely displaced and obliquely contracted pelvis.

2. Dollichopellic pelvis.

3. Choanoid pelvis.

4. Osteocalcin pelvis.

5. Spondylolisthesis pelvis.

6. Pelvis contracted with exostoses, fractures, pelvic bones tumors.

7. Kyphotic pelvis.

There 4 degrees of pelvic constriction:

I degree – true conjugate is 10,5-9 cm

II degree - 9-7,5 cm

III degree - 7-5,5 cm

IV degree – less than 5,5 cm.

Frequency of occurrence of anatomically constricted pelvis is 2,6-12 %.

Diagnostics of constricted pelvis

Timely diagnostics of constricted pelvis may caution a rate of complications, which can arise during labor or rarely at the end of pregnancy.

Anamnesis, external examination and vaginal examination are of the main diagnostic significance.

We get important information about rickets, bone tuberculosis, osteomyelitis, traumas, late menarche, obstetric history from anamnesis. During external examination attention is paid to height (pelvis is usually constricted when the height is 145 cm or less), spinal curvatures (kyphosis, scoliosis, lordosis), shortening of lower extremities, immobility in joints, form of lumbosacral rhomb, pendulous abdomen in multipara, peaked abdomen in primipara, signs of infantilism (immature secondary sexual characteristics), intersexuality (tall stature, hypertrichosis, virilizing type pillories). General pelvimetry is performed (pic. 1, 2).

Pic. 1. Transverse diameters measurement

1. Distention spinarum = 25-26 cm (distance between anterior superior iliac spines);

2. Distention cristarum = 28-29 cm (distance between the most distant points of iliac crests);

3. Distention trochanterica = 31 cm (distance between the most distant points of trochanters);

Pic. 2. External conjugate and diagonal conjugate measurement

4. Conjugata externa = 20-21 cm

5. Conjugate diagonals is measured during vaginal examination.

If promontories can't be reached then conjugate diagonals is assumed to be over 12 cm (12,5-13 cm).

6. Conjugate Vera (true conjugate) is equal to anterior-posterior diameter of pelvic inlet.

Additional external measurement:

lumbosacral rhomb, if normal it has regular shape. Vertical size is 11 cm (is equal to true conjugate), transversal size is 9 cm.

ONMedU, Department of Obstetrics and Gynecology. Practical class №20. Contracted pelvis.

Malposition and malpresentation. Breech presentation. Contracted pelvis.

Methodological recommendations for practical lesson. «Health care», master's degree in the

specialty «Medicine». Discipline “Obstetrics and Gynecology”

Lateral conjugate – distance between the anterior superior iliac spine and posterior superior iliac spine of the same iliac bone (normally is 14,5-15 cm), it is decreased in contracted pelvis.

Pelvic height – distance between ischial tuberosity and pubic symphysis (normally is less than 11 cm, if it is over 11 cm prolonged labor may take place).

Anterior-posterior and transverse diameters of pelvic outlet.

circumference of pelvis is measured with measuring tape pressed under sacrum, between iliac crests on both sides and in the middle of pubic on the front (normally is 85 cm and over)

Pubic symphysis height is measured between its upper and lower edges (normally is 5-6 cm). The higher is pubic symphysis, the lesser is true conjugate.

Oblique diameter – distance between the right anterior superior iliac spine to the left posterior superior iliac spine and opposite. Normally both these sizes are equal to 20-21 cm.

Solov'jev index is estimated by measurement of the circumference of radiocarpal joint. Normally it is 14-18 cm. If it is lower pelvic bones are thin, if it is over 18 cm pelvic bones are thick.

Zangemeister's and Vasten's symptoms are used to estimate match of fetus head to pelvis.

Vasten's sign negative even positive.

Types of flat pelvises: a – generally contracted flat pelvis; b – simple flat pelvis; B – flat rachitic pelvis.

Generally contracted pelvis

It is characterized by regular shape and equal reduction (in 1-2 cm) of all sizes (anterior-posterior, oblique and transverse), pubic angle is acute (less than 90°), pubic and sacrum heights are reduced. Average sizes are D.sp. – 24 cm., D.cr. – 26 cm, D.tr. – 28 cm., C.ext. – 18 cm., C.diagonalis – 11 cm, C.vera – 9 cm.

There are different types of generally contracted pelvis:

Infantile pelvis is diagnosed in infantile underdeveloped women. Pelvis has some puerile signs: sacrum is narrow and isn't flexed enough, promontory is high, pubic arc is narrow, pelvic inlet has round or oval form.

Android pelvis is diagnosed in tall women with the signs of intersexuality. Its build is alike to male pelvis: high conoid cavity, narrow pubic arc.

Dwarf pelvis is a marginal variant of generally contracted pelvis. It is diagnosed in women of proportional build with height of 120-149 cm.

Biomechanism of labor is like to the one in breech labor but has some peculiarities.

First peculiarity (in the I moment of biomechanism) – maximal head flexion and head set with its smallest diameter (diameter suboccipitoparietalis – 9 cm) in one of the oblique diameters of pelvic inlet depending on fetus position. Such set is cuneate and unstylistic.

Second peculiarity is significant head configuration (dolichocephalic configuration) because of reduction of all sizes of pelvis.

Third peculiarity is prolonged head deflexion.

Flat pelvis

Flat pelvis is a pelvis with reduced anterior-posterior diameters and normal transversal and oblique diameters. It has different types:

1. Simple flat pelvis is characterized by reduction of all anterior-posterior diameters due to relocation of sacrum closer to pubic. There is no deformation of pelvis and skeleton, build is normal. Sizes: D.sp. - 26 cm, D.cr. - 29 cm, D.tr. - 30 cm, C.ext. - 18 cm, C.diagonalis. - 11 cm, C.vera - 9 cm.

Labor has more favorable prognosis than in cases of any other type of flat pelvis.

Biomechanism of labor in simple flat pelvis has some peculiarities.

First peculiarity – prolonged high stand of sagittal suture in transverse diameter of pelvic inlet.

Second peculiarity – big fontanel is lower than small fontanel and becomes a guiding point.

Third peculiarity – unstylistic set of a head (Nagele's obliquity, Litzmann's obliquity).

Fourth peculiarity – head rotation cannot be performed in pelvic cavity that leads to medium or low transverse stand of a head. If the head is big, clinical discordance may occur.

a b

Pic 6. asynclitism: a – anterior (Nagele's obliquity); b – posterior (Litzmann's obliquity).

2. Flat rachitic pelvis is characterized by deformation of the upper part of sacrum that leads to reduction of anterior-posterior diameter of pelvic inlet while other diameters are normal or slightly extended, coccyx has beaked forward inclination. Besides, iliac bones are significantly spread, that's why D.sp. and D.cr. are almost equal, ischial tuberosities spread and pubic angle becomes obtuse (over 90°). Sizes: D.sp. – 26 cm, D.cr. – 26 cm, D.tr. – 31 cm, C.ext. – 17 cm, C.diagonalis – 10 cm, C.vera – 8 cm.

Biomechanism of labor in flat rachitic pelvis has its peculiarities.

First peculiarity – prolonged stand of sagittal suture in transverse diameter.

Second peculiarity – head deflexion and big fontanel descending.

Third peculiarity – Nagele's obliquity.

Fourth peculiarity – after passing the inlet head quickly descends onto pelvic outlet, simultaneously flexes, performs internal rotation and deflexed.

3. Generally contracted flat pelvis – is a pelvis with reduction of all diameters but anterior-posterior diameters are reduced most of all. Women usually are low. Significant reduction of all diameters, especially of anterior-posterior and external is characteristically. Sizes: D.sp. - 23-24 cm, D.cr. - 24-25 cm, D.tr. - 27-28 cm, C.ext. - 15-16 cm, C.diagonalis – 9 cm, C.vera – 7 cm.

Biomechanism of labor is equal to such in generally contracted pelvis or simple flat pelvis depending on which form dominates.

4. Pelvis with reduced anterior-posterior diameter in the plane with greatest

pelvic dimensions is characterized by reduction of anterior-posterior diameter in the plane with greatest pelvic dimensions. This type of contracted pelvis is diagnosed with X-ray.

Dolichopelvic pelvis

It is characterized by reduction of one or more transverse diameters in 0,5 cm or more with normal or extended true conjugate.

Biomechanism of labor in dolichopelvic pelvis:

First peculiarity: high direct stand of a head.

Second peculiarity: if occiput faces front, head flexes intensely and passes all pelvic dimensions without rotation and is born alike to when occipitoanterior position of vertex, if occiput faces back, head rotation may occur in pelvic cavity and delivery may end spontaneously. If the head is big, rotation may not occur and delivery is ended with caesarean section.

Pregnancy and delivery management in contracted pelvis

Pregnant women with anatomically contracted pelvises are hospitalized at the term of 37-38 weeks of pregnancy for the selection of delivery method. Delivery course in contracted pelvis depends on the grade of discordance and complications. Caesarean section is the only option in contraction of the 3rd and 4th degrees. It also can be performed if contraction of the 1st or 2nd degree is combined with other obstetric pathology.

Clinically contracted pelvis occurs during delivery as a result of inequality in diameters of fetal head and mother's pelvis independent to their actual sizes. The main causes of that are anatomically contracted pelvis, big head of fetus, head defluxion, protracted pregnancy, myomas which prevent advance of the head, abnormal development of feminine genitalia and fetus.

Conditions of clinically contracted pelvis diagnostics:

cervical dilatation over 8 cm;

absence of fetal bladder;

empty urinary bladder;

normal uterine contractions.

Symptoms of clinical inequality during delivery:

positive or even Vasten's sign, positive Zangemeister's sign;

symptoms of urinary bladder compression;

hyperextension of uterus, high position of contraction ring;

absence of advance of the head whilst in full cervical dilatation and normal delivery activity;

insufficient attachment of cervix to presenting part;

appearance of bearing-downs whilst in high stand of fetus head;

edema of cervix which may possibly spread onto vagina and vulva.

If two or more signs are present the diagnosis of clinically contracted pelvis is stated and caesarean section is performed. In cases of dead fetus embryectomy is chosen

Problems of macrosomia in obstetrics, macrocosmic pregnancy and delivery

Term 'big fetus' is used if by the end of pregnancy weight of fetus is 4000 g and more in cephalic presentation or 3700 g and more in breech presentation. Fetus weighting over 5000 g is called giant.

Frequency of macrocosmic labor grows and varies between 5,2-14,4%.

Frequency of patrimonial traumatism, including rupture of uterus, hypoxia of fetus, postnatal complications increase in macrocosmic labor. Perinatal lethality of big fetuses is 2-3 times higher than lethality of fetuses with normal weight. Clinically contracted pelvis occurs 6 times more frequent.

Etiology

Acceleration which starts antenatally and is a result of influence of social and economical factors that lead to myodynamia.

Excessive consumption of carbohydrates during pregnancy. Hyperglycemia in mother leads to hyperinsulinemia in fetus and increasement of tissue growth.

Metabolic disorders in maternal organism, particularly diabetes mellitus.

Activity of solar radiation and duration of daylight hours. In spring and summer when there are lots of daylight children are born with greater weight and height then in autumn and winter.

Congenital and constitutional peculiarities of parents.

Increased synthesis of chorionic somatomammotropin which regulates height of a fetus.

Increased synthesis of progesterone or estrogens.

Big fetus diagnostics

Risk group for possible development of big fetus includes:

tall women (170 cm and over);

women wit sedentary lifestyles;

women with obesity;

women with diabetes mellitus or other endocrine diseases;

macrocosmic delivery in anamnesis;

fundal height in term of 20 weeks of pregnancy - 21-22 cm, 28 weeks - 30 cm and more.

Women with Rh-negative blood type.

Ultrasonography and tentative fetus weight calculation are of big diagnostic value.

And is at the longitudinal section of the small pelvic outlet, small fontanel is situated closer to the uterus. What cephalic position will the newborn have during birth in this case?

+A. Minor oblique lie

B. Longitudinal lie

C. Transverse lie

D. Medium oblique lie

E. Major oblique lie

6. A 20-year-old woman, gravida 2, para 1 has been in labor for 4 hours. Her condition is satisfactory. Moderately painful contractions occur every 3 minutes and last for 35-40 seconds. The waters have not burst yet. The fetus is in longitudinal position. Fetal heartbeats are 136/min., clear and rhythmic.

Major segment of the fetal head is engaged to the pelvic inlet. Vaginal examination shows smooth cervix of 6cm, amniotic sac is intact, sagittal suture is in the left oblique diameter, occipital fontanel is on the right near the symphysis pubis. What stage of the labor is it?

+A. Active phase of the first stage of normal labor

B. Latent phase of the first stage of normal labor

C. The second stage of normal labor

D. Precursors of childbirth

E. Preliminary stage

7. It is the 3rd day after the first normal term labor; the infant is rooming in with the mother and is on breastfeeding. Objectively: the mother's general condition is satisfactory. Temperature is 36.4°C, heart rate is 80/min., BP is 120/80 mm Hg. Mammary glands are soft and painless; lactation is moderate, unrestricted milk flow. The uterus is dense, the uterine fundus is located 3 finger widths below the navel. Lochia is sanguine-serous, moderate in volume. Assess the dynamics of uterine involution:

A. Pathologic involution

B. Hematometra

C. Subinvolution

+ D. Physiological involution

E. Lochometritis

8. A newborn has Apgar score of 9. When should this infant be put to the breast?

A. On the 2nd day

B. After 2 hours

+ C. In the delivery room

D. On the 3rd day

E. After 12 hours

Questions:

1. What classification of breech presentation is used?

2. What are the diagnostic criteria of breech presentation?

3. What is the difference between delivery in cephalic and breech presentation?

4. What are the moments of labor biomechanism in breech presentation?

5. What hand assistance methods for breech presentation do you know?

6. How are contracted pelvises classified and diagnosed?

7. What are the peculiarities of biomechanism of delivery in different types of contracted pelvis?

8. What are the symptoms of contracted pelvis?

9. What are the causes of macrosomia?

10. What methods are used to diagnose macrosomia?

11. What are pregnancy and delivery peculiarities in big fetus?

4. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

☐ methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of practical skills on the theme:

☐ methods: assessment of the solution of situational tasks (including calculation) on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:

□ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:

□ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

“5” The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.

“4” The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion

Learning objective is to gain basic knowledge about placental dysfunction, fetal growth retardation, fetal distress and anomalies of fetal egg, be able to differentiate between certain signs and symptoms that can be common to both disease processes and to physiologic adaptations of pregnancy, obtain knowledge about methods of obstetrical examination, appropriate prenatal counseling and supervision in order to provide successful obstetric outcome

Basic concepts:

- definition, etiology and pathogenesis of placental dysfunction,
- classification of placental dysfunction,
- abnormalities of the ovum, risk pregnancy for abnormalities of the fetus,
- etiology and clinic polyhydramnios and oligohydramnios,
- methods of diagnosis and treatment of polyhydramnios and oligohydramnios

equipment

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments.
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

EE. organizational stage

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

In recent years, among the causes of neonatal and infant mortality top ranks congenital abnormality of the fetus. In every 5th child registered pathology, antenatal there, and 30% of the causes of various diseases or are the backdrop for their appearance.

Early diagnosis of congenital fetal pathology contributes to the birth of a healthy child. Knowledge of modern methods of antenatal diagnosis of the fetus during uncomplicated pregnancy helps detect fetal pathology in the early stages of pregnancy.

FF. control of basic knowledge (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Pelvis from anatomical and obstetric points of view.
- The dimensions of the fetal head and body.
- Signs of fetal maturity.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

To have specialized conceptual knowledge acquired in the learning process.
To be able to solve complex problems and problems that arise in professional activities.
Clear and unambiguous communication of own conclusions, knowledge and explanations to specialists and non-specialists.

To be responsible for making decisions in difficult conditions.

To have deep knowledge of the structure of professional activity.

To be able to carry out professional activities that require updating and integration of knowledge.

To be able to effectively form a communication strategy in professional activities.

To be responsible for professional development, ability to further professional training with a high level of autonomy.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. The posterior rectus fascia (sheath) ends at the

- (A) insertion of the rectus muscles
- (B) insertion of the anterior rectus sheath
- (C) arcuate line (semicircular line, linea semicircularis, line of Douglas)
- (D) area approximately 3-4 cm below the umbilicus
- (E) area approximately 2-3 cm above the pubic symphysis

2. Sacrospinous ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

3. Sacrotuberous ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

4. Ilioinguinal ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

5. Arcuate ligament

- (A) a thick band of fibers filling the angle created by the pubic rami
- (B) passes from the anterior superior iliac spine to the pubic tubercle
- (C) triangular and extends from the lateral border of the sacrum to the ischial spine
- (D) attaches to the crest of the ilium and the posterior iliac spines superiorly with an inferior attachment to the ischial tuberosity
- (E) passes over the anterior surface of the sacrum

6. Formed by the superior and inferior pubic rami and covered by a central membrane through which a nerve, artery, and vein pass

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament

(E) sacral foramina

7. The internal pudendal vessels and pudendal nerve exit the pelvis but then reenter through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

8. Divides and demarcates the greater and lesser sciatic foramen

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

9. The piriformis muscle, gluteal vessels, and posterior femoral cutaneous nerves pass through this structure

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

10. Four anterior and four posterior openings through which pass small nerves

- (A) obturator foramen
- (B) greater sciatic foramen
- (C) lesser sciatic foramen
- (D) sacrospinous ligament
- (E) sacral foramina

11. Which of the following statements is FALSE?

- (A) The ischium has a body and two rami
- (B) The internal surface of the body of the ischium provides attachments for the levator ani muscle and coccygeus muscle
- (C) The superior ramus is located cephalad to the inferior ramus in the standing position
- (D) The superior ramus forms the dorsolateral portion of the obturator canal
- (E) The ischial tuberosity is the lowest portion of the pelvis in the erect or sitting posture and bears the weight of the human frame in the sitting position

12. Regarding the pubis, which of the following statements is FALSE?

- (A) The pubis has a body and two rami
- (B) The superior edge of the body of the pubis, lateral to the midline, has a raised area called the anterior iliac crest a common landmark
- (C) The inferior ramus is the attachment of the adductor magnus and brevis, and obturator internus muscles

- (D) The inferior rami form the lower portion of the pubic arch
- (E) Inferiorly, the pubic bone is the attachment for the urogenital diaphragm

13. The sacrum

- (A) is formed from 11 or 12 small fused vertebrae
- (B) has an uppermost anterior portion called the obstetrical conjugate
- (C) in women has a concave pelvic surface
- (D) is separated from the vertebrae that make up the coccyx by the sacrococcygeal joint
- (E) most often is the limiting factor in determining the size of the pelvic outlet

14. Which of the following is a muscle of the external genitalia?

- (A) the gluteus
- (B) the sartorius
- (C) the superficial transverse perineal
- (D) the deep transverse perineal
- (E) the levator ani

15. The term pudenda includes the

- (A) mons pubis
- (B) vulva
- (C) labia
- (D) external genitalia
- (E) all the above

16. The term perineum describes

- (A) the entire area between the thighs from the symphysis to the coccyx, bounded inferiorly by the skin and superiorly by the levator muscles of the pelvic diaphragm
- (B) the anus and perianal area
- (C) the superficial skin layer of the vulva
- (D) the tendon joining the muscles deep to the external genitalia
- (E) bulbocavernosus, ischiocavernosus, and transverse perineal muscles as a complex

17. The clitoris

- (A) consists of a single crurum, a short body, and the glans clitoris, with overlying skin called the prepuce
- (B) is attached to the pubic bone by a suspensory ligament
- (C) contains within the shaft the corpora cavernosa, a collection of dense connective tissue that serves as support for the anterior-inferior portion of the vagina
- (D) is supplied very sparsely with nerves originating primarily from the terminal branch of the ilioinguinal nerve in most women
- (E) plays a secondary role in erotic stimulation in most women when compared to the role of the vagina

18. Which of the following statements regarding the muscles of the external genitalia is TRUE?

- (A) The bulbocavernosus muscle surrounds the distal vagina and vestibule on each side as a single continuous strip of muscle, much like other sphincters

- (B) The ischiocavernosus muscle takes origin from the ischial tuberosity and inferior ischial ramus and inserts upon the inferior pubic ramus on each side of the pelvis
- (C) The superficial transverse perineal muscle arises from the ischial tuberosity and inferior ischial ramus and inserts between the posterior vagina and anterior rectum
- (D) The perineal body serves as a central connection for all the superficial muscles of the external genitalia except the transverse perineal muscle which inserts directly on the external anal sphincter
- (E) The muscles of the external genitalia are usually spared at the time of episiotomy when the levator ani muscle is routinely divided

19. Which of the following statements about the vagina is FALSE?

- (A) The vagina is a 7-10 cm canal connecting the internal and external genitalia from the vestibule to the uterine cervix
- (B) It is a hollow, distensible, fibromuscular tube with the apex (vault) having an H-shaped lumen and the external opening being flattened in the dorsal-ventral dimension
- (C) The body of the vaginal tube is flattened in its normal resting state
- (D) The mid-portion of the vaginal axis is nearly perpendicular to the lower sacrum in the adult human female in a standing position
- (E) The posterior fornix (back wall of the vagina) is approximately 2 cm longer than the front wall and is directly connected to the peritoneal pouch (posterior cul de sac, retrouterine space, or pouch of Douglas) directly behind the uterus

20. When the infantile uterus is examined, one finds that

- (A) the cervix is larger than the corpus (body of the uterus)
- (B) the position is always anteflexed
- (C) the cervix is the same size as the corpus
- (D) the body is larger than the cervix
- (E) it is as large as the adult organ in the immediate newborn period

21. The portio vaginalis of the cervix is that part which

- (A) extends cephalad from the vagina
- (B) protrudes into the vagina
- (C) forms an internal isthmus
- (D) is normally covered with endocervical epithelium
- (E) all the above

22. Which of the following statements regarding the uterus is FALSE?

- (A) The uterus has a body (corpus), composed mainly of smooth muscle, and a cervix, composed mainly of connective and elastic tissues, that are joined by a transitional portion (isthmus)
- (B) It is an estrogen-dependent organ measuring about 7.5 cm long by 5 cm in width, and 4 cm anterior to posterior diameter in an adult female
- (C) After puberty the uterus weighs about 50 grams in the nullipara and 70 grams in the multipara
- (D) It lies between the bladder anteriorly and the pouch of Douglas in front of the rectum posteriorly, with the cervical portion extending into the abdomen and into the vagina

(E) The opening at the distal tip of the cervix is called the internal os

23. The uterus and adnexa are normally mobile structures, but they do have some relatively fixed anatomic characteristics. Which, if any, of the following statements about their relationship and/or positions is FALSE?

(A) Antelexion means that the uterus is bent forward on itself

(B) The ovaries can be normally found caudad to the cervix

(C) The round ligaments are normally attached to the uterus anterior to the insertion of the fallopian tubes

(D) Adnexa refers to the tube, ovary, and their connecting structures

(E) All statements are true

24. Regarding the anatomy of the fallopian tube, which of the following statements is FALSE?

(A) Fallopian tubes are a conduit from the peritoneal to the uterine cavity

(B) Each fallopian tube traverses the superior portion of the broad ligament attached by a mesentery (mesosalpinx)

(C) The fallopian tube has four distinct areas in its 8-12 cm length: the portion that runs through the uterine wall (interstitial or cornual portion), the part immediately adjacent to the uterus (isthmus portion), the mid-portion of the tube (ampulla), and the distal portion containing the finger-like fimbria that expels the ovum (infundibular portion) to begin its passage toward the ovary

(D) The longest of the fimbriae (fimbria ovarica) is attached to the ovary

(E) Each tube is covered by peritoneum and consists of three layers: serosa, muscularis, and a nonciliated mucosa

25. Which of the following statements about the ovary is FALSE?

(A) The ovaries normally change in size through-out a woman's lifetime

(B) The ovary is supported in its normal anatomic position by the infundibulopelvic ligament and the ovarian ligament

(C) The ovary produces both hormones and germ cells

(D) The ovary lies in the ovarian fossa of the true pelvis, overlying the iliac vessels

(E) The ovary produces the estrogens and androgens that regulate sexual desire in the human female

GG. formation of professional skills (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

– Subgroup I – play situational tasks as patients

– Subgroup II – play situational tasks as doctors

- Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. On receiving antenatal appeared pershovahitna 30 years. The gestational age according to the latest monthly 20 weeks. From history revealed that she suffered from high fever SARS in early pregnancy and took treatment (antibiotics, antipyretic drugs). When screening ultrasound diagnosed with microcephaly. Identify tactics.

- + A. Abortion.
- B. follow-up, ultrasound control after 1 month.
- C. Hold amniocentesis.
- D. It is necessary to do a biopsy of the placenta.
- E. Run kordotsentez.

2. Pershorodillya 20 years ba-hatovoddyam is in labor with hours. Maternity active activities. One fruit, in the main presentation. The heartbeat of the fetus does not suffer. Roz-kryttya cervix 4 cm. The bag of water out intense contractions. Determine the tactics of delivery:

- A. prostahlan-dynamy induce labor.
- V. expectant management.
- C. Caesarean section.
- B. The dream vacation.
- + E. Amniotomy.

3. Normally the number of amniotic waters at full-term pregnancy:

- AA + 600-1500 ml.
- B. 500-600 ml.
- C. 1600-2000 ml.
- D. 2000-2300 ml.
- E. 2000-2500 ml.

4. Number of amniotic waters at Polyhydramnios:

- A. 600-1500 ml.
- B. 500-600 ml.
- + C. More than 1500 ml.
- D. More than 2,000 ml.
- E. More than 2500 ml.

5. Possible cause polyhydramnios:

- A. Chronic infection
- B. Diabetes
- C. Rhesus conflict
- D. fetal malformations
- + E. all mentioned.

6. The main complaint of pregnant women with acute polyhydramnios:
- A. Loss of appetite.
 - B. Dyspnea.
 - C. ailments.
 - D. The feeling of heaviness and pain in the abdomen and lower back.
 - + E. all mentioned.
7. The main diagnostic criteria for Polyhydramnios:
- A. Pale skin, increased venous drawing on his stomach.
 - B. bypass the stomach and the height of standing uterus more pregnancy.
 - C. uterus spherical shape.
 - D. unstable fetal position, fetal parts palpable with difficulty or not defined.
 - + E. all mentioned.

3.2. Educational materials, recommendations (instructions) for performing tasks

Placental dysfunction (PD) – a clinical syndrome, caused by morphological and functional changes in the placenta and its infringement of the compensatory-adaptive possibilities. The reasons for placental dysfunction can be infringements of maturing and the formation of the placenta in women with pathologies of the endometrium, ovary-hypophysis and adrenal glands disorders, previous abortions and miscarriages. Pre-eclampsia, risk of miscarriage, overdue pregnancy, iso-serological blood incompatibility of the mother and fetus, genital infantility and other extra-genital pathologies (dysfunction of the adrenal glands, diabetes, thyrotoxicosis, etc.). play a great role in the occurrence of placental dysfunction, Thus, a complex of transport, trophic, endocrine and metabolic disorders of the placenta can occur, which is the basis for pathology of the fetus and newborn. The degree and character of influence of the pathological condition of the pregnant woman on the fetus depends upon many factors: the term of the pregnancy, the length of influence, condition of compensatory-adaptive mechanisms in the "mother-placenta-fetus" system.

Classification of PD:

I. by the clinical-morphological signs:

- a) primary (early) placental insufficiency (before 16 weeks) occurs during the formation of the placenta during implantation, early embryogenesis and placentation under the influence of genetic, endocrine, infectious and other factors. Enzyme insufficiency of the decidual tissue (during dysfunction of the ovaries, anatomical structural disorders, disorders in the location of the placenta attachment, and also defects of vascularization and the problems in the maturing of the chorion) play a valuable role in the development of primary placental dysfunction. Primary insufficiency can assist in the development of congenital disorders of the fetus, stillborn pregnancy. Clinically, it appears as risk of miscarriage in early terms. On occasion, primary placental dysfunction can develop into secondary.
- b) secondary (late) placental dysfunction, as a rule, occurs in the late terms of pregnancy, after 16 weeks, under the influence of different maternal factors.

II. by the clinical course:

a) acute – acute disturbances of decidual perfusion and disturbances of the utero-placental blood circulation play a leading role in its development. This kind of placental dysfunction appears as large infarctions of the placenta, preterm detachment of a normally located placenta. As a result, death of the fetus and the termination of the pregnancy can occur quickly.

b) chronic – very frequent pathology (it is observed in approximately every third pregnancy woman in the group of high risk). It can occur in the II trimester and last for a long time.

III. by the condition of the compensatory-adaptive reactions:

a) relative – when the compensatory reactions in the placenta are preserved. Vital support of the fetus is caused by compensatory reactions, which operate on the tissue (increase the number of reabsorbing villa, capillaries of terminal villa, functioning syncytial nodes), cellular and subcellular levels of the syncytiotrophoblast. Infringements of maturing of the placenta and immune disorders have certain value in the development of this type of PD.

b) absolute - most difficult form of chronic PD. It is characterized by the development of damage to the placenta of involution-dystrophic, circulatory and inflammatory character, which is accompanied by the absence of compensatory-adaptive reactions of the chorion at the tissue level.

Diagnostics of disorders of the functions of the placenta.

1. Determine the degree and character of changes in the placenta. \

a) hormonal researches:

Hormonal methods of diagnostics of PD consist of determining the level of hormones in the amniotic fluid, patient's blood and urine. But, it cannot be limited to the research of one hormone only one time. It is advisable to use dynamic supervision of a complex of hormones in the placental complex, placental lactogen (PL) and chorionic gonadotropin (CG) – to diagnose the condition of the syncytiotrophoblast of the placenta; estrogen (estradiol-E2 and estriol-E3) – to evaluate the function of the placental complex; progesterone (Pg)-to diagnose the condition of the uterine-placental-fetal system (see table 1).

2. Determine the condition of the fetus and placental system.

a) measure the height of the uterine fundus over the pubis symphysis and the circumference of the abdomen in dynamics.

Special attention should be paid during external measurement in the II and beginning of the III trimester when the received sizes are comparison to the term of the pregnancy, which shows any fetal growth retardation. It is convenient to use a gravidogram, where normal measurements of the height of the uterus fundus are marked. The lack of 20 mm in the size of the uterus or more at 32-33 weeks is basis for considering the presence of hypotrophy of the fetus.

b) determine the sizes of the fetus with an ultrasound.

c) study the respiratory activity of the fetus with an ultrasound.

d) determine the movement activity of the fetus with an ultrasound.

It is performed at 7-8 weeks of pregnancy, but its evaluation has the greatest value in the III trimester when the fetus does 5 and more movements in 30 minutes. Thus, an

increase in general movement activity of the fetus is considered compensatory reactions, a decrease - an adverse sign.

e) ultrasound of the urinary functions of the kidneys of the fetus by the amount of excreted urine.

The latter is determined by the difference between the volume of the urinary bladder during the first US and the repeated US in 1 hour. The given test is especially valuable when diagnosing hypotrophy of the fetus, during which the excretion of the urine decreases to 15-18 ml (normal – 24-27 ml). Also consider, that a decrease in the speed of urine excretion of the fetus is observed during gestosis of the pregnant women, in those cases there is no growth retardation by data from the US. The degree of decrease in the production of urine is directly dependant on the severity of gestosis, which is connected not only to fetal growth retardation, but also to the infringement in the regulation of the kidney functions.

f) evaluation of the fetal heart activity.

Along with auscultation, the most accessible and widespread method of evaluating the fetal heart activity is cardiotocography, registration of fetal heart rate (HR). Cardiomonitoring shows initial and expressed signs of suffering of the fetus as a result of fetal distress.

The basic treatment for placental dysfunction:

- 1) Improving the uterine-placental blood circulation;
- 2) Normalizing the gas exchange between the mother and fetus;
- 3) Improving the metabolic functions of the placenta;
- 4) Acting on the fetus, through the placenta and using the para-placental way of exchange.

Different methods and different means influence multiple functions of the placenta at once. Normalizing the uterine-placental blood flow, certainly, improves the transport of nutrients and gas exchange, which is an important factor in the synthesis of hormones. Correcting the metabolic changes leads to the improvement of gas exchange and normal function of the placenta which in turn, improves the haemodynamics of the placenta.

Normalizing the uterine-placental blood flow is the basic link in normalizing the function of the placenta; it is achieved by using vasodilating means or preparations which relax the uterus, along with actions directed on normalizing the reocoagulate properties of the blood:

- a) physical methods of action (electro-relaxation of the uterus, electrophoresis of magnesium, thermal procedures on the renal area, diathermy, inductothermy, etc.) reflex the biometry and lead to the dilation of vessels;
- b) abdominal decompression removes extra muscle work of the uterus by overcoming of the tonus of the abdominal muscles. It leads to an increase in blood flow in the uterus and improves placental perfusion. Besides that, it leads to an increase in the synthesis of estriol and an increase in the transport function of the placenta;
- c) hyperbaric oxygenation is applied to improve the function of the placenta and fetal condition, especially in pregnant women heart disorders. It preserves the activity of the respiratory enzymes, assists in normalizing the carbohydrate metabolism;
- d) medicament means. Aminophylline or teophylline, vasodilating substances, are used; they can be introduced by i/v by stream or droplet introduction. Complamin,

teonicole are used for the same purposes. It should be noted that hypersensitivity is possible in pregnant woman and so individual doses of complamin should be selected. Considerable improvement in the uterine-placental blood circulation causes vaso-active preparation trental. It has vasodilating action, decreases the resistance of peripheral vessels, increases the collateral blood circulation. The preparation improves the rheological properties of blood and microcirculation, and it can be used in hospitals and female consultations.

Example of treatment plan:

I. In the hospital:

Treatment of the basic pathology of the pregnancy;

Oxygen therapy - inhalation of mixed oxygen for 30-60 minutes 2 times per day;

Preparations which influence metabolism: glutamic acid 1,0 gr. x 3 times a day, methionine 0,25-0,5 gr x 3 times a day.

Galaxorbin as ferroplex 1 tab. x 3 times a day.

Coccarboxilase 50 mg i\m every day.

Vaso-active substances: trental, partusisten, isadrin, aminophylline i\v or per os (i\v with glucose or physiological solution). I\v introduction + 3x per os (in pills). Course of the vaso-active substances is 4-6 weeks, of them 5-7 days – infusion therapy, and the other days – per os. Complamin (teonicole) 0,15 gr. per os with food 3 times a day can be used as vaso-active substances.

Reopolyglucin 10 % solution 400-500мл every day i\v droplets, 3-4 times, or 2-3 times a week (it can be used as a loading liquid before introducing vaso-active substances).

Native plasma – 150 ml i\v droplets for low protein in the blood (below 6%).

When introducing large doses of glucose it is used with insulin - 1 unit for 4 gr. of dry substance.

II. In the female consultation:

Diathermy at the renal area – up to 10 sessions alternating with ultraviolet irradiation (10 sessions).

Diet rich in fiber and vitamins (boiled meat, fish, cheese);

I\v introduction of glucose 40% - 20,0 with corglicon 0,06% - 0,5 ml gradually every day or every other day (10 injections);

Coccarboxilase i\m 50 mg every day, for 10-14 days;

Aminophylline 0,15 gr per os 2 times a day and 0,2 gr suppositories at night, for 14 days (or no-shpa, papaverin);

Trental 1 pill 3 times a day or isadrin 0,005 gr (under tongue) 3 times a day in combination with finoptin (isoptin);

Orotate potassium 0,5 gr 3 times a day;

Ferroplex (conferon) 1 dragee (capsule) 3 time a day;

Methionine 0,5 gr 3 times a day;

Ascorutin 1 pill 3 times a day.

If not effective during 2 weeks – hospitalization

Prevention of placental dysfunction

- 1) eliminating the influence of harmful factors during the period before conception and especially during the first days and weeks of pregnancy:
 - a) eliminating smoking, alcohol, taking of medicines (without prescription from the doctor);
 - b) before pregnancy (and during pregnancy) sanitation of sites of infection, treatment of chronic diseases.
- 2) after the patient becomes pregnant, it is necessary to explain to her the role of high-grade balanced food, high-grade and extra sleep.
- 3) finding the group of high risks and registering them for regular medical check-ups.

Fetal distress syndrome

According to order of the Ministry of Health of Ukraine №900 from 27.12.2006 about the statement of the clinical report about obstetrical help for "Fetal distress during pregnancy and during birth ", the terms "chronic hypoxia of the fetus ", "acute hypoxia " are not clinical, because for the diagnostics of these disorders, indicators of oxygen contents in the fetus (metabolic acidosis) are not used in routine medical practice. So, all disorders of the functional condition of the fetus at the present are distinguished as "fetal distress". The concept "chronic fetal hypoxia", "acute fetal hypoxia" are not used.

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If not effective during 2 weeks – hospitalization

Respiratory distress syndrome in newborns (respiratory disorder syndrome) – non-infectious pathological processes (primary atelectasis, disease of the hyaline membrane, hydropic- hemorrhagic syndrome) that form in the prenatal and early neonatal periods of development of an infant and breathing; it appears as respiratory disorders.

Fetal distress syndrome means hypoxia.

Hypoxia of the fetus - insufficient supply of oxygen to the tissue and organs or their incomplete digestion of the oxygen. This term was recommended by the World Health Organization, but it is not the only one: the terms fetal distress ("suffering") and asphyxia (without pulse; but has dyspnea, i.e. a lack of oxygen and accumulation of carbonic gas in the organism) also exist. The term hypoxia of the fetus and asphyxia of newborns are not used.

The consequences of oxygen insufficiency for a fetus during different periods of pregnancy are different. In early terms (before 16 weeks), when organs and systems are forming, expressed hypoxia can be accompanied by embryo growth delay and the occurrence of development anomalies. Oxygen starvation in later pregnancy terms can lead to fetal growth retardation, defects of the central nervous system in the fetus and newborns, infringement of the processes of the infant's adaptation after birth; in special cases it can be the reason for stillborn deliveries or death in infants.

Depending on the duration, chronic and acute fetal distress is distinguished. Chronic distress develops when there is an insufficient supply of oxygen to the fetus throughout a long period of time due to diseases of the mother's internal organs (diabetes, chronic diseases of the lungs, kidneys, anemia, etc.), complicated course of the pregnancy (gestosis, risk of miscarriage, over-due pregnancy, immunological incompatibility of the mother and fetus blood by Rhesus factor, pre-natal fetal infection). Chronic distress also can be the result of smoking, use of alcohol, drugs during pregnancy. Acute fetal distress, as a rule, occurs during the delivery (in connection with anomalies of labor activity, entanglement of the umbilical cord, prolapse or compression of loops of the umbilical cord, short umbilical cord). Less often, acute fetal distress is observed during the pregnancy during life-threatening conditions of the mother (premature detachment of the placenta, rupture of the uterus). Sometimes, chronic and acute distress is observed together.

Anomalies of fetal egg.

Causes of congenital malformations and fetal diseases are numerous, varied in nature. By etiological basis distinguish three types of defects: a) hereditary, or endogenous (gene mutations, chromosomal aberrations, endocrine disease, "perezrivannya" gametes, age of parents); b) exogenous (physical factors - radiation, mechanical,

chemical - pharmaceuticals, household chemicals, hypoxia, malnutrition, biological - viruses, mycoplasma, protozoan infections (immunization); c) multifactorial (due to the combined influence of genetic and exogenous factors). Anomalies of fetal development can occur in different periods of ontogeny. Depending on the time of action of harmful factors and therefore the type of defect entails the following forms of defects:

- gametopathy and blastopathy - due to changes in the genetic apparatus may also arise in the process of maturing germ cells during fertilization or in the early stages of the fertilized cell (the first 15 days);
- pregnancy mainly suspended in 3-4 weeks after the injury or death of the embryo;
- Embryopathy - arising in the period from the 16th day after the 10th week after fertilization; During this period the formation of all important organs (organogenesis) process is enhanced differentiation of cells and tissues; embryo is extremely sensitive to the action of damaging factors; pregnancy often ends in spontaneous abortion, birth of a child with a deformity or stillbirth;
- Fetopathy - diseases and functional disorders that occur in the fetus under the influence of exogenous factors during the 11th week of pregnancy and birth.

By congenital developmental disorders include the following:

- agenesis - the complete absence of an organ;
- Aplasia - the lack of organ availability of its vascular legs;
- Hypoplasia - underdevelopment of the body;
- Malnutrition - body weight reduction;
- Hypertrophy - increasing body weight;
- Macrosomia - increasing the length and weight of the fetus;
- Heterotopia - the presence of cells or tissues in the body to another organ where they should not be;
- Ectopia - shift of an organ;
- Atresia - lack of channels or holes;
- Stenosis - narrowing the channel or hole;
- Conjoined (merger) of: twins, are not divided, called conjoined to this title add Latin term which means confluence (torax, cranium); conjoined limbs or their parts - webbing;
- Dyschrony - violation of the pace of development.

Classification of congenital malformations (WHO, 1995):

- congenital malformation of organs and systems: central nervous system and sense organs; face and neck; cardiovascular system; respiratory system; the digestive system; musculoskeletal system; urinary system; genitals; endocrine glands; skin and its appendages; etc.; other defects;
- Multiple congenital malformations, chromosomal syndromes; genetic syndromes; syndromes caused by exogenous factors; syndromes of unknown etiology; Multiple unspecified flaws.

There are also isolated (localized in one organ), system (within the same organ systems) and multiple (in the bodies of two more) flaws.

Malformations of CNS Hydrocephalus is characterized by obstruction to one of the sections of the circulation of cerebrospinal fluid. Hydrocephalus consists mainly of water supply stenosis brain open hydrocephalus (ventricular enlargement in subarachnoid brain and of the brain due to obstruction of the outflow tract system of CSF), Dandy-Walker syndrome (a combination of hydrocephalus, posterior fossa cyst, cerebellar defects, cyst of the ventricular cavity IV). Vascular plexus papilloma - neoplasms, which is localized at the lateral ventricles vestibule. It is presented villous tissue, histologically similar to tissue of intact vascular plexus has a benign course and is usually combined with hydrocephalus. Vascular plexus papillomas diagnosed using CT or neurosonography.

Neural tube defects. This term unites anencephaly, spina bifida and spina bifida. Spina bifida - a defect of median dorsal vertebral arches, accompanied by "exposing" the contents of the spinal canal. Spina bifida can be part of genetic syndromes (with isolated mutant) or chromosomal abnormalities (trisomy 13th and 18th pairs of chromosomes, triploidy, unbalanced translocation chromosome or ring), the result

of the fetus teratogenic factors during organogenesis. There cystic form of spinal hernia formation of the hernia sac containing the lining of the brain and / or substance of the brain and hidden form that is not accompanied by the formation of hernia protrusion. Spinal hernia often associated with hydrocephalus, congenital heart defects and urinary and reproductive systems. Prognosis depends on the level and extent of lesion, presence of associated anomalies. Survival of children who received treatment in the early neonatal period not exceeding 40%, and 25% of them are paralyzed. In case of pathology and the presence of non-viable fetus displayed abortion. Indications for early abortion is a rapid increase ventrykulomehaliyi and makrokraniiyi. Anencephaly - the absence of the cerebral hemispheres and most of the cranial vault, accompanied by a defect in the frontal bone above the supraorbitalnoyi (nadochnoyamkovoyi) areas, the lack of temporal and occipital bones. The upper part of the head covered with a vascular membrane. Structures medium and intermediate brain is partially or completely destroyed. Pituitary and diamond-shaped hole primarily saved. Typical manifestations could be considered bulging eyes, large tongue, a short neck. Risk factors include maternal diabetes. In animal experiments found TERATOGENICITY ionizing radiation, salicylates, sulfanilamides, increased carbon dioxide in the blood. Sonographic diagnosis can be established as early as 12-13 weeks of pregnancy. Among the fruits of this disease 32% are born alive. When intrauterine diagnosis of anencephaly abortion displayed in any of its term.

Tsefalotsele (splitting the skull) - bulging cranium content through bone defect. The term "cranial meninhotssele" refers bulging through the defect only meninges. The presence of the hernia sac brain tissue denoted by the term "encephaloceles." Tsefalotsele - a rare pathology and is a component of many syndromes - genetic syndrome (Meckel syndrome, median clefts face) and non-genetic (amniotic constriction). Prognosis depends on the presence of brain tissue in the hernia sac and related hydro- or microcephaly. The displayed abortion at any stage.

Microcephaly (mikroencefaliya) - a clinical syndrome, characterized by reducing the circumference of the head and mental retardation. The incidence of - 1.6 per 1 000 live births. Microcephaly is polyetiological disease, the development of which play an important role genetic (chromosomal aberrations, monogenic defects) and environmental factors. Prognosis depends on the presence of combined anomalies. Trisomy 13 th and 18 th chromosome syndrome and Meckel belong to fatal injuries. In the absence of associated anomalies prognosis depends on the size of the head: the lower it is, the lower the index of intellectual development. Microcephaly - an incurable disease. Obstetric tactics - abortion.

Prenatal screening methods make it possible to detect neural tube defects and other abnormalities in the fetus (Down syndrome, and others.) At 15-20 weeks of pregnancy. These methods include: - Ultrasound; - Determination of AFP in serum of pregnant: increased AFP over 95-98 percentile, the median value of 2-2.5 evidence of increased risk of neural tube defect, omphalocele, congenital nephrosis, Gastroschisis, gastrointestinal atresia value of AFP in amniotic fluid; atsetylholinesteraztraktu availability, etc .; performed to confirm the diagnosis ultrasound, amniocentesis for vyy vzhachennya ACE levels in amniotic fluid; the presence of acetylcholinesterase in amniotic fluid confirms the diagnosis of neural tube defects; reduction in AFP indicates Down syndrome. Anomalies of sex chromosomes Turner's syndrome (monosomy X or 45, X0) - barren woman of low stature with normal mental development. Klinefelter

syndrome (47, XXY) - tall infertile men with slightly reduced intelligence and hypoplasia of the testes. Syndrome fragile X chromosome - inherited mental retardation in males caused by mutations in the FMR1 gene, resulting in him is hipermetiluvannya and inactivation. Hereditary diseases Hereditary diseases - genetically caused disease inherited in an autosomal dominant or autosomal recessive and sex-linked. Cystic fibrosis - a disease inherited by autosomnoretsesyvny type, is caused by a mutation of a gene located on the long arm of chromosome 7. Diagnostics is conducting DNA analysis. Hemoglobin (anemia and thalassemia serpopodibnoklitynna) is inherited in an autosomal recessive pattern. Diagnosis is carrying out DNA analysis and biopsy of chorionic villi. Medical and genetic counseling Indications for medical genetic counseling: - the presence of congenital malformations or hereditary disease in spouses or close relatives; - Having children with birth defects or hereditary diseases; - The presence of families of mentally disabled persons; - Marriage between close relatives; - Sterility or habitual; - Amenorrhea; - Perinatal mortality; - The impact of teratogenic and mutagenic factors on parents; - Complicated pregnancy.

Methods of prenatal diagnosis

Amniocentesis - obtaining by transabdominal amniotic fluid containing fetal fibroblasts (performed at 15-17 weeks gestation).

Biopsy of chorionic villi - transabdominal (if the placenta is located on the front wall of the uterus) or Transcervical (when the placenta is on the back wall of the uterus) aspiration of chorionic villi (performed in pregnancy week 12/19).

Kordotsentez - transabdominal taking blood from the umbilical cord (performed after 20 weeks of pregnancy) for rapid analysis of karyotype in cases where ultrasound was found abnormalities of the fetus.

Fetal skin biopsy (mostly skin from the back) used to identify severe hereditary skin diseases (congenital ichthyosis, Epidermolysis bullosa, hyperkeratosis, etc.).

Laboratory methods

Cytogenetic studies - the study of fetal cells obtained by different methods. Allows you to determine abnormalities in chromosome number. DNA analysis - using fetal cell DNA for PCR (congenital toxoplasmosis, cytomegalovirus infection), hybridization reaction (cystic fibrosis, anemia serpopodibnoklitynna), genetic linkage analysis (fragile X syndrome chromosome). Biochemical analysis is used to identify mucopolysaccharidoses, congenital hypoplasia of the adrenal cortex. Determination of fetal cells in maternal blood flow - allocation nuclear red blood cells and fetal trophoblast cells with further genetic analysis. Fluorescent hybridization in situ - analysis of interphase cells for cytogenetic studies. Preimplantation genetic diagnosis - a method of embryo biopsy followed by molecular genetic analysis using PCR. Three-dimensional ultrasound - a three-dimensional reconstruction of the fetal body using specialized ultrasonic devices. Fetal MRI carried out after the detection of fetal malformations with ultrasound.

Anomalies umbilical cord anomalies of the heart are wrong vascular development (single umbilical artery, umbilical artery third, aneurysms, abnormal anastomoses, arterial units etc.), Changing the length of the cord (excessively long and short), education and real psevdovuzliv cord. In addition, possible pathological (boundary and shell) attachment cord. There are absolutely and relatively short umbilical cord. Absolutely short umbilical cord consider cord length of 40 cm. The relatively short

umbilical cord called normal length, but shortened as a result of entanglement around the fetus. Absolutely short umbilical cord can cause irregular provisions fetal slowdown promote fetal birth canal or placental abruption due to its tension. Possible break the umbilical cord with her bleeding vessels. Diagnostics short umbilical cord during pregnancy is difficult. When ultrasound can be suspected shortening the cord if it detect entanglement around the neck and torso of the fetus. Suspect quite short umbilical cord at birth can be based on characteristics such as slow movement of the head of the fetus during the eversion, changing its cardiac activity. Excessively long cord (70-80 cm or more) is a common anomaly. Among the dangerous complications for the fetus with the umbilical cord isolated long loss of loops at the time of rupture of membranes when moving the head of the fetus. The true knot of the umbilical cord is formed in the early stages of pregnancy when the fetus small size enable it to slip through the loop cord. During this delay units (during pregnancy or childbirth) can be acute fetal hypoxia, until his death. Pseudovascular cord that limited its thickening due to varicose veins or umbilical cluster varicose jelly, have no practical significance. Pathological cord attachment and the boundary is enveloped. In the second case, the umbilical cord is attached to the shell at some distance from the edge of the placenta. The vessels of the umbilical cord while the placenta directed by shells. Rupture of blood vessels in shell attachment cord often occurs as a result of rupture of membranes. And often there comes the sudden death of the fetus.

There placenta abnormalities increase the weight of the placenta (syphilis, immunological conflict, etc.) And violation of its shape, resulting from degenerative changes in the endometrium. Most noted placenta with additional slices (placenta succenturiata), located at some distance from the edge of the placenta and connected with her vessels. Additional particles can stay in the womb, so you need to check the integrity of the litter and the lack of a cliff vessels. Identify and placenta of the two particles (placenta bipartita), viconchastu (placenta fenestrata) - placenta with areas of dramatic thinning, hulled (placenta membranacea) - extensive, but very thin. Other forms of violations of the placenta is referred bobopodibnu, horseshoe, poyasopodibnu (placenta zonaria) placenta.

Oligohydramnios and polyhydramnios

Oligohydramnios (oligohydramnion) - a condition where the amount of amniotic fluid is less than 0.5 liters. It is caused by a decrease in the secretory function of amniotic epithelial renal agenesis fetal polycystic kidneys or delayed fetal development. Oligohydramnios affect the course of pregnancy and childbirth, often watching miscarriage, painful sensation during fetal movements, prolonged labor, slow opening of the cervix, sometimes - normally attached premature detachment of the placenta. In addition, it affects the fetus, fetal movements are limited, delayed its development, sometimes watching curvature of the spine, fusion between fetal skin and amnion (symonartovi threads synechia, mooring), which causes involuntary limb amputation or distortion. There oligohydramnios due to damage membranes (traumatic, secondary) - amniotic hidroreyu.

Polyhydramnios (polihydramnion) - excessive accumulation of amniotic fluid - more than 1.5 liters. Etiology: by the mother infection (viral) disease, diabetes; from the placenta and amnion: excessive production or slow absorption of amniotic fluid amniotic epithelium horionanhioma, arteriovenous fistula; of the fetus, multiple

pregnancy (during transfusion syndrome fetofetalnoyi monohorialnomu type placentation), idiomatic polyhydramnios, strahovodu atresia, traheostravohidna fistula, duodenal atresia, neuromuscular pathology (swallowing difficulties), anencephaly. Acute polyhydramnios develops very quickly, chronic - slow. The clinical picture. A significant increase in the size of the uterus (abdominal perimeter over 120 cm), shortness of breath due to the high standing of the diaphragm; malposition; premature birth. Complications of childbirth: the weakness of labor activity due to hyperextension of the uterus; poured premature amniotic fluid, which may be accompanied by deposition of small parts of the fetus, premature detachment of the placenta; PLAYBACK hypotonic bleeding and early postpartum period. Treatment. Amniocentesis is the removal of excessive amounts of amniotic fluid; normalization of plasma glucose pregnant; laser coagulation of placental anastomoses (at fetofetalniy transfusion); the use of antibiotic therapy, unfortunately, ineffective. The main thing - is prevention of complications, timely amniotomy slow the emission of amniotic fluid; strengthening labor, if it is weak; prevention hypotonic bleeding. It is often accompanied by polyhydramnios fetal anomalies (anencephaly, wolf mouth, ectopic bladder, etc.), so you need to carefully examine Polyhydramnios fruit for the defects and the need for timely abortion.

3.3. Requirements for the results of work.

1. Define the concept of "anomalies ovum."
2. Methods of diagnosis of abnormalities in the fertilized egg.
3. Define the term "polyhydramnios" and "oligohydramnios".
4. What is the frequency polyhydramnios?
5. What is the clinical diagnosis and polyhydramnios and oligohydramnios?
6. Prenatal care and delivery at Polyhydramnios.
7. What factors cause the formation of a primary placental dysfunction?
8. What factors cause the formation of secondary placental dysfunction?
9. What are the clinical manifestations of placental dysfunction?
10. What are the diagnostic methods used to identify placental dysfunction?
11. What tactics of pregnancy and childbirth in placental dysfunction?
12. What factors cause the SORP?
13. What are the diagnostic methods used to identify the SORP?
14. What tactics of pregnancy and childbirth in SORP?
15. What are the clinical manifestations of hemolytic disease of newborns?
15. What are the clinical manifestations of hemorrhagic disease of the newborn?
16. What are the clinical manifestations of neonatal sepsis?
17. What methods of neonatal resuscitation are used?

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. On receiving antenatal appealed pershovahitna 30 years. The gestational age according to the latest monthly 20 weeks. From history revealed that she suffered from high fever SARS in early pregnancy and took treatment (antibiotics, antipyretic drugs). When screening ultrasound diagnosed with microcephaly. Identify tactics.

+ A. Abortion.

B. follow-up, ultrasound control after 1 month.

C. Hold amniocentesis.

- D. It is necessary to do a biopsy of the placenta.
- E. Run kordotsentez.

2. Pershorodillya 20 years ba-hatovoddyam is in labor with hours. Maternity active activities. One fruit, in the main presentation. The heartbeat of the fetus does not suffer. Roz-kryttya cervix 4 cm. The bag of water out intense contractions. Determine the tactics of delivery:

- A. prostahlan-dynamy induce labor.
- V. expectant management.
- C. Caesarean section.
- B. The dream vacation.
- + E. Amniotomy.

3. Normally the number of amniotic waters at full-term pregnancy:

- A + 600-1500 ml.
- B. 500-600 ml.
- C. 1600-2000 ml.
- D. 2000-2300 ml.
- E. 2000-2500 ml.

4. Number of amniotic waters at Polyhydramnios:

- A. 600-1500 ml.
- B. 500-600 ml.
- + C. More than 1500 ml.
- D. More than 2,000 ml.
- E. More than 2500 ml.

5. Possible cause polyhydramnios:

- A. Chronic infection
- B. Diabetes
- C. Rhesus conflict
- D. fetal malformations
- + E. all mentioned.

6. The main complaint of pregnant women with acute polyhydramnios:

- A. Loss of appetite.
- B. Dyspnea.
- C. ailments.
- D. The feeling of heaviness and pain in the abdomen and lower back.
- + E. all mentioned.

7. The main diagnostic criteria for Polyhydramnios:

- A. Pale skin, increased venous drawing on his stomach.
- B. bypass the stomach and the height of standing uterus more pregnancy.
- C. uterus spherical shape.
- D. unstable fetal position, fetal parts palpable with difficulty or not defined.
- + E. all mentioned.

Practical class №21.

ABNORMAL UTERINE ACTION. BIRTH TRAUMA. OPERATIVE OBSTETRICS

LEARNING OBJECTIVE is to gain basic knowledge about abnormal labour, understand the contributors to abnormal labour and its management in order to provide successful obstetric outcome, be aware of the social, psychological and governance elements of labour and delivery. Understand the appropriate management of perineal tears and episiotomy. Obtain knowledge about the indications, contraindications, procedures of instrumental delivery with ventouse or forceps, identify the prerequisites for operative vaginal delivery, select a method of management appropriate to the clinical circumstances in every case, be aware of possible complications that may arise. Understand the indications, procedure, complications and consequences of caesarean section, appreciate that both primary and repeat caesarean delivery are strong risk factors for caesarean hysterectomy.

BASIC CONCEPTS: Abnormal uterine action: classification, risk factors, diagnosis and management. Perinatal effects. Fetal distress in labor: diagnosis, management.

Injuries of the birth canal: vulva, perineum, vagina, cervix. Rupture of the uterus: classification, mechanism. Diagnosis, management and prevention. Uterine inversion. Postpartum fistulas: etiology, management, prevention.

Operative obstetrics. Early and late abortion. Operations for the preparation of the birth canal (episiotomy, amniotomy). Obstetric forceps, vacuum delivery, caesarean section: indications, technique. Manual removal of the placenta: technique. Manual and instrumental examination of the uterus. Indications for supravaginal amputation, uterine extirpation, ligation of internal iliac arteries.

EQUIPMENT

- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.
- Multimedia equipment (computer, projector, screen), TV.

EDUCATIONAL TIME – 4 h

1. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

Labour or human parturition is the physiological process that results in birth of a baby, delivery of the placenta and the signal for lactation to begin. At a human level it is a major life event for the woman and her partner that heralds the start of parenting. In terms of providing care to a woman in labour, attention must be paid to safety and clinical outcomes but also to her emotional wellbeing and the desire for a fulfilling birth experience. Abnormal labour must be recognized and acted upon, and requires a multidisciplinary team including a midwife, obstetrician, anaesthetist and neonatologist. While most labours result in a positive outcome, some labours result in tragedy and each health care team needs to have the skill set to care for women and

their families through all types of outcome.

The majority of women aim for a spontaneous vaginal delivery with an intact perineum and fall within the remit of midwifery care. Unfortunately, this outcome is achieved in barely half of all women. Labour is a physiological process with inherent unpredictability and even the most normal birth can result in complications that require obstetric intervention and some form of operative delivery.

Women who encounter complications in the first stage of labour requiring urgent delivery for either maternal or fetal indications will need to be delivered by emergency caesarean section. Complications that occur in the second stage of labour present a choice between instrumental delivery with a ventouse or forceps and delivery by caesarean section. A further group of women will have a scheduled or elective caesarean section performed before the onset of labour. In all cases, operative intervention should only be performed when the benefits outweigh the potential risks. The needs of the mother and the baby should be balanced with careful consideration of the potential consequences in the short term and for the future. Operative deliveries should only be performed by clinicians who have competency in the procedure or under direct supervision of an experienced trainer.

2. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- Ability to collect data on patient complaints, medical history, life history;
- Ability to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- Ability to select the leading clinical symptom or syndrome;
- Ability to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- Ability to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- Ability to diagnose emergencies;
- Ability to determine tactics and provide emergency medical care;
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period;
- Ability to assess mother's condition; to carry out diagnostic and tactical measures in each period of labor; to exam woman in labor; assess the condition of the fetus during childbirth; to conduct the postpartum period;
- Ability to formulate and bring to the mother, relatives and specialists recommendations for the most effective mode of delivery; to provide the necessary information about changes in a female body in the postpartum period;
- Ability to keep medical records.

List of didactic units:

- Abnormal uterine action: classification, risk factors, diagnosis and management. Perinatal effects.
- Fetal distress in labor: diagnosis, management.
- Injuries of the birth canal: vulva, perineum, vagina, cervix.

- Rupture of the uterus: classification, mechanism. Diagnosis, management and prevention.
- Uterine inversion.
- Postpartum fistulas: etiology, management, prevention.
- Operative obstetrics. Early and late abortion.
- Operations for the preparation of the birth canal (episiotomy, amniotomy).
- Obstetric forceps, vacuum delivery, cesarean section: indications, technique.
- Manual removal of the placenta: technique.
- Manual and instrumental examination of the uterus.
- Indications for supravaginal amputation, uterine extirpation, ligation of internal iliac arteries.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. Which of the following is the most common indication for primary cesarean section?

- (A) dystocia
- (B) prolapsed cord
- (C) diabetes
- (D) toxemia
- (E) malpresentation

2. After delivery, paralysis is noted on one side of the face in a newborn. This is most often associated with which of the following?

- (A) abnormalities of the central nervous system (CNS)
- (B) facial swelling
- (C) forceps-induced nerve injury
- (D) neonatal sepsis
- (E) pressure on the trigeminal nerve during delivery

3. A patient who is a G2P1 has been pushing for 3 hours and is exhausted after a long labor. The fetal tracing is reassuring. The vertex is at +3 station. On examination, the infant feels about 3000 g and the pelvis is roomy. You feel that a vacuum-assisted vaginal delivery is an indicated option to expedite delivery. In your counseling of the patient, you tell her that the most severe fetal complications of vacuum extraction for the fetus include which of the following?

- (A) subgaleal hemorrhage
- (B) cephalhematoma
- (C) fetal rib fractures
- (D) facial lacerations
- (E) fetal retinal hemorrhage

4. A 29-year-old woman (gravida 2, para 1) has a rapid labor. Within minutes of her admission, she is found to be completely dilated, with the vertex at +2 station, and she begins pushing. Contractions are regular, every 2–3 minutes, and palpated to be strong. FHTs are approximately 70 bpm. Cervical examination reveals the vertex to be ROP at +2 station. Thick

meconium is noted. What should be your next step?

- (A) expedite delivery with vacuum
- (B) turn the patient on her side and administer oxygen by face mask
- (C) begin amnioinfusion and increase IV fluids
- (D) await vaginal delivery
- (E) give terbutaline to stop contractions

5. During delivery of a 4200 g infant, the mother sustained a third-degree perineal laceration with involvement of the rectal mucosa. What is the best course of action?

- (A) leave the tear to heal primarily by itself, because of contamination
- (B) pack the defect open for secondary closure
- (C) repair the anal sphincter and perineal muscles only
- (D) repair the defect in layers
- (E) repair the defect with through-and-through sutures

Answer key

1 E

2 C

3 A

4 A

5 D

Case

A 32-year-old woman is admitted to the labour ward at 39+2 weeks' gestation in her second pregnancy. She is having regular painful contractions and on examination her cervix is 4 cm dilated. Her membranes are intact. She has a birth plan and wishes to birth as naturally as possible. The midwife is intermittently auscultating the fetal heart, which is normal. Two hours after her initial vaginal examination the cervix is 6 cm on examination.

Questions:

What would your plan of care for this woman be?

Answer:

This woman has established labour spontaneously and is making normal progress (usually defined as 1 cm cervical dilatation per hour). The fetal heart is normal and she does not wish for any intervention. There is no indication to perform an artificial rupture of membranes or a caesarean section. The fetal heart is normal on intermittent auscultation and there are no indications for continuous monitoring with CTG.

3. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, women's outpatient clinic, reception department of the maternity hospital, labor & delivery ward with pregnant and parturients.

Tasks:

– Subgroup I - to perform general examination, abdominal palpation, calculate estimated fetal weight, identify fetal lie, presentation, position, growth pattern,

volume of liquor and also any abnormality, detect whether the presenting part is engaged or not, perform auscultation of fetal heart sounds, assess pattern of uterine activity, assess results of clinical general and obstetrical examinations, lab tests, make diagnosis and develop a plan of management of labor. If abnormal, determine risk factors for them.

– Subgroup II - to perform general examination, abdominal palpation, calculate estimated fetal weight, identify fetal lie, presentation, position, growth pattern, volume of liquor and also any abnormality, detect whether the presenting part is engaged or not, perform auscultation of fetal heart sounds, assess pattern of uterine activity, assess results of clinical general and obstetrical examinations, lab tests, make diagnosis. Identify the prerequisites and indications for operative vaginal delivery, select a method of management appropriate to the clinical circumstances in every case.

– Subgroup III – to perform general examination, abdominal palpation, calculate estimated fetal weight, identify fetal lie, presentation, position, growth pattern, volume of liquor and also any abnormality, detect whether the presenting part is engaged or not, perform auscultation of fetal heart sounds, assess pattern of uterine activity, assess results of clinical general and obstetrical examinations, lab tests, make diagnosis. Identify the indications for caesarean section, classify it for emergency, choose type of laparotomy and uterine incision should be made.

After 60 minutes the groups discussed and assess results of their work.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. During an attempted vaginal birth after cesarean at 7 cm, contractions suddenly are not recording by tocometry; the fetal parts are palpated abdominally on examination, and fetal heart tones (FHTs) are not heard. You can feel fetal feet at -2 station. You should do which of the following?

- (A) perform immediate laparotomy
- (B) perform an immediate ultrasound to evaluate fetal positioning and well-being
- (C) give oxytocin to prevent maternal bleeding
- (D) perform breech extraction as soon as possible
- (E) give terbutaline to stop the contractions

2. In which of the following cases might internal podalic version be indicated?

- (A) vertex delivery of the first twin and transverse lie of the second twin
- (B) term transverse lie with cervix completely dilated and membranes intact
- (C) double footling breech
- (D) impacted shoulder presentation
- (E) cephalopelvic disproportion

3. Application of forceps is appropriate in which of the following situations?

- (A) breech at +3 station, cervix completely dilated, membranes ruptured
- (B) vertex at +1 station, cervix completely dilated, membranes intact
- (C) vertex at +3 station, cervix completely dilated, membranes ruptured
- (D) transverse lie, +3 station, cervix completely dilated, membranes ruptured
- (E) vertex at +3 station, cervix +8 cm dilated, membranes ruptured

4. Anticipating success, an obstetrician has made a concerted attempt to deliver a patient using forceps. The attempt fails. How is the procedure termed?

- (A) an incomplete delivery
- (B) a trial of forceps
- (C) malapplication of forceps
- (D) failed forceps
- (E) high forceps

5. You are delivering a woman (gravida 3, para 2) with two previous successful vaginal births. The woman has been in labor for 12 hours with a 10-hour first stage. The second stage of labor has lasted approximately 1 hour 14 minutes. The baby is doing well without any evidence of distress and of an appropriate size (approximately 3000 g). The mother has had an epidural and is tired from pushing, and you decide to apply forceps. After pelvic examination, forceps are applied to the presenting part of a term pregnancy, but the lock does not properly articulate even with gentle maneuvering. What should you do?

- (A) rotate the forceps
- (B) apply enough pressure to lock the forceps
- (C) exert traction
- (D) reapply the forceps
- (E) remove the forceps and perform cesarean delivery

Answer key

- 1. A
- 2. A
- 3. C
- 4. D
- 5. D

Case 1

Ms M, a 28-year-old woman, booked for antenatal care in her first pregnancy. Her pregnancy was uncomplicated. Her membranes ruptured spontaneously at 40 weeks and 4 days. The liquor was clear and her vital signs were normal. She was advised that she could wait for 24 hours to allow spontaneous labour to establish if all was well. Regular contractions started after 4 hours and she presented to the labour ward later that night. On abdominal examination she was assessed to have an average size fetus with one-fifth of the head palpable, confirming engagement. On admission she had strong regular painful contractions at a rate of 3–4 in 10 minutes. The cervix was soft, central, effaced and 5 cm dilated, with the vertex 2 cm above the ischial spines. She was transferred to a labour room in spontaneous labour for ongoing monitoring. She was monitored with intermittent auscultation of the fetal heart rate at 15 minute intervals and her vital signs were checked every 4 hours. She had vaginal examinations at 4-hourly intervals. The contractions spaced out to 2 in every 10 minutes and 8 hours after admission she was found to be 5 cm dilated.

Questions:

What is the diagnosis and what are the management options?

Answer:

This is arrest of labour in the first stage, most likely due to inefficient uterine contractions. The membranes have ruptured spontaneously and therefore the next option is to commence a Syntocinon™ infusion to augment labour. In this case, Ms

M progressed to full dilatation 4 hours after commencing Oxytocin and progressed to a normal vaginal delivery.

Case 2

Ms A, a 36-year-old nulliparous woman, went into spontaneous labour at 41 weeks' gestation. She had no relevant past medical history and findings on examination were unremarkable; the symphseal fundal height was appropriate for the gestational age. Delay in the first stage of labour led to artificial rupture of the membranes (clear liquor drained) and subsequent use of an oxytocin infusion. When the vaginal examination was repeated, the cervix was fully dilated, with the fetal head at the level of the ischial spines and in a right occipito-transverse position. There was marked caput and moulding. Clear liquor continued to drain and there was a normal, reactive fetal heart rate pattern. The midwife waited 1 hour for passive descent and then commenced active pushing. After 20 minutes there was little sign of progress and there were variable decelerations on the CTG.

Questions:

A. Were the safety criteria for an operative vaginal delivery met?

B. How should the delivery be effected?

Simpsons forceps were applied. The forceps were positioned and 'locked'.

Traction was applied with a contraction and with maternal pushing. There was minimal descent of the fetal head. Following traction with another contraction, there was no

descent of the fetal head.

Questions:

C. What is the appropriate management plan?

D. What complications should be anticipated after delivery?

Answers:

A. The findings on abdominal and vaginal examination are crucial to any consideration of this question. On examination, 0/5th of the fetal head was palpable, the position remained occipito-transverse at the level of the ischial spines with caput and moulding. The pelvic dimensions were average. The prerequisites for a forceps/ventouse delivery were met, but the delivery was classified as midpelvic requiring rotation and was therefore more complex with a higher risk of failure. The appropriate management plan was for transfer to theatre for either a trial of rotational OVD or a caesarean section.

B. On the assumption that the delivery was to be performed by an appropriately trained and experienced obstetrician, and that informed consent was obtained, the prerequisites for an operative vaginal delivery were met. Use of either manual rotation and direct traction forceps or rotational forceps, or rotational ventouse would be reasonable. Although the ventouse is associated with less perineal trauma, the obstetrician opted to use manual rotation and forceps as the presence of caput and moulding indicated that the ventouse was more likely to fail.

C. There has been a failed trial of an OVD, with no descent of the fetal head.

Delivery must be by caesarean section. The fetal head should be disimpacted manually prior to caesarian section. A lower segment caesarean section was performed, through a Pfannenstiel incision. Although there was difficulty delivering a deeply impacted fetal head, there was no significant extension of the uterine incision. The neonatal birthweight was 4.35 kg. Closure of the uterus and abdomen was

unremarkable.

D. There was a significant risk of PPH due to uterine atony. In addition to prophylactic antibiotic and anticoagulant therapy (to reduce the likelihood of infective and thrombotic complications), a bolus dose of oxytocin at delivery was followed by an intravenous infusion of oxytocin over 4 hours. No postoperative complications ensued and Ms A was discharged home, with her baby, 4 days after the caesarean section. She was given a hospital follow-up appointment to discuss the events of the labour and delivery and the implications for the future.

3.2. Educational materials, recommendations (instructions) for performing tasks

ABNORMAL LABOR

Labour becomes abnormal when there is poor progress (as evidenced by a delay in cervical dilatation or descent of the presenting part) and/or the fetus shows signs of compromise. Also, if there is a fetal malpresentation, a multiple pregnancy, a uterine scar or if labour has been induced, labour cannot be considered normal. Progress in labour is dependent on the '3 Ps' as described previously (powers, passages, passenger). Abnormalities in one or more of these factors can slow the normal progress of labour. Plotting the findings of serial vaginal examinations on the partogram will help to highlight poor progress during the first and second stages of labour.

Patterns of abnormal progress in labour

The use of a partogram to plot the progress of labour improves the detection of poor progress. Three patterns of abnormal labour are commonly described.

Prolonged latent phase occurs when the latent phase is longer than the arbitrary time limits discussed previously. It is more common in primiparous women and probably results from a delay in the chemical processes that occur within the cervix that soften it and allow effacement. Prolonged latent phase can be extremely frustrating and tiring for the woman. However, intervention in the form of artificial rupture of membranes (ARM) or oxytocin infusion will increase the likelihood of poor progress later in the labour and the need for caesarean birth. It is best managed away from the labour suite with simple analgesics, mobilization and reassurance. The partogram should not be commenced until the latent phase of labour is complete.

'Primary arrest' is the term used to describe poor progress in the active first stage of labour (<2 cm cervical dilatation/4 hours) and is also more common in primiparous women. It is most commonly caused by inefficient uterine contractions, but can also result from cephalopelvic disproportion (CPD), malposition and malpresentation of the fetus.

'Secondary arrest' occurs when progress in the active first stage is initially good but then slows or stops altogether, typically after 7 cm dilatation. Although inefficient uterine contractions may be the cause, fetal malposition, malpresentation and CPD feature more commonly than in primary arrest.

'Arrest in the second stage of labour' (not to be confused with 'secondary arrest') occurs when delivery is not imminent after the usual interval of pushing in the second stage of labour. This may be due to inefficient uterine activity, malposition, malpresentation, CPD or a resistant perineum. In some cases it may be due to maternal exhaustion, fear or pain.

Management of abnormal labour

Poor progress in the first stage of labour has been defined as cervical dilatation of less than 2 cm in 4 hours, usually associated with failure of descent and rotation of the fetal head. It may relate to the powers, the passages or the passenger.

Dysfunctional uterine activity ('powers')

This is the most common cause of poor progress in labour. It is more common in primigravidae and in older women and is characterized by weak, irregular and infrequent contractions.

Cephalopelvic disproportion ('passages' and 'passenger')

CPD implies anatomical disproportion between the fetal head and maternal pelvis.

Findings suggestive of CPD:

- Fetal head is not engaged.
- Progress is slow or arrests despite efficient uterine contractions.
- Vaginal examination shows severe moulding and caput formation.
- Head is poorly applied to the cervix.
- Haematuria.
- Pathological contraction ring.
- Positive Vasten's symptom.

Abnormalities of the birth canal ('passages')

The bony pelvis may cause delay in the progress of labour as discussed above (CPD). Abnormalities of the uterus and cervix can also delay labour. Unsuspected fibroids in the lower uterine segment can prevent descent of the fetal head. Delay can also be caused by 'cervical dystocia', a term used to describe a non-compliant cervix that effaces but fails to dilate because of severe scarring or rigidity, usually as a result of previous cervical surgery such as a cone biopsy. Caesarean section may be necessary.

Poor progress in the second stage of labour

Birth of the baby is expected to take place within 3 hours of the start of the active second stage (pushing) in nulliparous women and 2 hours in parous women.

Delay is diagnosed if delivery is not imminent after 2 hours of pushing in a nulliparous labour and 1 hour for a parous woman. The causes of second stage delay can again be classified as abnormalities of the powers, the passages and the passenger. Secondary dysfunctional uterine activity ('powers') is a common cause of second stage delay, and may be exacerbated by epidural analgesia.

Management options for delay in the second stage of labour:

- Continued pushing with encouragement.
- Regular reviews of progress and fetal wellbeing.
- Oxytocin to augment contractions.
- Episiotomy for a resistant perineum.
- Instrumental vaginal birth (forceps or ventouse/vacuum).
- Caesarean section.

PERINEAL REPAIR

Of women who have a vaginal delivery, 85% will have some degree of perineal trauma and 60–70% will require suturing. The first important step following birth of

the baby and delivery of the placenta is to examine the woman carefully to classify the perineal tear. Perineal tears should be classified as first, second, third or fourth degree, and when in doubt the operator should classify according to a higher rather than lower grade.

Grading of perineal tears

Episiotomy

An episiotomy is a surgical incision of the perineum performed during the second stage of labour to enlarge the vulval outlet and assist vaginal birth. A routine episiotomy was not protective of more severe perineal tears (OASI). In the UK, rates now approximate the World Health Organization (WHO) recommendation of 10% of spontaneous vaginal deliveries. However, there remains considerable international variation (rates are 50% in the USA and 99% in Eastern Europe).

Complications

Short-term complications of perineal trauma or episiotomy include pain, infection and haemorrhage. Long-term effects include dyspareunia, incontinence of urine and incontinence of flatus or faeces. The risks are highest with OASI, especially if an anal sphincter injury has been missed. These morbidities can have a profound impact on women's health, relationships and self-esteem.

KEY LEARNING POINTS

- First- or second-degree tearing and uncomplicated episiotomy can be repaired under epidural or local anaesthesia in a labour room by an obstetrician.
- Assessment of the anal sphincter complex is essential in all cases to ensure that a third- or fourth-degree tear has not been missed.
- Third- or fourth-degree tears require regional anaesthesia and are usually repaired in an operating theatre by an obstetrician with good lighting and an assistant.
- Either 'end-to-end' or overlap repair of the anal sphincter muscle with a long-acting suture material is acceptable.
- Aftercare is important for all women who tear, but women with OASI should receive antibiotics, stool softeners and follow-up specialist review including physiotherapy.
- Women who experience significant pelvic floor symptoms following OASI should be offered an elective caesarean section in a future pregnancy.

OPERATIVE VAGINAL DELIVERY

Operative vaginal delivery (OVD) refers to a vaginal birth with the use of any type of forceps or vacuum extractor (ventouse). The terms instrumental delivery, assisted vaginal delivery and OVD are used interchangeably.

Prerequisites For OVD

Indications for OVD

Classification of OVD

Ventouse/vacuum extractor cups. (A) Metal

ventouse cup; (B) silicone rubber cup; (C) OmniCup™.

Application of forceps.

KEY LEARNING POINTS

- OVD should be classified according to the position and station of the presenting part.
- Clinical assessment and confirmation that the safety criteria have been met are prerequisites for OVD.
- Vacuum or forceps may be suitable depending on the clinical circumstances and operator's preference.
- OVDs with a higher chance of failure should be conducted in an operating theatre.
- Contingency planning is an essential part of any OVD.
- Anticipation and early management of maternal and neonatal complications is essential.

CAESAREAN SECTION

A caesarean section is a surgical procedure in which incisions are made through a woman's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies.

Classification system for emergency caesarean section

The four major indications accounting for greater than 70% of operations are:

- Previous caesarean section.
- Malpresentation (mainly breech).
- Failure to progress in labour.
- Suspected fetal compromise in labour.
- Other indications, such as multiple pregnancy, placental abruption, placenta praevia, fetal disease and maternal disease, are less common.

Uterine incisions for caesarean section.

(A) Transverse lower segment incision; (B) classical caesarean section incision.

KEY LEARNING POINTS

- Caesarean section should be recommended only when the benefits outweigh the risks.
 - Informed written consent is required.
 - Lower uterine segment caesarean section under regional anaesthesia is optimal.
 - Common maternal complications include haemorrhage, infection and pain.
 - Common neonatal complications include respiratory morbidity.
 - Up to 70% of women who labour subsequently achieve a VBAC.
 - The risks and benefits of ERCS versus VBAC require counselling on several occasions.
 - All adverse outcomes of attempted OVD and caesarean section require a clinical incident form and review.
- ### 3.3. Requirements for the results of work.
- To take a medical history (general and specific, such as menstrual, obstetrics)

and record information in a standardized proforma,

- to perform general examination, assess the health status of the mother, calculate gestational age,
- to perform abdominal inspection and assess abdominal enlargement, pregnancy marks-linea nigra, striae, surgical scars (midline or suprapubic),
- to perform abdominal palpation, calculate estimated fetal weight, identify fetal lie, presentation, position, growth pattern, volume of liquor and also any abnormality, detect whether the presenting part is engaged or not,
- to perform auscultation of fetal heart sounds,
- to assess pattern of uterine activity,
- to assess results of clinical general and obstetrical examinations, lab tests,
- to make diagnosis and develop a plan of management of labor,
- to understand the contributors to abnormal labour and its management,
- to be aware of the social, psychological and governance elements of labour and delivery,
- to understand the appropriate management of perineal tears and episiotomy,
- to understand the indications, contraindications, procedures of instrumental delivery with ventouse or forceps,
- to identify the prerequisites for operative vaginal delivery, select a method of management appropriate to the clinical circumstances in every case, be aware of possible complications that may arise,
- to understand the indications, procedure, complications and consequences of caesarean section, appreciate that both primary and repeat cesarean delivery are strong risk factors for cesarean hysterectomy.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests

1. There are many relative contraindications to the use of vacuum extraction for delivery if all else is appropriate. What would be an acceptable scenario for application of a vacuum extractor?

- (A) nonvertex presentation
- (B) fetal coagulopathies
- (C) cervix is 9 cm dilation with fetal distress in labor
- (D) fetal prematurity <35 weeks
- (E) fetal scalp electrode

2. You are counseling a couple in your clinic who desire VBAC (vaginal birth after cesarean section). Her baby is in a vertex presentation, appropriate size for 37 weeks, and her previous low transverse procedure was for breech presentation. In providing informed consent, in which of the following ways do you explain the risk of uterine rupture?

- (A) less than 1%
- (B) between 2% and 5%
- (C) 15–20%
- (D) dependent on the length of her labor
- (E) dependent on the location and proximity of the scar site to the placental implantation

3. Internal version and extraction at term is indicated in which of the following?

- (A) face presentation mentum posterior
- (B) shoulder presentation in early labor
- (C) persistent brow
- (D) the second twin
- (E) transverse lie

4. A patient sustained a laceration of the perineum during delivery. It involved the muscles of the perineal body but not the anal sphincter. Such a laceration would be classified as which of the following?

- (A) first degree
- (B) second degree
- (C) third degree
- (D) fourth degree
- (E) fifth degree

5. A term infant is delivered as a double-footling breech. It is noted to have an Apgar of 3 at one minute and later to be irritable and restless. The infant's muscles are rigid, and the anterior fontanel bulges. The patient develops progressive bradycardia. The most likely diagnosis is

- (A) brain stem injury
- (B) infection
- (C) congenital abnormality
- (D) placental insufficiency
- (E) intracranial hemorrhage

6. On examination in the nursery, a newborn is found to have paralysis of one arm with the forearm extended and rotated inward next to the trunk. This is called

- (A) Klumpke's paralysis
- (B) lues stricture
- (C) Erb's palsy
- (D) a fracture of the clavicle
- (E) a comminuted fracture of the humerus

7. Traumatic brain hemorrhage would be found in the greatest frequency associated with which of the following circumstances?

- (A) vacuum extraction at the pelvic outlet
- (B) difficult mid-forceps deliveries
- (C) elective cesarean section
- (D) neonatal coagulopathy
- (E) spontaneous vertex deliveries

8. A 32-year-old woman (gravida 3, para 1, abortus 1) at term is admitted in labor with an initial cervical examination of 6-cm dilatation, complete effacement, and the vertex at -1 station. Estimated fetal weight is 3200 g, and her first pregnancy resulted in an uncomplicated vaginal delivery of a 3000 g infant. After 2 hours, there is no cervical change. An intrauterine pressure catheter is placed. This shows three contractions in a 10-minute period, each with a strength of 40 mm Hg. What is this abnormality of labor termed?

- (A) prolonged latent phase
- (B) active-phase arrest
- (C) failure of descent

(D) arrest of latent phase

(E) protraction of descent

9. A 22-year-old woman (gravida 1, para 0) at term is admitted in labor with an initial cervical examination of 7-cm dilatation, complete effacement, and the vertex at -1 station. Estimated fetal weight is 3200 g. After 2 hours, there is no cervical change. An intrauterine pressure catheter is placed. This shows 100 Montevideo units. What is the best course of action at this time?

(A) wait 2 more hours and repeat the cervical examination

(B) start oxytocin augmentation

(C) perform a cesarean section

(D) discharge the patient, instructing her to return when contractions become stronger

(E) therapeutic rest with analgesia and short-acting anti-anxiety medication

10. A patient is experiencing an arrest of descent. During the evaluation one can feel that it is a vertex presentation with the sagittal suture transverse or oblique but closer to the symphysis than the promontory. What is this specific condition called?

(A) posterior asynclitism

(B) internal rotation

(C) anterior asynclitism

(D) extension

(E) restitution

Answer key

1. E 6. C

2. A 7. B

3. D 8. B

4. B 9. B

5. E 10. A

Case 1

A 38-year-old woman, G7P6, presents to triage at 40 weeks of gestation by last menstrual period because of painful contractions. She denies bleeding or leakage of amniotic fluid. All six of her previous pregnancies resulted in term vaginal deliveries. Vital signs are normal, height is 5 ft 4 in and weight is 190 lb (86 kg). Her fundal height is 47 cm, fetal heart tones are detected at 160 beats per minute and presentation cannot be ascertained on abdominal examination. Cervical examination reveals a bulging bag of water, dilation of 6 cm, complete effacement, and no presenting part in the pelvis. A bedside ultrasound is performed which indicates excessive amniotic fluid and a cephalic presentation. During the ultrasound examination the patient's membranes rupture spontaneously followed by vaginal passage of copious amounts of amniotic fluid and a prolapsed umbilical cord. An emergency cesarean delivery under general anesthesia results in the birth of a 4500 g male infant. After the placenta is removed, the uterus is flaccid and bleeding is brisk. There is no response to massage, bimanual uterine compression, and a variety of uterotonic agents. Blood loss is estimated at 2000 cc and bilateral uterine artery ligation produces no improvement. Blood pressure is now 80/40 mm Hg, pulse is 120 per minute, and typespecific blood has been requested.

Questions:

1. What is the most likely diagnosis?
2. What is your next step?
3. What are the complications of the next step?

Answers:

1. Most likely diagnosis: Uterine atony refractory to conservative management.
2. Next step: Proceed with cesarean hysterectomy.
3. Potential complications: Urinary tract injury, high likelihood of transfusion, loss of fertility, admission to intensive care, death.

Case 2

A 23-year-old woman, G1P0, at 33 weeks' gestation is undergoing induction of labor for severe preeclampsia. She has a functioning epidural catheter in place and has been pushing for 20 minutes. The fetal heart rate (FHR) tracing has been normal (category I) throughout the labor but you are called to the bedside for a prolonged deceleration to 60 beats per minute (bpm) lasting 3 minutes. You perform a sterile vaginal examination that rules out a prolapsed umbilical cord, and confirms complete dilation of the cervix with the fetal head at +2 station. Now at 7 minutes the FHR remains in the 60s.

Questions:

1. What is the most likely diagnosis?
2. What is your next step?
3. What complications are associated with your method of management?

Answers:

1. Most likely diagnosis: Prolonged deceleration of the FHR in the second stage of labor.
2. Next step: Forceps-assisted delivery.
3. Complications: Maternal complications include hemorrhage from genital tract lacerations and possible damage to the anal sphincter with future risk of feces incontinence. Newborn complications include birth trauma and hypoxia.

4. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

☐ methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of practical skills on the theme:

☐ methods: assessment of the solution of situational tasks (including calculation) on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:

□ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.

4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.

3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.

2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №22.

ANTE-, INTRA- AND POSTPARTUM OBSTETRIC BLEEDING

LEARNING OBJECTIVE is to gain basic knowledge about the etiology, pathogenesis, clinics, diagnostics and treatment of pathological conditions that may cause obstetric haemorrhage. During the course of teaching the material, students develop clinical thinking on this topic, which allows them to further solve problems associated with obstetric haemorrhage. Get knowledge about modern treatment and prevention principles of pregnant women with ante- intra- and postpartum haemorrhage. Develop a special vigilance in the prevention and early diagnosis of obstetrical haemorrhage in students. Form a sense of moral and legal responsibility for the timeliness and quality of medical care obstetric patients.

BASIC CONCEPTS: Pathological conditions which cause obstetrical bleeding. Modern diagnostic methods of placenta previa and premature detachment of a normally located placenta. Clinical signs of placenta previa and premature detachment of a normally located placenta. Classification of placenta previa and premature detachment of a normally located placenta. Principles of pregnant women with placenta previa and premature detachment of a normally located placenta emergency care. Modern principles of placenta previa and premature detachment of a normally located placenta prevention. Causes, pathogenesis, clinics and diagnostics of postpartum haemorrhage. Modern methods of postpartum haemorrhage treatment and prevention. Active management of 3rd stage of labor. Modern methods of blood loss estimation.

EQUIPMENT

Multimedia equipment (computer, projector, screen), TV.

Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).

Professional algorithms, structural-logical schemes, tables, videos.

Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

1. ORGANIZATIONAL STAGE

Greetings,

checking attendees,

defining of educational goals,

providing of positive motivation.

Etiology and pathogenesis, modern diagnostic methods, volumetric survey of patients, clinical features, classification of placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage. are basic to understand here to provide qualified emergency care, modern principles of prevention and medical rehabilitation of the patients. Unless well studied, this can make impossible to master pathological obstetric care and save both mother and child lives.

2. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

Communication and clinical examination skills.

Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.

Ability to make a preliminary and clinical diagnosis of the disease

Ability to perform medical manipulations

Ability to determine the tactics of patients with placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage.

Ability to keep medical records.

List of didactic units:

Etiology and pathogenesis of placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage.

Modern diagnostic methods for placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage, volumetric survey of patients.

Clinic of placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage.

Classification of placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage.

Principles of pregnant women with placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage emergency care.

Modern principles of prevention placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage, patients' medical rehabilitation.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge

on the topic of the class.

Questions:

What pathological conditions may cause obstetrical bleeding?

What is the classification of placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage?

What are modern views on etiology and pathogenesis of placenta previa?

What are the methods of examination in placenta previa and premature detachment of a normally located placenta?

What are the principles and methods of treatment of placenta previa and premature detachment of a normally located placenta?

What is the differential diagnosis of placenta previa and premature detachment of a normally located placenta?

Obstetrical tactics and treatment of placenta previa and premature detachment of a normally located placenta?

Prevention and prophylactics of placenta previa and premature detachment of a normally located placenta?

The classification and reasons of postpartum haemorrhage?

What are the risk factors for postpartum haemorrhage occurrence?

Modern methods of blood loss evaluation?

Emergency help at postpartum haemorrhage?

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. At survey of a placenta which was just born, presence of defect in size of 2x3 cm was fixed. Bleeding is not present. What tactics is most significant?

- A. External massage of a uterus.
- B. Assignment of uterotonic agents
- C. Manual inspection of uterine cavity.
- D. Observation over the puerperal women
- E. Instrumental inspection of uterine cavity

2. At twice pregnant women 25 years old in the third stage of labor the bleeding started with placental defect found. At manual uterine inspection small part of the placenta fixed to the myometrium was determined. Tactics of the doctor?

- A. Laparotomy, a hysterectomy.
- B. Instrumental extraction of the placental remnant
- C. Application of uterotonic agents
- D. Blood transfusion.
- E. Prophylaxis of a puerperal uterine inflammation

3. At the puerperal women a massive bleeding after natural twins birth occurred. The placenta and birth canal tissues remained intact. The uterine fundus is higher than a navel, the uterus at a palpation soft, does not react to uterotonics introduction. What is most common reason of bleeding?

- A. Damage of uterine cervix
- B. Atony of a uterus
- C. Uterine rupture
- D. A delay of parts of a placenta
- E. A hypotonia of a uterus

4. At the parturient woman with the serious form of a preeclampsia right after the newborn birth bleeding began. The placenta is whole, birth canal tissues intact. The uterine fundus is lower than umbilicus 2 cm, dense. At external uterine massage the bleeding increased, a blood is liquid and without clots. What diagnosis can be assumed?

- A. Uterine rupture
- B. A hypotonic bleeding
- C. Placental parts delay in uterus
- D. A coagulopathic bleeding, the DIC syndrome
- E. An embolism by amniotic fluid

5. During caesarian section operation due to complete placental presentation, after placenta removal severe bleeding from placental attachment site started. The remnants of placental tissue can not be removed manually, uterus is soft, badly contracted. The diagnosis of a true partial increment of placenta is put. Specify the most rational tactics to stop bleeding.

- A. To enter intravenously uterotonics.
- B. To remove instrumentally the remnants of a placental tissue.
- C. To carry out sewing of bleeding sites.
- D. To carry out the main vessels ligation.
- E. To carry out a hysterectomy without appendages.

Answer key

- 1. C
- 2. A
- 3. B
- 4. D
- 5. E

3. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 5 subgroups of 2-3 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, puerperal department.

Tasks:

Subgroup I - to assess laboratory data: blood, urine, Ht and others and US data of the ward patient with any obstetrical bleeding using modern methods of blood loss evaluation

Subgroup II - to assess grade and type, differential diagnosis of placenta previa and premature detachment of a normally located placenta forms with subsequent treatment plan

Subgroup III - to assess grade and type, differential diagnosis of postpartum haemorrhage with subsequent treatment plan

Subgroup IV - first aid for postpartum haemorrhage

Subgroup V – to assess answers and practical skills of subgroups I, II, III and IV and makes adjustments.

Tests:

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. Primipara, 22 y.o., after delivery of a newborn, 4000 gr, the haemorrhage has started. Bloodloss – 20 % of CBV (Circulating blood volume), BP 100/60 mm, shock index – 1. Your diagnosis:

Hemorrhagic shock I degree

Hemorrhagic shock III degree

Thromboembolic shock

Hemorrhagic shock II degree

Septic shock

2. In Woman-in-labor in the early puerperal period haemorrhage appeared. Bloodloss is 1500 ml (1,8 %). General state is severe, the consciousness is confused, anergic stupor, anxiety, body t° - 35,7°C, pale skin, acrocyanosis. Tachicardia 130-140 b/min, CVP (Central venous pressure) – 20 mm, RR (respiration rate) 40 in min, diuresis per hour 15-20 ml/h, Ht –0,25, shock index – 1,4, Hb –70 g/l. What should be the doctor's tactics?

Cold on the lower abdomen.

Laparotomy. Total hysterectomy without appendages.

Manual revision of uterine cavity and massage of the uterus.

Applying of ligating clamps on parametrium.

Introduction of Ether tampon.

3. At multipara with placental presentation the uterine haemorrhage have appeared. Total blood loss – 500 ml, BP 100/60 mm, Ps – 100 in 1 min, pale skin. Determine the shock index:

1.5

0.5

1.0

0.8

2.0

4. At woman in early puerperal period haemorrhage started. Total blood loss –1000 ml, BP –90/70 mm, Ps – 120 b/min, pale skin, cold sweat, oliguria. Determine the grade of hemorrhagic shock:

0

I

II

III

IV

5. At woman in early puerperal period haemorrhage started. Total blood loss –1000 ml, BP –90/70 mm, Ps – 120 b/min, pale skin, cold sweat, oliguria. Determine the total volume of infuse therapy in litres in connection with total blood loss:

2

1.5

2.5

1

3

Answer key

1. D
2. B
3. C
4. C
5. B

3.2. Educational materials, recommendations (instructions) for performing tasks

Placenta previa

ICD – 10 code - O44

044.0 – Determined placenta previa without bleeding

044.1 – Placenta previa with bleeding

Placenta previa - pregnancy complication in which placenta is located in the lower uterine segment below the presenting part, blocking all or part of the internal cervical os. During physiological pregnancy, the lower edge of the placenta does not reach any closer than 7 cm to the internal os. Placenta previa is seen in 0,2-0,8 % of all delivers.

Classification of placenta previa

1. Complete presentation - the placenta completely blocks the internal os.
2. Incomplete presentation - the placenta partially blocks the internal os:
 - a) Lateral presentation - 2/3 of the area of the internal os is blocked;
 - b) Marginal presentation – the edge of the placenta meets the internal os.
3. Low placenta previa (placement) – the placenta is implanted in the lower uterine segment less than 7 cm from the internal os without blocking it.

In connection with migration of the placenta or its growth, the type of presentation can change as the pregnancy continues.

ETIOLOGY

The exact cause of implantation of the placenta in the lower segment is not known. The following theories are postulated.

- Dropping down theory: The fertilized ovum drops down and is implanted in the lower segment. Poor decidual reaction in the upper uterine segment may be the cause. Failure of zona pellucida to disappear in time can be a hypothetical possibility. This explains the formation of central placenta previa.
- Persistence of chorionic activity in the decidua capsularis and its subsequent development into capsular placenta which comes in contact with decidua vera of the lower segment can explain the formation of lesser degrees of placenta previa.
- Defective decidua, results in spreading of the chorionic villi over a wide area in the uterine wall to get nourishment. During this process, not only the placenta becomes membranous but encroaches onto the lower segment. Such a placenta previa may invade the underlying decidua or myometrium to cause placenta accreta, increta or percreta
- Big surface area of the placenta as in twins may encroach onto the lower segment.

CAUSE OF BLEEDING: As the placental growth slows down in later months and the lower segment progressively dilates, the inelastic placenta is sheared off the wall of the lower segment. This leads to opening up of uteroplacental vessels and leads to an episode of bleeding. As it is a physiological phenomenon which leads to the separation of the placenta, the bleeding is said to be inevitable. However, the

separation of the placenta may be provoked by trauma including vaginal examination, coital act, external version or during high rupture of the membranes. The blood is almost always maternal, although fetal blood may escape from the torn villi especially when the placenta is separated during trauma.

Clinical symptoms

SYMPTOMS: The only symptom of placenta previa is vaginal bleeding. The classical features of bleeding in placenta previa are sudden onset, painless, apparently causeless and recurrent. In about 5% cases, it occurs for the first time during labor, especially in primigravidae. In about one-third of cases, there is a history of “warning hemorrhage” which is usually slight. The bleeding is unrelated to activity and often occurs during sleep and the patient becomes frightened on awakening to find herself in a pool of blood. The bleeding is unassociated with pain unless labor starts simultaneously. Obvious causes for the placental separation such as trauma or hypertension are usually absent. However, preeclampsia may complicate a case of placenta previa. The first bout of bleeding is usually not alarming but subsequent bouts may be heavier than the previous one due to separation of fresh areas of placenta. In majority of cases, bleeding occurs before 38 weeks and earlier bleeding is more likely to occur in major degrees. However, there may not be any bleeding in central placenta previa until labor starts. Anemia, as a result of bleeding.

Abdominal examination:

- The size of the uterus is proportionate to the period of gestation. Note the effective reduction of the antero-posterior diameter of the inlet in contrast to type II anterior placenta previa.
- The uterus feels relaxed, soft and elastic without any localized area of tenderness.
- Persistence of malpresentation like breech or transverse or unstable lie is more frequent. There is also increased frequency of twin pregnancy.
- The head is floating in contrast to the period of gestation. Persistent displacement of the fetal head is very suggestive. The head cannot be pushed down into the pelvis.
- Fetal heart sound is usually present, unless there is major separation of the placenta with the patient in exsanguinated condition. Slowing of the fetal heart rate on pressing the head down into the pelvis which soon recovers promptly as the pressure is released is suggestive of the presence of low lying placenta especially of posterior type (Stallworthy’s sign). But this sign is not always significant because it may be due to fetal head compression even in an otherwise normal case. Frequently, incorrect positioning of the fetus occurs: diagonal, transverse, breeched presentation, incorrect insertion of the head. Premature birth is possible.

Diagnostics

1. Anamnesis.
2. Clinical displays - occurrence of repeated bleeding, not accompanied by pain and increased uterus tonus.

Obstetrical examination:

External examination:

High standing of the presented part;

Diagonal, transverse fetal position;

The tonus of the uterus is not increased;

Internal examination (performed only in the conditions of an operation room):

Doughy tissue in the fornix, swelling, pulsation of vessels;

Impossible to palpate the presented part through the fornix.

In case of bleeding of specific character, the presentation is not meaningful because the obstetrical tactics are determined by the volume of blood loss and the condition of the woman.

Distinguishing features of placenta previa and abruptio placentae

Placenta previa Abruptio placentae

Clinical features:

- Nature of bleeding

(a) Painless, apparently
causeless and recurrent (b)
Bleeding is always revealed

(a) Painful, often attributed to
preeclampsia or trauma and
continuous (b) Revealed,
concealed or usually mixed

- Character of
blood

Bright red Dark colored

- General condition and
anemia

Proportionate to visible blood
loss

Out of proportion to the
visible blood loss in concealed
or mixed variety

- Features of
preeclampsia

Not relevant Present in one-third cases

Abdominal examination:

- Height of uterus

Proportionate height to
gestational age

May be disproportionately

enlarged in concealed type

- Feel of uterus Soft and relaxed May be tense, tender and rigid
- Malpresentation Malpresentation is common.

The head is high floating

Unrelated, the head may be engaged

· FHS Usually present Placenta in upper segment

Placentography (USG) Placenta in lower segment Placenta in upper segment

Vaginal examination Placenta is felt on the lower

segment

Placenta is not felt on lower segment. Blood clots should not be confused with placenta

Placenta previa with bleeding is an urgent indication for hospitalization.

Algorithm of examining a pregnant woman with bleeding in the hospital:

Specify the anamnesis;

Evaluate the general condition, volume of blood loss;

General instrumental tests (blood type, Rhesus factor, general blood analysis, coagulogram);

External obstetrical examination;

Examination of the uterine cervix and vagina in an operational room with the help of vaginal mirrors to exclude such reasons for bleeding as cervical polyp, cervical cancer, rupture of a varicose node, evaluate vaginal discharge;

Additional methods of examination (US) if indicated, if there is no need for urgent delivery.

Treatment:

Treatment tactics depend on the volume of blood loss, conditions of the patient and fetus, character of the presented part, term of the pregnancy, maturity of the fetus's lungs.

Principles for conducting patients with placenta previa:

1. In case of small blood loss (250 ml), absence of symptoms of hemorrhagic shock, fetal distress, absence of labor activity, immaturity of the fetus's lungs before 37 weeks term - waiting tactics.

2. Bleeding that has stopped - US, prepare the fetus's lungs. The purpose of waiting tactics – prolong the pregnancy to term of a viable fetus.

3. In case of progressing uncontrollable bleeding (more than 250 ml), accompanied by symptoms of hemorrhagic shock, fetal distress, regardless of the pregnancy term, condition of the fetus (live, distress, dead) - urgent (emergency) delivery.

Clinical variants:

1. Blood loss (up to 250 ml), there are no symptoms of hemorrhagic shock, fetal distress, term of pregnancy - less than 37 weeks:

- hospitalization;

- tocolytic therapy when indicated;

- quicken the maturing of the fetus's lungs before 34 weeks of pregnancy (dexamethasone 6 mg every 12 hours for 2 days);
- monitoring the woman and fetal condition.
- If bleeding progresses more than 250 ml – delivery by Cesarean section.

2. Considerable blood loss (more than 250 ml) with premature term of pregnancy – regardless of the presented part – emergency Cesarean section.

3. Blood loss (up to 250 ml) with mature pregnancy:

Under the conditions of an operational room, determine the presentation:

- In case of partial placenta previa, intact amniotic sac and cephalic presentation, active uterine contractions, perform amniotomy. If the bleeding stops, delivery can be performed vaginally. After the birth of the baby - i/m introduction 10 units of oxytocin, carefully observe the contractions of the uterus and character of vaginal discharge. If bleeding continues - Cesarean section;
- During complete or incomplete placenta previa, wrong fetal position (pelvic, diagonal or transverse) perform a Cesarean section;
- During incomplete placenta previa, dead fetus perform amniotomy, if the bleeding stops – vaginal delivery.

4. Blood loss (more than 250 ml) mature pregnancy regardless of the presentation - emergency Cesarean section.

5. Complete placenta previa: diagnosed by US, without bleeding – hospitalization till mature term for delivery, Cesarean section at 37-38 weeks.

In the early postnatal period - careful supervision of the woman's condition. If the bleeding reoccurs after Cesarean section and the volume of blood loss is more than 1% of body weight - urgent relaparotomy, hysterectomy without the appendages, if necessary – ligation of the internal iliac arteries by an expert.

Compensation for the blood loss, treatment of hemorrhagic shock and DIC - syndrome is performed when indicated.

Premature detachment of a normally located placenta

Code number - 045 Premature detachment (tearing away of the placenta)

045.0 Premature detachment of the placenta with coagulation dysfunction

045.8 Other premature detachment of the placenta

045.9 Premature non-specified detachment of the placenta

Premature detachment of a normally located placenta is the premature pathological detachment from the uterine walls during the pregnancy or during the I - II periods of labor.

ETIOLOGY: The exact cause of separation of a normally situated placenta remains obscure in majority of cases. The prevalence is more with:

high birth order pregnancies with gravida 5 and above — three times more common than in first birth

advancing age of the mother

poor socio-economic condition

malnutrition

smoking (vaso-spasm).

Hypertension in pregnancy is the most important predisposing factor. Pre-eclampsia, gestational hypertension and essential hypertension, all are associated with placental abruption.

Trauma: Traumatic separation of the placenta usually leads to its marginal separation with escape of blood outside. The trauma may be due to:
Attempted external cephalic version specially under anesthesia using great force

Road traffic accidents or blow on the abdomen

Needle puncture at amniocentesis.

Sudden uterine decompression: Sudden decompression of the uterus leads to diminished surface area of the uterus adjacent to the placental attachment and results in separation of the placenta. This may occur following—
delivery of the first baby of twins

sudden escape of liquor amnii in hydramnios and
premature rupture of membranes.

Short cord, either relative or absolute, can bring about placental separation during labor by mechanical pull.

Supine hypotension syndrome: In this condition which occurs in pregnancy there is passive engorgement of the uterine and placental vessels resulting in rupture and extravasation of the blood.

Placental anomaly: Circumvallate placenta

Sick placenta: Poor placentation, evidenced by abnormal uterine artery Doppler waveforms is associated with placental abruption.

Uterine factor: Placenta implanted over a septum (Septate Uterus) or a submucous fibroid. Torsion of the uterus leads to increased venous pressure and rupture of the veins with separation of the placenta.

isoimmune conflict between the mother and fetus;

overdistension of the uterus (hydramnion, multiple pregnancy, large fetus);
diabetes;

kidney disease;

inflammatory processes of the uterus, placenta;

Classification:

1. Complete detachment (the whole placenta detaches).

2. Partial detachment:

- marginal

- central

Clinical symptoms:

1. Pain syndrome: sharp pain at the location of the placenta which then extends to the whole uterus, abdomen, back and becomes diffuse. The pain is most expressed during central detachment and can be not as expressed for marginal detachment. For detachment of a placenta located on the posterior uterine wall, the pain can simulate renal colic.

2. Hypertonus of the uterus up to tetany, which does not decrease with spasmolytic, tocolytic agents.

3. Vaginal bleeding can vary depending on the severity and character (marginal or central) from insignificant to massive. If the hematoma is formed retroplacenta, external bleeding can be absent.

Diagnostics:

1. Condition of the pregnant woman will depend on the size of the detachment, volume of blood loss, occurrences of symptoms of hemorrhagic shock or DIC -

syndrome.

2. External obstetrical examination:

- hyper tonus of the uterus;
- the uterus is increased in size, can be deformed with local bulging if the placenta is located on the anterior wall;
- pain, tenderness during palpation;
- difficult or impossible palpation and auscultation of the fetal heart beat;
- occurrence of symptoms of fetal distress or its death.

3. Internal obstetrical examination:

- strained amniotic sac;
- amniotic fluid with blood;
- bleeding of from the uterus.

4. US (echo-negative shadow between the uterus and placenta), but this method cannot be absolute diagnostic criterion, because a hypoechogenic zone can be seen in patients without detachments.

In case of absence of external bleeding the diagnosis of premature detachment of placenta is based on increased uterus tonus, local tenderness, deterioration of the fetal condition. Blood from retroplacental hematomas penetrates the wall of the uterus and forms Couvelaire's uterus (utero-placental apoplexy) which then loses the ability to contract, which leads to the development of bleedings with massive blood loss as a result of coagulopathy and hypotonus.

Treatment:

Unreasonably overdue delivery leads to the death of the fetus, development of Couvelaire's uterus, massive blood loss, hemorrhagic shock and DIC - syndrome, loss of reproductive function.

1. In case of progressing premature detachment of the placenta during the pregnancy, or in the first period of labor, with the occurrence of symptoms of hemorrhagic shock, DIC - syndrome, signs of fetal distress, regardless of the pregnancy term - urgent delivery by Cesarean section. In the presence of signs of Couvelaire's uterus – hysterectomy without the uterine appendages.

2. Restore the blood loss, treatment of hemorrhagic shock and DIC - syndrome.

3. In case of non-progressing detachment of the placenta, possible dynamic supervision for premature pregnancy till 34 weeks (carrying out therapy for the maturing of the fetus's lungs), in establishments where there is round-the-clock watch of qualified OBGYN doctors, anesthesiologists, neonatologists. Monitoring of the woman's condition and fetal condition, CTG, US in dynamics are done.

Features of the Cesarean section:

- prior to the operation - amniotomy (if there are conditions);
- obligatory revision of the uterine walls (especially the external surface) for the purpose of an excluding utero-placental apoplexy;
- in case of diagnosing of Couvelaire's uterus - hysterectomy without the uterine appendages;
- if there is a small area of apoplexy - 2-3 foci of small diameter 1-2 cm, or one - up to 3 cm), and the ability of the uterus to contract, absence of bleeding and signs of DIC - syndrome, if necessary to keep reproduction function (first childbirth, dead

fetus), there is questions about preserving the uterus. Surgeons observe the condition of the uterus for some time (10-20 min.) with the abdominal cavity still open, in the absence of bleeding the abdominal cavity is drained for hemostasis control. Such tactics, in unusual cases, are performed only in establishments, in which round-the-clock watch of doctors OBGYN, anesthesiologist is available;

- In the early postoperative period - careful supervision of the woman's condition.

Tactics for placental detachment in the end of the I or during the II stages of labor

- Immediate amniotomy, if the amniotic sac is intact;

- If cephalic fetal presentation – apply obstetrical forceps;

- If breech presentation – extraction of the fetus by the pelvic;

- If transverse position of the second twin – perform obstetrical turn with extraction of the fetus by the leg. In some cases more reliable will be Cesarean section;

- Manual detachment of the placenta and removal of the placenta;

- Contractive agents - i/v 10 units of oxytocin, in the absence of effect - 800 mkg misoprostole (rectal);

- Careful dynamic supervision in the postpartum period;

- Restore the blood loss, treatment of hemorrhagic shock and DIC - syndrome.

Reasons for bleeding in the third stage of labor and early postpartum periods (stages):

1. Anomaly of placental abruption processes:

Insufficient contractility of the myometrium

Anomalies of placentation

Strong attachment of the placenta (partial)

Placenta adherence (partial)

Ruptured uterus (complete, incomplete)

2. Anomaly in the processes of expulsion of the placenta:

hypotension of the uterus

delay of the placenta in the lower segment of the uterus

incorrect methods of removing the placenta,

irrational introduction of uterotonics drugs

3. Trauma to the genital tract, in particular the uterus.

4. Placental defects, delay of parts of the placenta, its membranes

5. Hemostasis dysfunction, caused by complicated course of pregnancy and labor (coagulopathy).

Blood loss during labor should be no more than 0,5% of the woman's body weight. This is physiological!

Postpartum bleeding – blood loss more than 0.5% of the woman's body weight after the birth of the baby. Bleedings in some minutes or hours after the delivery - serious and potentially fatal complication. Bleedings can be sudden and profuse, or slow and long.

Classification:

072.0 - Bleeding in the third stage of labor

072.1 - Other bleedings in the early postpartum period

072.2 - Late or secondary postpartum hemorrhage

072.3 - Postpartum coagulation disorder

Types of postpartum hemorrhage:

1. Hemorrhage in the third stage of labor.

2. Primary (early) postpartum hemorrhage which occurs in the early postpartum period or within 24 hours after delivery.

3. Secondary (late) postpartum hemorrhage which occurs after 24 hours and up to 6 weeks after delivery.

Risk factors of postpartum hemorrhage:

- burdened obstetrical anamnesis (bleedings in previous deliveries, abortions, miscarriages);
- preeclampsia;
- big fetus;
- polyhydramnios;
- multiple pregnancy;
- uterus myoma;
- seam on the uterus;
- chronic DIC - syndrome;
- thrombocytopathy;
- antenatal death of the fetus.

Bleeding in the third stage of labor

Reasons:

- delay of parts of the placenta or its membranes;
- pathological attachment of the placenta;
- pinching of the placenta.

The amount of blood loss depends on the type of placental attachment disorder: complete, partial adhesion of the placenta.

Classification of anomalies of placentation:

Firm (compact) attachment of the placenta:

placenta accreta - pathological attachment of the placenta to the endometrium (porous layer is absent);

Penetration of the placenta:

placenta increta – penetration into the myometrium;

placenta percreta – invasion of the placenta the whole myometrium

The firm attachment of the placenta or its penetration can be complete (not accompanied by bleeding) and partial (accompanied by considerable bleeding due to detachment of parts of the placenta)

Reasons for pathological attachment of the placenta - changes in the structure of the porous layer of the basal decidual membrane due to:

chronic endometritis,

cicatricial and dystrophic changes after previous abortions or intra-uterine interventions,

insufficient development of the uterus,

decrease in the activity of trophoblast enzymes,

pathological location of the placenta.

Clinical displays:

1. There are no signs of detachment of the placenta for 30 minutes without considerable blood loss - pathology of adherent or penetrated placenta.

2. Bleeding begins right after the birth of the afterbirth - delay of parts of the placenta or its membranes.

3. Bleeding begins after the birth of the child without detachment of the placenta –

pinched placenta, an incomplete penetration of the placenta.

Algorithm for medical help:

1. Catheterization of a peripheral or central vein depending on the volume of blood loss and conditions of the woman.
2. Empty the bladder.
3. Check for signs of detachment of the placenta and deliver the placenta using manual maneuvers.

Signs of placental separation:

The uterus becomes firm, round in shape and rises up.

Lengthening of the umbilical cord.

Sudden gush of blood

4. In case of pinching of the placenta, external massage of the uterus, external maneuvers for delivering the placenta.

Crede-Lazarovich's maneuver Abuladze's maneuver

Abuladze's maneuver-after gentle massage of the uterus, take the anterior-abdominal wall with both hands into a longitudinal fold and ask the woman to push.

Crede-Lazarovich's maneuver- take the bottom of the uterus, the thumb is on the front wall of the uterus, the palm is on the bottom, and four fingers are on the back of the uterus.

5. In case of delay of parts of the placenta or its membranes - manual examination of the uterus cavity under intravenous narcosis.
6. If placental separation has not occurred and there is no bleeding, wait 30 minutes; manual detachment of the placenta and delivery of the placenta.
7. If bleeding occurs - urgent manual detachment of the placenta and deliver the placenta under i\ v narcosis.

8. Introduction uterotonic agents – 10-20 units of oxytocin i\ v in 400 ml of physiological solution by droplets.

9. If true adherence or penetration of the placenta – laparotomy, hysterectomy without the uterine appendages.

10. Evaluate the volume of blood loss and restore the blood volume (treatment of hemorrhagic shock).

Early (primary) postpartum hemorrhage

Reasons for early postpartum hemorrhage:

- hypotonic and atonic uterus (in 90% of the cases);
- delay of parts of the placenta or membranes;
- trauma to the birth canal;
- coagulation disorders (afibrinogenemia, fibrinolysis);
- Blood coagulation disorders

Reasons of hypotonic and atonic uterus:

- disorder of the functional ability of the myometrium (preeclampsia, endocrinopathy, somatic diseases, tumors of the uterus, seam on the uterus, big fetus, polyhydramnios, multiple pregnancy and others);
- overexcitation with the following exhaustion of the function of the myometrium (prolonged labor), operative labor, taking drugs that reduce the tone of the

myometrium (spasmolytic, tocolytics, hypoxia during delivery, etc.);

- disorder of the contractive functions of the myometrium due to disorder of biochemical processes, correlation of neurohumoral factors (estrogen, acetylcholine, oxytocin, choline esterase, progesterone, prostaglandin);
- disorders in the process of attachment, detachment and discharge of the placenta and its membranes;
- idiopathic (not established).

Hemorrhage can be of 2 kinds:

- Bleeding begins immediately after childbirth, massive (after a few minutes > 1000 ml); the uterus remains hypotonic, does not contract, hypovolemia, hemorrhagic shock develops rapidly;
- Bleeding begins after contraction of the uterus, blood flows in small portions, blood loss gradually increases. The alternation of uterine hypotonia with restoration of tone is characteristic. The bleeding stops and starts again.

Steps of management:

1. General observation:

- evaluation of blood loss
- evaluation of the condition of the woman: complaints, BP, pulse rate, color of the skin and mucous membranes, amount of urine, presence and stage of hemorrhagic shock.

2. Urgent laboratory tests:

- determine the level of hemoglobin, hematocrit;
- coagulogram (amount of thrombocytes, prothrombin index, level of fibrinogen, coagulation time of blood);
- blood type and Rhesus factor;
- biochemical test if indicated.

3. Catheterization of peripheral or central vein depending on the size of blood loss and conditions of the woman.

4. Empty the urinary bladder.

5. Begin or continue introducing uterotonics: 10-20 units of oxytocin i/v in 400 ml of physiological solution.

6. Perform manual inspection of the uterine cavity under intravenous narcosis (evaluation of the integrity of the uterine walls, especially the left wall, remove clots of blood or the rest of the placenta or its membranes).

7. Examine the birth canal and restore its integrity.

8. External massage of the uterus.

9. In case of continuation of bleeding introduce 800 mcg of misoprostole rectally.

10. Restore blood volume and blood loss (treatment of hemorrhagic shock).

11. If bleeding continues,

blood loss is 1,5% or more of the

woman's body weight –

treatment is operative:

hysterectomy without

the uterine appendages, if the bleeding continues – ligation of the internal iliac arteries.

12. During preparation for operative treatment, to reduce blood loss, bimanual external or internal compression of the uterus.

13. If bleeding continues after hysterectomy - hard tamponade of the abdominal cavity and vagina (the abdominal cavity is not sutured up until the bleeding stops).

Postpartum secondary (late) hemorrhage

Main causes for late postpartum haemorrhage:

- delay of parts of the placenta or its membranes;
- discharge of necrotic tissue after delivery;
- separation of sutures on the wound on the uterus (after C-section or ruptured uterus).

Late postpartum hemorrhage occurs 7-12 days after delivery.

Steps of management:

1. Evaluation of blood loss
2. Catheterization of peripheral or central vein.
3. Instrumental revision of the uterine cavity under i\ v narcosis.
4. I\ v introduction of uterotonics (oxytocin 10-20 units in physiological solution - 400,0 or 0,5 mcg of methylergometrine).
5. If the bleeding continues – misoprostol 800 mcg rectally.
6. Restore blood volume.
7. If blood loss \geq 1,5% of the woman's body weight – laparotomy, hysterectomy, if it still continues – ligation of the internal iliac arteries.

Blood coagulation disorders (postpartum afibrinogenemia, fibrinolysis):

- restore blood volume;
- correct hemostasis.

Prevention of postpartum hemorrhage:

1. During pregnancy:

- evaluate the risk factors for the occurrence of hemorrhage;

Factors which assist in the occurrence of hemorrhage in the postpartum period

Previous pregnancy Factors, which occurred during the pregnancy

Factors, which occurred during the delivery

Primipara Complete placental

presentation

Stimulation of delivery

More than 5 deliveries in anamnesis

Placental detachment Long or difficult delivery

Pathology in detachment or discharge of the placenta

Hydramnion Fast delivery

Operations on the uterus in the anamnesis, including C-sections

Multiple pregnancy Emergency Cesarean section

Long or difficult delivery in anamnesis

Intrauterine fetal death Delivery with obstetrical forceps

Background diseases –cardio-vascular diseases, diabetes, coagulation disorders

Severe pre-eclampsia, eclampsia

Chorioamnionitis

Anemia Hepatitis DIC – syndrome
Hysteromyoma Conditions connected with anemia

General or epidural anesthesia

- Diagnostics and treatment of anemia;
 - Hospitalization, readiness to give medical help to pregnant women of high risk for hemorrhage: antenatal hemorrhage, hemorrhage in labor, polyhydramnios, multiple pregnancy, big fetus.
2. During delivery:
- anesthesia during labor;
 - avoid prolong labor;
 - Active management of third stage of labor. The underlying principle in active management is to excite powerful uterine contractions within one minute of delivery of the baby (WHO) by giving parenteral oxytocic. This facilitates not only early separation of the placenta but also produces effective uterine contractions following its separation. The advantages are — (a) to minimize blood loss in third stage

approximately to 1/5th and (b) to shorten the duration of third stage to half. Injection oxytocin 10 units IM (preferred) or methergin 0.2 mg IM is given within 1 minute of delivery of the baby (WHO). The placenta is expected to be delivered soon following delivery of the baby. If the placenta is not delivered thereafter, it should be delivered forthwith by controlled cord traction (Brandt-Andrews) technique after clamping the cord while the uterus still remains contracted. If the first attempt fails, another attempt is made after 2–3 minutes failing which another attempt is made at 10 minutes. If this still fails, manual removal is to be done. Oxytocic may be given with crowning of the head, with delivery of the anterior shoulder of the baby or after the delivery of the placenta. If the administration is mistimed as might happen in a busy labor room, one should not be panicky but conduct the third stage with conventional watchful expectancy.

Controlled cord traction (modified Brandt-Andrews method)—The palmar surface of the fingers of the left hand is placed (above the symphysis pubis) approximately at the junction of upper and lower uterine segment (Fig. 12.27). The body of the uterus is pushed upwards and backwards, toward the umbilicus while by the right hand steady tension (but not too strong traction) is given in downward and backward direction holding the clamp until the placenta comes outside the introitus.

Fundal pressure—The fundus is pushed downwards and backwards after placing four fingers behind the fundus and the thumb in front using the uterus as a sort of piston. The pressure must be given only when the uterus becomes hard. If it is not, then make it hard by gentle rubbing. The pressure is to be withdrawn as soon as the placenta passes through the introitus.

- use uterotonic during the third period of labor;
- routine observation and evaluation of the integrity of the placenta and its membranes;
- prevention of trauma during labor.

3. After labor:

- Inspection and examination of the birth canal;
- Attentive supervision throughout 2 hours after delivery;
- In woman of high risk – i/v introduction of 20 units of oxytocin for 2 hours after the

delivery.

Methods for determining the volume of blood loss

Libov's Method

Volume of blood loss is determined by weighing the napkins used, which are soaked in blood

Volume of blood loss = $B / 2 \times 15 \%$ (blood loss less than 1000 ml) or $\times 30\%$ (blood loss more than 1000 ml).

Where B - weight of the napkins, 15 % and 30 % - error size (amniotic fluid, physiological solution).

2. Nelson's formula

The percentage ratio of the total amount of blood loss is figured:

3. Determine the blood loss by the density of blood and the hematocrit

Blood density, kg/ml Hematocrit Volume of blood loss, ml

1057-1054 44-40 Up to 500

1053-1050 38-32 1000

1049-1044 30-22 1500

Less than 1044 Less than 22 More than 1500

4. Algover's Shock index

Where BPs – systolic blood pressure

Normally Algover's index = 1.

$0,036 \times \text{original blood volume}$

$\times \text{hematocrit}$

body weight

24

$\text{original blood volume (ml/kg)} = \times 100$

$0,86 \times \text{original hematocrit}$

Heart rate

Shock index = BPs

By determining the index size it is possible to conclude about the size of blood loss

Algover's index Volume of blood loss (% of

blood volume)

0,8 and less 10 %

0,9-1,2 20 %

1,3-1,4 30 %

1,5 and more 40 %

NB! Algover's index is not informative in patients with hypertension

5. Moore's hematocrit method

$BL = BV (n) \times (Ht (n) - Ht (a)) / Ht (n)$

Where:

BL – blood loss; BV (n) – normal blood volume; Ht (n) – normal hematocrit (in

woman – 42);

Ht (a) – actual hematocrit determined after blood loss is stopped and hemodynamics are stabilized

For rough amount of blood loss in pregnant women it is possible to use the modified Moore's formula:

$0,42 - Ht(a)$

$BL = M \cdot 75 \cdot \frac{0,42 - Ht(a)}{0,42}$

0,42

Where: BL – blood loss; (ml); M – woman's body weight (kg); Ht (a)- patient's actual hematocrit (l/l)

Balloon tamponade of uterus Bimanual compression of the uterus

Compression of the aorta

Coagulopathy bleedings

Any congenital or acquired coagulopathies can lead to profuse postnatal bleeding (delay of dead fetus in the uterus, amniotic fluid embolism, premature detachment of a normally located placenta, rupture of the uterus, sepsis, massive transfusions, severe pre-eclampsia and eclampsia, extra-genital pathology). Therapy can result in disorder in the system of hemostasis during delivery with use of anticoagulants, long hemodilution. It should be remembered, that profuse bleeding can lead to coagulopathy.

Bleeding due to intrauterine death of the fetus

If childbirth does not occur right after death of the fetus, severe coagulopathy can develop, caused by the discharge of thromboplastin from the tissue of the fetus.

Treatment is immediate delivery and correction of the coagulation disorder. Induction of labor is conducted by intravenous introduction of oxytocin or prostaglandin. It is necessary to avoid hyperstimulation of labor, especially after 28 weeks, in connection with risk of rupture of the uterus in such patients.

Managing Maternal Hemorrhage

Vital Signs

Airway

- Provide adequate ventilation
- Assess need for intubation

Breathing

- Supplemental O2 5-7 L/min by tight face mask

Circulation

- Pallor, delayed capillary refill, and decreased urine output can indicate compromised blood volume without change in BP or HR
- Decreased urine output, decreased BP, and tachycardia may be late signs of compromise

Actions

- Notify team
- Bring cart & medications to patient room
- Activate Massive Transfusion Protocol

Infusions

- Start 2nd large bore IV (16 gauge if possible)

- Ringers Lactate (RL) replaces blood loss at 2:1
 - Prepare for transfusion
 - Blood coagulation factors
 - Warm blood products and infusions to prevent hypothermia, coagulopathy, and arrhythmias
- Medication for Uterine Atony
oxytocin (Pitocin) 10-40 units per 500-1000mL solution
methylergonovine (Methergine) 0.2 milligrams IM
Avoid with hypertension
prostaglandin f2 alpha (Hemabate) 250 micrograms IM
(may repeat in q15 minutes, maximum 8 doses)
Avoid with asthma; use with caution with hypertension
misoprostol (Cytotec) 800-1000 micrograms PR, 600 micrograms PO, or 800 micrograms SL

First stage (blood loss <1000 ml)

Etiology Tone Manual inspection of the uterine walls simultaneously

Tissue One-time

Trauma Suturing, laparotomy

Thrombin Transfusion of coagulation factors

Priority Carbetocin,

oxytocin

Methylergometrin

e

prostaglandins

Primary dose -Carbetocin-100

mcg i/v once

-Oxytocin 10 units

i/m

Methylergometrin

e 0.2 mg i/m or i/v

Misoprostol 800

mcg per rectum

Repeated dose

absence of

bleeding

-Oxytocin 10 units

i/v in 500 ml

solution 60 min.

Methylergometrin

e 0.2 mg i/m or i/v

every 4 hours

Max dose Not more 3 l liq in
day, oxytocine

3 doses(1.0 mg) Misoprostol 800
mcg per rectum

Contraindication ----- -preeclampsia
-hypertension
-heart diseases

-preeclampsia
-asthma
-glaucoma

10 min 10 min 10 min
Second stage-between conservative and haemostasis
Balloon tamponade, two handed uterine compression, abdominal aorta compression

Third stage- surgical - laparotomy
 ≥ 1500 ml >1500 ml

Angiographic
embolization

Injection of prostaglandins in the myometrium, local uterine
hypothesis
Ligatures on ovarian uterine
vessels
Compression suture on the

Ligation of a lacerated iliac artery,
ovarian vessels
uterus
Tight tamponade of the pelvis
and vagina

Total subtotal hysterectomy

Intrauterine balloon tamponade

Surgical Interventions

May be a life-saving measure and should not be delayed pending correction of
coagulopathy, the most common reason for the delay

B-lynch suture

ONMedU, Department of Obstetrics and Gynecology. Practical lesson № 22. Ante-, intra and postpartum obstetric bleeding.

Methodological recommendations for practical lesson. «Health care», master's degree in the specialty «Medicine». Discipline «Obstetrics and Gynecology»
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Infusion transfusion therapy of obstetric hemorrhage

Blood loss Total

Transfusion

of circ-blood

Infusion and transfusion environment

Volume
of Circ-
blood

% of
W.body
Blood
loss
(ml)

Crystolloids colloids weight Thrombocyte
concentrate

Synthetic
(Gelofusine)
Natural
plasma Albumin
10%

10-20% 1-1.5% 500-
1000
200-300
(2.5L)

10-15
ml/kg

10 ml/kg -----

20-30% 1.5-2% 1000-

1500
200 (3L) 10 ml/kg 10 ml/kg 5-10
ml/kg
----- 5 ml/kg -----

30-40% 2-2.5% 1500-
2000
180(4L) 7 ml/kg 7 ml/kg 10-15
ml/kg
200 ml 10-20
ml/kg
cryoprecipitate

40-70% 2.5-
3.6%
2500-
3000
170 (5L) 7 ml/kg 10-15
ml/kg

15-20
ml/kg
200 ml 30
ml/kg
Cryoprecipitate

>70% >3.6% >3000 150 (>6L) 10 ml/kg 20 ml/kg >20
ml/kg
>200 ml >30
ml/kg
4-10 units

3.3. Requirements for the results of work.

To assess laboratory data: blood, urine, Ht and others and US data of the ward patient with any obstetrical bleeding using modern methods of blood loss evaluation

To perform auscultation of the fetus

To assess weight gain of a pregnant woman, identify and assess oedema

To assess grade and type, perform differential diagnosis of placenta previa, and premature detachment of a normally located placenta with subsequent treatment plan

To assess grade and type, perform differential diagnosis of postpartum haemorrhage with subsequent treatment plan

To perform first aid for postpartum haemorrhage

To conduct the plan for the placenta previa, premature detachment of a normally located placenta and postpartum haemorrhage emergency care.

To conduct the plan for the placenta previa, premature detachment of a

normally located placenta and postpartum haemorrhage prevention and prophylactics

To perform the active management of the IIIrd stage of labor

To prepare an oral report on the thematic patient.

Analysis and discussion of the results of the patient's examination.

Production and discussion of the patient's treatment plan

Multimedia presentation on the topic of the class (review of literature using modern sources; videos, etc.).

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Situational Task No.:01

Pregnant 22 years 37 weeks pf gestation; in an anamnesis a late misbirth. At night sudden bleeding started up to 200 ml. A position of a fetus is longitudinal, the head above an input in a small pelvis. Heartbeat of a fetus is clear, rhythmical, 140 hits / minutes. At vaginal examination, cervical canal open up to 2 cm. Obstetrical diagnosis? What is the reason of bleeding?

Answer: 2nd pregnancy, 37 weeks. Longitudinal lie with head presentation of the fetus. Labor I , in term, first stage of labor. A placental presentation?.

Situational Task No. 02

In a maternity ward pregnant admitted with complaints to a whining back pain and spreading bloody vaginal discharge. 36-37 weeks of gestation. Objectively: the sizes of a pelvis normal, abdominal circumference– 102 cm, uterine height – 38 cm. Above an input of pelvis there is a big soft part of a fetus, in a uterine fundus - more dense of the round form. Heartbeat of a fetus 160 per min., is higher than a umbilicus at the left. P.V.: the cervix is dense, dilation 5 cm, the amniotic sac intact, edge of a placenta is determined, the pelvic end is presented. Obstetric diagnosis? What obstetric tactics is applicable at further conduction?

Answer: Ist pregnancy, 36-37 weeks. Longitudinal lie with breech presentation of the fetus. Partial placenta presentation. Labor Ist , preterm, first stage of labor.

Laparotomy. Caesarian section

Situational Task No.:03

37 weeks primigravida. A fetus alive. A pelvis 26-28-31-20. Three days ago 50-60 ml bloody vaginal discharge without contractions fixed. In two days the bleeding has repeated. A vaginal examination: the cervix is short, the canal opened up to 2 cm. Behind internal orifice the spongiform tissue is determined. The head of a fetus is mobile above an input of small pelvis. After examination the bleeding has increased. The diagnosis? Tactics?

Answer: Ist pregnancy, 37 weeks. Longitudinal lie with head presentation of the fetus. Labor I, in term, first stage of labor. Full placental presentation. Cesian Section.

Situational Task No.:04

Pregnant with complaints to a headache and pains in epigastric area admitted. Pulse 100 in 1 min, BP 170/100 mm.hg., oedemas of body, legs. The sizes of a uterus corresponds to the full term pregnancy, it is dense and morbid at a palpation, palpitation of a fetus is muffled, discharge from a vagina is bloody. What obstetric tactics is applicable at further pregnant conduction?

Answer: Cesarean section urgent

Situational Task No.:05

Pregnant 25 years delivered at 34 weeks and complaints on bright bloody discharge with clots which have appeared after the act of a defecation. The head of a fetus at a uterine fundus. Palpitation of a fetus - 140 in min. Contractions absent. A vaginal examination: the cervix in length of 3 mm, internal orifice passes the end of a finger, through a vagina massive formation of a soft consistence is palpated, discharge is bloody, bright. What diagnosis is most suitable?

Answer: Ist pregnancy, 34 week. Longitudinal lie with head presentation of the fetus. Labor Ist, preterm, first stage of labor. Placental presentation.

Situational Task No.:06

In a delivery room pregnant women 2nd time 38 weeks with plentiful bleeding from vagina. At a vaginal examination: the cervix is short, dilated up to 3 cm, higher than internal orifice the spongiform tissue is palpated, the amniotic membranes are determined nearby. At survey by speculum on the walls of a vagina and cervix pathological changes were not present. What pathology is described?

Answer: II pregnancy, 38 week. Longitudinal lie with head presentation of the fetus. Labor II, in term, first stage of labor. A partial placental presentation

Situational Task No.:07

Pregnant 2nd time, 25 years, with the serious form of diabetes mellitus, 32 weeks has come with complete premature detachment of normally posed placenta. At operation after laparotomy the presence on the left rib of a uterus, fundus and back wall at the left massive ecchymoses are fixed. A uterus of a mottled kind, cyanotic - crimson color, in an abdominal cavity 200 ml of a hemorrhagic liquid. What complication has arisen owing to a premature placental detachment?

Answer: II pregnancy, 32 weeks. Longitudinal lie with head presentation of the fetus. Labor II, preterm. Laparotomy. Cuveler's uterus.

4. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

☐ methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of practical skills on the theme:

☐ methods: assessment of the solution of situational tasks (including calculation) on the theme;

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:

☐ the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

5 The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates

practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.

4 The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.

3 The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.

2 The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

Practical class №23.

POSTPARTUM SEPTIC DISEASES

LEARNING OBJECTIVE is to gain basic knowledge about physiological changes and signs of pathologic course in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge, peculiarities of management puerperal period, risk factors and methods of prevention and treatment of postpartum infection diseases.

BASIC CONCEPTS: Physiology changes of genital organs and mammary glands during postpartum period. Signs of infection and inflammation. Conditions and risk factors of development and spreading infections. Subinvolution of uterus. Lactostasis. Lactation mastitis. Methods of diagnosis and treatment septic diseases. Thrombophlebitis of deep veins . Metroendometritis. Pelvioperitonitis. Sepsis and septic shock.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

HH. ORGANIZATIONAL STAGE

- Greetings,
- checking attendees,

- defining of educational goals,
- providing of positive motivation.

By convention the puerperium (postpartum period) lasts for 6 weeks from the day of the birth of the child. During this time the physiological and morphological changes that occurred during pregnancy revert to the non-pregnant state. It is also a time when the woman takes on the responsibility of caring for a dependent, demanding infant. This may cause problems, particularly if she finds it difficult to adjust to being a mother.

One of the important causes of lethality in obstetrics and gynecology is common forms of postpartum infection. Timely diagnosis and scientifically sound treatment belongs to the most important problems of obstetrics and gynecology. About 80% of the lethal consequences of common forms of postpartum infection in obstetric and gynecological hospitals are caused by late diagnosis, late surgery, incomplete surgical care and intensive care.

This topic requires thorough study both to prevent complications of pregnancy, childbirth and postpartum stage, and for therapeutic measures.

II. CONTROL OF BASIC KNOWLEDGE (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- to collect data on patient complaints, medical history, life history;
- to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- to select the leading clinical symptom or syndrome;
- to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- to diagnose emergencies;
- to determine tactics and provide emergency medical care;
- to perform general examination, assess the health status of the puerperal woman,
- to assess uterine involution, character of lochia, lab tests,
- to counsel the women about physiological changes in postpartum period,
- to assess complaints of puerperal woman, explain the origins of minor ailments in postpartum period, give advice how to reduce the problem,
- to develop a plan of management of normal postpartum period,
- to understand the common disorders of the puerperium and how to manage them
- to be able to recognize and manage common postpartum psychiatric disorders,
- to counsel woman about physiology of lactation, benefits of breastfeeding,

- to check up woman on discharge, give judicious advice regarding diet, drugs and hygiene,
- to evaluate clinical signs of postpartum infection.
- to evaluate the indications for surgery.
- to write prescriptions for the treatment of the patient.

List of didactic units:

- Retrogressive changes in reproductive system and general physiological changes in female body.
- Course and management of the postpartum period.
- Physiology of lactation. Breastfeeding.
- Postpartum contraception: the method of lactation amenorrhea (MLA).
- Physical features of the newborn.
- Newborn care.
- Advantages of cohabitation of mother and child
- Involution of uterus and other pelvic structures, general physiological changes in female body in puerperium,
- Principles of prevention of purulent – septic complications in obstetric hospital.
- Risk factors for developing septic – infectious complications in the mother and newborn.
- Classification of postpartum complications.
- A modern look at the development of systemic inflammatory response syndrome.
- The volume of conservative treatment and surgery in case of postpartum infectious complications in relation to various clinical forms.
- Indications and principles of intensive care.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Definition of postpartum infection
- Definition of «internally hospital (hospital) infection»
- Classification of postpartum infectious diseases
- Etiology of postpartum infectious diseases
- Pathogenesis of postpartum infectious diseases
- The risk factors of postpartum infectious diseases
- Clinical features and diagnosis of postpartum infected wounds
- The treatments for postpartum infected wounds
- Clinical features and diagnosis of postpartum endometritis
- Treatments for postpartum endometritis
- Clinical features and diagnosis and treatment of milk fever
- Treatments for milk fever

- The modern classification of septic states
- Basic principles of treatment of obstetric sepsis
- Clinical features and diagnosis of obstetrical peritonitis
- Basic principles of treatment of obstetrical peritonitis
- Clinical forms of infectious thrombosis complications in obstetrics
- Basic principles of treatment of obstetric thrombosis complications

Test tasks

1. A woman consulted a doctor on the 14th day after labour about sudden pain, redness and induration of the left mammary gland, body temperature rise up to 39°C, headache, indisposition. Objectively: fissure of nipple, enlargement of the left mammary gland, pain on palpation. What pathology would you think about in this case?

- +A. Lactational mastitis
- B. Lacteal cyst with suppuration
- C. Fibrous adenoma of the left mammary gland
- D. Breast cancer
- E. Phlegmon of mammary gland

2. On the tenth day after discharge from the maternity house a 2-year-old patient consulted a doctor about body temperature rise up to 39°C, pain in the right breast. Objectively: the mammary gland is enlarged, there is a red area in the upper external quadrant, in the same place there is an ill-defined induration, lactostasis, fluctuation is absent. Lymph nodes of the right axillary region are enlarged and painful. What is the most likely diagnosis?

- +A. Lactational mastitis
- B. Abscess
- C. Erysipelas
- D. Dermatitis
- E. Tumor

3. Examination of placenta revealed a defect. An obstetrician performed manual investigation of uterine cavity, uterine massage. Prophylaxis of endometritis in the postpartum period should involve following actions:

- +A. Antibacterial therapy
- B. Instrumental revision of uterine cavity
- C. Haemostatic therapy
- D. Contracting agents
- E. Intrauterine instillation of dioxine

4. On the 10th day after childbirth a postpartum woman complains of pain and heaviness in the left mammary gland. Body temperature is 38, 8°C, Ps- 94 bpm. The left mammary gland is edematic, the upper-external quadrant of skin is hyperemic. Fluctuation symptom is absent. The nipples discharge drops of milk when pressed. What is a doctor's further tactics?

- +A. Antibiotic therapy, immobilization and expression of breast milk
- B. Compress to both mammary glands
- C. Inhibition of lactation
- D. Physiotherapy
- E. Opening of the abscess and drainage of the mammary gland

5. A parturient woman is 27 y.o., it was her second labour, delivery was at full-term, normal course. On the 3rd day of postpartum period body temperature is 36,8 °C, heart rate - 72/min, BP - 120/80 mm Hg. Mammary glands are moderately swollen, nipples are clean. Abdomen is soft and painless. Fundus of uterus is 3 fingers below the umbilicus. Lochia are bloody, moderate. What is the most probable diagnosis?

- +A. Physiological course of postpartum period
- B. Subinvolution of uterus
- C. Postpartum metroendometritis
- D. Remnants of placental tissue after labour
- E. Lactostasis

6. Examination of placenta revealed a defect. An obstetrician performed manual investigation of uterine cavity, uterine massage. Prophylaxis of endometritis in the postpartum period should involve the following actions:

- +A. Antibacterial therapy
- B. Instrumental revision of uterine cavity
- C. Haemostatic therapy
- D. Contracting agents
- E. Intrauterine instillation of dioxine

7. A woman addressed a gynecologist on the 20th day of puerperal period with complaints of pain in the left mammary gland, purulent discharge from the nipple. Objectively: Ps- 120/min., body temperature is 39°C. The left mammary gland is painful, larger than the right one, the skin there is hyperemic; in the upper quadrant there is an infiltrate 10x15 cm in size with soft center. Blood test: ESR- 50 mm/hour, leukocytes - 15, 0 · 10⁹/l. What would be the treatment tactics?

- +A. Transfer to a surgical department for surgical treatment
- B. Refer to a gynecology department
- C. Refer to a postnatal department
- D. Refer to a surgeon for conservative treatment
- E. Lance the mammary gland abscess in a maternity department

8. A maternity patient breastfeeding for 1,5 weeks has attended a doctor. She considers the onset of her disease to be when proportional breast engorgement occurred. Mammary glands are painful. Body temperature is 36, 6°C. Expression of breastmilk is hindered. The most likely diagnosis is:

- +A. Lactostasis
- B. Infiltrative mastitis
- C. Suppurative mastitis
- D. Chronic cystic mastitis

E. Gangrenous mastitis

JJ. FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

- Subgroup I – to estimate lab and clinical results of patient and put primary diagnose.
- Subgroup II - to make a plan of management and treatment.
- Subgroup III – to assess answers of subgroups I and II and makes adjustments

Situational tasks

1. Maternity 5 days ago, due to fetal distress, a cesarean section was performed. In the postoperative period from the first day - a steady rise in temperature to 39.0 ° C against the background of taking three antibiotics. On the 4th day, the volume of the left leg increased.

Question: Indicate the most probable postpartum complication.

Correct answer: thrombophlebitis of the tibial veins

2. In the woman in labor on the 10th day of the postpartum period there were complaints of throbbing pain in the left breast. Body temperature 38.30C, pulse 98 beats / min, chills. The left mammary gland is tense, in the upper lateral quadrant it is palpated seal 3x4.5 cm with pronounced fluctuations. The uterus is dense, painless. Discharge from the genital tract is serous, scanty.

Question: What are the tactics of managing the patient?

Correct answer: Dissection and drainage of breast abscess, antibiotic therapy.

3. The woman in labor was transferred to the observation department on the 5th day of the postpartum period. An episiotomy was performed during childbirth. Complaints of malaise, pain in the perineum. The edges of the episiotomy wound are covered with purulent plaque, hyperemic. Body temperature 37.20C, pulse 88 beats / min. The mammary glands are soft. The uterus is dense, the bottom is 6 cm above the womb. Lochia serous-bloody, moderate.

Question: What are the tactics of managing the patient?

Correct answer: removal of sutures, wound treatment, imposition of secondary sutures after cleaning the wound.

3.2. Educational materials, recommendations (instructions) for performing tasks

Post-natal infection directly related to pregnancy and families, developing a period of 2-3 days, after delivery to the end of 6 th week and due to infection (mostly bacterial). Some concepts and terms of postnatal infection.

Nosocomial infection (hospital) - any clinically expressed infectious disease that emerged in the patient during his stay in obstetrical hospital or within 7 days after discharge from it as well as medical personnel, which occur as a result of his work in the obstetrical hospital.

Most bacterial nosocomial infections occur within 48 hours after admission (birth). However, every case of infection should be assessed individually depending on the incubation period of these forms of infection.

Infection is not considered internally hospital if:

- presence of infection in patients in the incubation period for admission to hospital;
- extension of infection or complications that occurred in patients at the time of hospitalization.

Infection is internally hospital if:

- acquiring it in hospital;
- intra-natal infection.

Profiles of antibiotic-resistance determinants of a combination of each selected strain of microorganism. Antibiotic resistance profiles characterize the biologic features of the microbial ecosystem that has formed in the hospital. Permanent tracking the emergence and circulation in a separate hospital strains conditionally pathogenic microorganisms (UPM) with the same antibiotic resistance profiles is essential for detecting hospital strains of UPM and studying the epidemiology of hospital infections.

Classification

We have been used for many years classification by S.V.Sazonova-AV Bartels, under which various forms of post-natal infections are considered as separate stages of the dynamic of infectious (septic) process, and are divided into limited and extensive. This classification does not correspond to modern understanding of the pathogenesis of sepsis. Significantly changed the interpretation of the term "fever" in connection with the introduction of a new concept - "systemic inflammatory response syndrome."

Modern classification of postpartum purulent-inflammatory diseases suggests their distribution to the limited and conditional Generalized forms. To include limited conditional postnatal wounds fester, endometritis, mastitis. Generalized form presented peritonitis, sepsis, septic shock. The presence of systemic inflammatory response in childbirth with relatively limited form of the disease requires intensive monitoring and treatment as in sepsis (sepsis classification see below).

Postnatal infection most likely occurs when body temperature increase of more than 38C through the uterus and painful within 48-72 hours after birth. In the first 24 hours after birth is often observed in normal fever. Approximately 80% of women with fever during the first 24 hours after birth through natural family ways no signs of infection. In the international classification of disease X view (ICD-10, 1995) also distinguish the following natal infectious diseases section of postpartum sepsis:

085 Postpartum sepsis

Postpartum (a)

- Endometrium;
- Fever;
- Peritonitis;
- Septicemia.

086.0 Infection of obstetric surgical wound

Injected (s)

- Wound after cesarean section delivery

- Crotch seam

086.1 Other infection of genital tract after childbirth

cervicitis after birth

vaginitis

087.0 superficial thrombophlebitis in the postpartum period

087.1. Deep phlebothrombosis in the postpartum period

Deep vein thrombosis in the postpartum period

Pelvic thrombophlebitis in the postpartum period.

Etiology

Leading cause of obstetric complications are septic association gram and gram-negative anaerobic and aerobic microbes, while the predominant opportunistic flora. In the last decade as a role of these associations are playing infection, sexually transmitted diseases, a new generation: chlamydia, mycoplasma, viruses, etc..

Condition normal microflora of female sex organs play an important role in the development of septic diseases. Found high correlation between bacterial vaginosis (vaginal bacteria overgrowth) in pregnant women and infection of amniotic fluid, pregnancy complications (chorionamnionitis, preterm labor, premature rupture of membranes, postpartum endometritis, fetal inflammatory complications).

Despite the large variety of pathogens in most cases, postpartum infection revealed the following:

- Gram-positive bacteria (25%). Staphylococcus aureus - 35%, Enterococcus spp. - 20%, Coagulase-negative staphylococcus - 15%, Streptococcus pneumoniae - 10%, and other Gram-positive - 20%.
- Gram-negative bacteria (25%). Escherichia coli - 25%, Klebsiella / Citrobacter - 20%, Pseudomonas aeruginosa - 15%, Enterobacter spp. - 10%, Proteus spp. - 5%, and others - 25%.
- fungi of the genus Candida - 3%
- anaerobic flora - with special research methods 20%
- unidentified flora - in 25% cases.

Pathogenesis

Inflammation - a normal response of the organism to infection and may be defined as a localized protective response to tissue damage, the main problem is the destruction of microorganisms and pathogen-damaged tissues. But in some cases the organism responsible for infection over the massive inflammatory reaction.

Systemic inflammatory response - a systemic inflammatory response activation secondary to functional failure mechanisms limiting the spread of microorganisms, products of their life from the local area damage.

Currently, proposed to use such terms as a systemic inflammatory response syndrome (SIRS), and treat it as a universal immune system response to the impact of strong stimuli, including infection. When infection such stimuli are toxins (exotoxins and endotoxins) and enzymes (hyaluronidase, proteinase, fibrinolysin, collagenolytic) produced by pathogenic microorganisms. One of the most powerful factors starting a cascade of reactions SIRS LPS membrane of Gram-negative bacteria.

The basis of SIRS is the formation of excessively large number of biologically active substances - cytokines (IL1 and IL 6, tumor necrosis factor $TNF\alpha$, leukotrienes, γ -interferon, endothelin, platelet-activating factor, nitric oxide, kinins, histamine,

thromboxane A₂, etc.). that have pathogenic effects on endothelium (disrupts coagulation, microcirculation), increase vascular permeability, leading to tissue ischemia.

Outlines three stages of SIRS (Bone RS, in 1996):

1-stage - local cytokines production - in response to inflammatory mediators influence infection a protective role, and destroy the microbes involved in the process of healing wounds.

2-nd stage - a small number of cytokines release in systemic circulation - is controlled by the pro-and anti-inflammatory mediator systems, antibodies to create conditions for destruction of microorganisms, wound healing and maintain homeostasis.

Third stage - a generalized inflammatory response - the cascade of inflammatory mediators in blood increased as much as possible, the destructive elements of their starting to dominate, leading to endothelial dysfunction with all the consequences.

Generalized inflammatory reaction (systemic inflammatory response syndrome) is likely to manifest infection is defined as sepsis. Classification of sepsis in the relevant section.

Risk Factors

Possible sources of postnatal infection (risk factors) that may exist before pregnancy detected:

- 1) upper respiratory tract infection - particularly if the use of general anesthesia;
- 2) epidural infection environments;
- 3) thrombophlebitis: lower extremities, pelvis, for vein catheterization;
- 4) urinary infection (asymptomatic bacteriuria, cystitis, pyelonephritis);
- 5) bacterial endocarditis;
- 6) appendicitis and other surgical infections.

By enabling factors of postpartum infectious complications include:

1. Cesarean section. The presence of suture material and the presence of ischemic necrosis of infected tissue, along with cuts on the uterus provide ideal conditions for septic complications.
2. Prolonged labor and premature rupture of amniotic membranes, leading to chorionamnionitis.
3. Traumatization of vaginal tissues during labor: the imposition of pliers, cut the crotch, repeated investigations vagina during childbirth, intrauterine manipulation (manual removal of placenta, manual examination of uterus cavity, internal rotation of fetal internal monitoring of the fetal uterus and cuts, etc.).
4. Reproductive tract infections.
5. Low social level, combined with poor nutrition and poor hygiene.

The causes generalized infection may include:

- incorrect surgical volume and inadequate surgery;
- wrong choice of volume and components antibacterial, detoxification and symptomatic therapy;
- reduced or altered immune reaction of macro organism;
- presence of severe concomitant diseases;
- presence of antibiotic-resistant strains of bacteria;
- lack of any treatment.

The clinic, diagnosis and treatment of relatively limited postpartum infections

Natal infection - primarily wound. In most cases the primary center is localized in the uterus, where the playground area of placental separation after the placenta is a large wound surface. Possible infection breaks perineum, vagina, cervix. After caesarian section infection may develop in operating the anterior abdominal wall wound. Toxins and enzymes produced by microorganisms that cause wound infection, can enter the vascular bed at any location of primary fire.

Thus, any conditionally limited, localized protective response natal infection may cause the development of sepsis.

The common clinical signs of inflammatory reaction to:

- local inflammatory reaction: headache, flushing, swelling, local rise in temperature, dysfunction of the affected organ;
- total body response: hyperthermia, fever. Intoxication symptoms (malaise, tachycardia, lower blood pressure (BP), tachipnoe) showed SIRS development.

When the diagnosis data included:

- clinical: a review of the damaged surface, evaluation of clinical signs, complaints, anamnesis,
- laboratory: total blood, total urine analysis, bacteriological study fluid, immunogram;
- tool: ultrasound.

Ambulatory diagnosis and treatment of infected wounds post-natal

Clinical signs of infection in wounds that are healing by first intention:

a) complaints

- of intense, often pulsating pain in the wound area;
- to increase body temperature – up to 38-39 C.

b) the changes:

- hyperemia around the wound without positive dynamics;
- the emergence of tissue edema, which gradually increases;
- palpation determined by infiltration of tissue, often increases the possible occurrence of deeply located infiltrates;
- serous fluid quickly turns into pus.

Clinical signs of infection in wounds are healing secondary tension:

- progressive edema and infiltration of the tissues around the wound;
- painful emergence of dense infiltrates without clear contours;
- Signs of lymphadenitis;
- wound surface covered with solid purelent bloom;
- slow or halt epithelial;
- granulation becomes pale or cyanotic, their bleeding decreases dramatically;
- increasing the number of fluid, it depends on the nature of the pathogen:

staphylococcus causes the appearance of thick yellowish pus, and some strains cause the development of putrid infection with the formation of local foci of tissue necrosis and pus muddily gray with a sharp odor;

for streptococcus characterized by the appearance of liquid manure yellow-green ichor;

enterococcus and Colibacillicus infection and cause the emergence of dung brown color with a characteristic smell;

Pseudomonas aeruginosa leads to the emergence of green manure with a specific smell.

View agent also determines the clinical course of wound infection:

- for an infection of staphylococcus fulminant local development process with stronger of purulent fever;
- streptococcal infection tends to spread as diffuse phlegmon, with weakly pronounced local features;
- sticks to Pseudomonas aeruginosa typical indolent, protracted course of the local process, after the sharp early, with pronounced manifestation of intoxication.

Fluid bacteriological research conducted to determine the pathogen and its sensitivity to antibiotics. Induction material should be performed before antibiotic therapy. Material for research may be fluid, tissue slices, washed with wounds. Material collected sterile instruments and placed in sterile test tubes or bottles with standard medium. Planting material should be made within 2 hours after the collection. Along with taking material for bacteriological study must make at least two smears stained by Gram, to approximate rapid diagnosis.

They can be used accelerated identification of the causative agent of wound infection by multicrotest systems, methods of playing 4-6 hours.

In the absence of microbial growth in clinical material to exclude the following reasons:

- Availability of material sent in high concentrations of local or systemic antibacterial agents;
- violations of the storage and transport of samples;
- methodological errors in bacteriological lab;
- effective control of wound infection process of antibacterial drugs;
- presence of anaerobic infection.

Treatment

In most cases, a local treatment is sufficient. Treatment includes surgery, physiotherapy and pharmacological methods.

Debridement of wound

Primary treatment of wounds performed on the original indications. Repeated primary debridement performed if the first surgery on those or other reasons was not a radical and necessitated reintervention before the development of infectious complications in the wound.

Debridement consists of:

- Removal of wound vitality of tissues that are substrate for primary necrosis;
- Removal of hematoma (especially deep-seated);
- stop the bleeding;
- restoration of damaged tissues.

Secondary processing is performed by secondary wound indications, usually in connection with purulent-inflammatory complications of wounds. Repeated secondary treatment of severe wounds in wound infection can be performed repeatedly. In most cases, secondary debridement includes:

Removing fire • inflammatory infectious alterations;

- broad disclosure pocket, Bay;
- the provision of a full drainage outflow of fluid;
- use of local antiseptics;

Pharmacological methods is antibacterial therapy .

Antibiotic prophylaxis is a systemic administration of antibacterial drugs prior to microbial contamination of wounds or postoperative wound infection, and signs in the

presence of contamination, provided that the initial surgical treatment. Appointed by the antibiotic at risk of exposure of massive wounds perineum, vagina and laparotomy wounds during cesarean section.

Principles of antibiotic prophylaxis:

- by cesarean section without complications after the department conducted a child by a single intravenous dose of antibiotic in average on the basis of the identified hospital strains and their antibiotic resistance;
- in case of complications during surgery or signs of the inflammatory process the same drug can be used for antibiotics;
- continued introduction of antibiotics after 24 hours from the end of the operation does not lead to more effective prevention of wound infections;
- prophylactic antibiotics early appointment for surgery is pointless, because it leads to violations gastrointestinal colonization and its upper parts.

Antibiotic therapy - the use of antibiotics for prolonged treatment in case of inflammatory process.

Antibiotics can be:

- Empirical - founded on the use of broad-spectrum drugs, active relation to potential pathogens;
- focused - used drugs according to the results of microbiological diagnosis.

It is important to use local antiseptics. To clean the wound can use 0.02% solution chlorhexidine and others.

Prevention of wound infection is a rational conduct of childbirth and postnatal period, subject to asepsis and antisepsis.

Ambulatory Diagnosis and treatment of **puerperal endometritis**

Postpartum endometritis (endometritis) - an inflammation of the superficial layer of the endometrium. Endomyometritis (endometriometritis or metroendometritis) - is spreading inflammation of the basal layer of endometrium to the myometrium. Panmetritis - is spreading inflammation of the endometrium and myometrium to uterine serous layers.

Clinic

The initial stage of puerperal endometritis may be different expressiveness. Should distinguish between classical, erased and abortive forms of endometritis and endometritis after cesarean section. Classical forms endometritis usually develops 3-5 days after birth. For this specific form of fever, intoxication, mental change, expressed leukocytosis with left shift count, abnormal discharge from the uterus. When endometritis erased form of the disease usually develops in 8-9 days after birth, the subfebrile temperature, local manifestations had expressed. Abortive form of endometritis and runs as a classic, but a high level of immunological defense quickly stops. Endomyometritis after cesarean section may complicate pelvioperitonitis, peritonitis, which develops develop 1-2 days after surgery.

Diagnosis based on:

- Clinical data: complaints, anamnesis, clinical examination. When vaginal study dam moderately sensitive, subinvolution of uterus, purulent selection;
- laboratory data: total blood, total urine analysis, bacteriological and bacterioscopia of cervical secretions and / or uterus (blood and urine if necessary), immunogram, coagulogram, blood biochemistry;
- instrumental data: ultrasound (U.S.).

Treatment

In most cases, pharmacological treatment, but also possibly surgery.

Combined treatment of postpartum endometritis includes not only systemic antibacterial, infusion, detoxification therapy, but topical treatment. Empirical antibiotic therapy and can be focused (see above). Preference is given to a focused antibiotic therapy, possibly using the accelerated identification of the causative agent. If the fever lasts for 48-72 hours after treatment, it is suspected pathogen resistance to antibiotics used. Intravenous antibiotic treatment should last for 48 hours after the disappearance of hyperthermia and other symptoms. Tablets should prescribe antibiotics even for the next 5 days.

Necessary to consider that antibiotics fall in milk. Immature enzyme systems of babies cannot handle the full withdrawal of antibiotics, which can lead to a cumulative effect. The degree of diffusion of antibiotics to breast milk depends on the nature of antibiotic. In a limited number transferred to breast milk penicilin, cephalosporin, a large number - aminoglycosides, Tetracycline, macrolides. Therefore at their destination stop breast-feeding a baby.

Local therapy in endometrial wash-flow is drainage of uterine cavity, using the catheter through which make the uterine wall irrigation solutions antiseptics, antibiotics. Use chlorhexidine 0.02% solution. Contraindications to aspiration-drainage of uterine flushing are: failure of seams in the uterus after caesarian section, infection has spread beyond the uterus, and the first days (up to 3-4 days) postnatal period. When pathological inclusion (rolls of blood remnants of membranes) of uterine cavity by flushing the drainage cannot wash, they must remove the vacuum aspiration, or careful curettage of the background of antibacterial therapy and normal body temperature. In the absence of these condition curettage is performed only for the life conditions (bleeding in the presence of remnants of the placenta).

Resort to surgical treatment of the case ineffectiveness of conservative therapy and the presence negative dynamics in the first 24-48 hours of treatment of systemic inflammatory response syndrome (SIRS). Surgical treatment is laparotomy with hysterectomy and uterine tubes.

Correct treatment of postpartum endomyometritis based prevention common form of infection in mothers.

Lactational mastitis

Lactational mastitis - an inflammation of the breast (mostly unilateral) during lactation in the postpartum period. Often developing 2-3 weeks after birth.

Etiology and pathogenesis

Most atriium is cracked nipples, penetration pathogen infection through breast milk ducts during lactation, rarely parasite spreads from endogenous foci.

Risk factors:

- cracked nipples;
- lactostasis.

Cracks can be at nipples malformation soother, when the child later application to the chest, poor feeding technique rough milk of individual epithelial cover soother, violating sanitary-epidemiological norms postpartum period.

When lactostasis may increase body temperature up to 24 hours if more than 24 hours - then this state should be viewed as mastitis.

Classification

I. The nature of the flow of breast inflammatory process can be:

- serous;
- infiltrative;
- purulent;
- infiltrative-purulent, diffusion, nodular;
- abscess (abscessed),: furunculosis areola, areola abscess, abscess in
- thicker gland abscess behind the gland;
- abscess, purulent necrotic;
- gangrenous.

II. For localization of foci mastitis can be:

- subcutaneous, subareolar, intramammary, retromammary and total.

The clinical manifestations

The clinical picture is characterized by mastitis: acute beginning, pronounced intoxication (malaise, headache), fever up to 38-39 C, chills, pain in the breast that increase with feeding. Mammary gland increases in volume, characterized by hyperemia and infiltration of tissues without clear boundaries. This painting is typical of serous mastitis. While inefficient treatment within 1-3 days serous mastitis goes into infiltrative. When palpation determined dense, sharply painful infiltration, glandular. Duration of this phase of 5-8 days. If infiltration does not resolve on the background of the treatment is its maturation - breast abscess (abscessed). Despite the strengthening of local symptoms of inflammation, a significant increase in breast cancer and deformity if infiltrate is shallow, then fester determined fluctuation. Maturation infiltration occurs within 48-72 hours. In cases where in the breast infiltrates, called breast abscess. Body temperature during this 39-40 C, chills, expressed weakness, intoxication. Mammary gland increased sharply, painful, well expressed by superficial venous network infiltrate occupies almost the entire gland, the skin over the affected area of swollen, shiny, red with cyanotic tinge. When gathered breast possible generalization of infection with the transition in sepsis.

Diagnostics

Diagnosis is based on the following data:

- clinical: a review of breast cancer (see text), evaluation of clinical signs, complaints, history taking;
- laboratory: total blood, total urine analysis, bacteriological research and bacterioscopia of fluid, immune gramma, coagulogram and blood biochemistry;
- tool: ultrasound (ultrasonography) - is an important diagnostic mastitis.

Treatment

Treatment could be conservative and surgical.

Antibiotic therapy should start with the first signs of disease to help prevent the development of purulent inflammation. When serous mastitis on breastfeeding solved individually. Please note: Opinion childbirth, anamnesis (purulent mastitis record, numerous scars of breast cancer, breast prosthesis), conducted by antibiotics, bacteriological data and research bacterioscopic fluid, the presence and expressiveness of crack nipples. Since infiltration mastitis child feeding is contraindicated because of a real threat to the child's infection and cumulative accumulation of antibiotics in the body of a child, but breastfeeding can be maintained by pumping. In the absence of the effect of conservative therapy of mastitis for 2-3 days and signs of purulent mastitis shown surgical treatment. Surgical treatment is radical cuts and adequate drainage.

Parallel continuing antibiotics, detoxification and desensitizing therapy. Timely surgical treatment can prevent progression of the process, the development of SIRS.

Prevention

Prevention of puerperal mastitis is teaching women breast-feeding policies and compliance with rules of personal hygiene. Need early detection and treatment of cracks and lactostasis nipples.

Ambulatory diagnosis and treatment of generalized infection after delivery

From the standpoint of modern ideas of sepsis - a typical pathological process that complicates the course of various diseases of infectious nature, the basic content of which is the uncontrolled release of endogenous mediators with subsequent development of generalized inflammation and organ-system injuries remote from the primary focus.

Sepsis cannot be considered the result of direct action on the microorganism macro organism, it is the result of significant violations in the immune system that are in its development stages of activation of redundant, to a state of immunodeficiency. Immune system is an active member of autodestruction process. Very often this septicemia (presence of microbes in the blood) is absent.

Such concepts have defined modern terminology sepsis.

American Association of Anesthesiologists, in 1992 proposed the following classification of septic states recognized by most scientists.

Systemic inflammatory response syndrome (Systemic Inflammatory Response Syndrom - SIRS), manifested by two or more signs:

- 1) body temperature of more than 38.0°C or lower 36.0°C;
- 2) HR over 90 beats / min;
- 3) respiration rate 20 per minute or PaCO₂ below 32 mm Hg. century;
- 4) WBC count more 12x10⁹ / l or less 4x10⁹ / l immature forms more than 10%.

Sepsis - systemic response to infection reliably detected in the absence of other possible reasons for such changes characteristic of SIRS. Manifested the same clinical signs and SIRS.

Severe sepsis - sepsis is characterized by the dysfunction of organs, tissue hypoperfusion, arterial hypotension. Possible acidosis, oliguria, mental blankness.

With the development of severe sepsis align the following features:

- thrombocytopenia less than 100 thousand / L, which cannot be explained by other causes;
- increase procalcitonin 6.0 ng / ml (A);
- positive blood won the detection of circulating bacteria (A);
- a positive test for endotoxin (LPS-test) (B).

Septic shock (SIRS - shock) is defined as severe sepsis with arterial hypotension, which develops despite adequate infusion therapy. Diagnosis is established if the above clinical and laboratory parameters align:

- arterial hypotension (systolic blood pressure less than 90 mm rt.st or decrease more than 40 mmHg from the reference level);
- violation of consciousness;
- oliguria (diuresis <30 ml / h);
- Hypoxia (PaO₂ less than 75 mm Hg when breathing the ambient air);
- SpO₂ less than 90%;
- raise more lactate 1.6 mmol / l;

- petechial rash, skin necrosis.

Multiple organ failure syndrome - the presence of acute dysfunction of organs and systems.

Diagnosics

For the diagnosis of clinical forms of sepsis should conduct the following activities in parturients with any form of postnatal infection:

- 1) monitoring: blood pressure, heart rate, central venous pressure, blood leukocytes and formulas;
- 2) calculation of respiration rate, assessing the level of blood gases, SpO₂;
- 3) Control hourly diuresis;
- 4) measurement of rectal body temperature of at least four times a day for comparison of body temperature in axillar areas;
- 5) crops urine, blood, secretions from the cervical canal;
- 6) determination of the acid-alkaline balance of blood and tissues of oxygen saturation;
- 7) platelet counting and determination of fibrinogen and fibrin monomers;
- 8) ECG, abdominal ultrasound and X-ray studies of the chest cavity.

Basic principles of therapeutic measures

1. Hospitalization in intensive care.

2. Correction of hemodynamic disorders with infusion therapy and adequate support. Assessing arterial pressure, pulse arterial pressure, CHP, CHSS, diuresis, determine the volume of infusion therapy. Determination of CHP in the dynamics allows controlled infusion of colloid solutions and crystalloid with the assessment amounts imposed and the lost fluid, blood.

For derivatives used infusions (Refortan, Venofundyn, volyuven, Stabisol) and crystalloid (0.9% sodium chloride solution, a Ringer solution) in the ratio 1:2. To correct hypoproteinemia appoint only 20-25% of albumin. Application of 5-10% albumin in critical states increases mortality of patients (A).

In the infusion must include quick-frozen plasma 600-1000 ml, due to the presence in it of anti thrombin (B).

Inappropriate use of glucose (B), because its purpose in patients in critical states increases lactate production and CO₂ increases ischemic brain damage and other tissues. Glucose infusion is used only in cases of hypoglycemia, and hypernatremia.

In case of failure of complex hemodynamic therapy using glucocorticosteroids possible (hydrocortisone - 2000 mg / day (P)) with H₂-blockers (ranitydin, famotidin) (B).

3. Maintaining adequate ventilation and gas exchange. Indications for ventilation are: PaO₂ less than 60 mmHg, PaCO₂ 50 mmHg or less than 25 mmHg, SpO₂ less than 85%, respiratory rate 40 per minute.

4. Normalization of bowel function and early enteral nutrition.

5. Timely correction of metabolic laboratory under constant control.

6. The decisive factor is the rational choice of antimicrobial drugs, particularly antibiotics. Targeted antibacterial therapy is possible only after determining pathogen and establishing its sensitivity to antibiotics that may be in the best case 48 hours earlier. Waiting identify empirical antibiotics used, taking into account the nature of primary foci of infection function of liver, kidney, immune system sick.

7. Evaluation of pathophysiological and pathobiochemical disorders that can be allocated in the following syndromes: kidney, liver, different variations of cardiovascular and respiratory failure, ICE syndrome, disorders of microcirculation, dysfunction of gastrointestinal tract with bacterial flora translocation phenomena in lymphatic system and then and in systemic circulation with the development of multiple organ failure syndrome. Patho biochemical disorders manifest violations of water-electrolyte, acid-base balance and others. Each of the syndromes demanding approach, individual application of certain methods and tools that cover all sections of intensive care.

8. Improvement of microcirculation

In recent years literary sources provide information about Drotrecogine alfa - recombinant human activated protein C. This new drug only in patients with severe sepsis, multiple organ failure. Activated protein C - this endogenous protein that supports fibrinolysis, inhibits thrombosis, and also has anti-inflammatory properties.

10. Surgical treatment of seizure foci of infection.

Indications for laparotomy and hysterectomy with uterine tubes are:

- lack of effect of intensive therapy (24 hours)
- endomyometritis that defies conservative treatment (24-48 hours);
- uterine bleeding;
- abscess formation in the field of oophorectomy;
- detection of ultrasound at the balance of the placenta.

11. Extracorporeal blood purification (detoxification) is a promising direction in the correction of homeostasis in severe cases. To this end, apply: hemodialysis, plasmapheresis.

Clinical diagnosis and treatment of obstetrical peritonitis

Peritonitis in obstetrical practice develops more often after cesarean section. Depending on the way to distinguish a peritoneal infection. Early peritonitis occurs at 1-3 days after surgery. It is usually caused by infection during an operation conducted against the backdrop chorioamnionitis.

Peritonitis associated with bowel paresis develops 3-5 days after surgery. It relates to breach the barrier function of intestinal obstruction due to its dynamic, with intestinal content by liquid and gas.

Peritonitis due to wounds of inferiority often develops in the uterus for 4-9 days after surgery. This distribution of clinical forms very conditional, but significantly affects the choice of treatment tactics

Clinical signs of peritonitis include hyperthermia, bloating and bowel paresis (absence of peristalsis), accumulation of liquid contents in the stomach, breathlessness, tachycardia, vomiting, intoxication, which is growing, peritoneal irritation. Therapeutic measures give a temporary effect, 3-4 hours again increases intestinal paresis and other signs of peritonitis.

Ultrasound signs of peritonitis: bloated, filled loops of bowel contents, the presence of free fluid in the abdominal cavity between the bowel loops in the lateral channels and space behind the uterus. About deficiency stitches in the uterus shows irregular uterine wall thickness in projection seam presence in this niche segment of "fluid" and "structures."

In the treatment of early peritonitis justified intensive conservative therapy for 8 -12 days (see treatment of sepsis). Necessary to provide drainage from the uterus,

stimulating bowel function. In the absence of the effect of conservative therapy within the specified time shown laparotomy with revision of the abdominal cavity, hysterectomy with uterine tubes. Over the past fifteen years have been offered new approaches and methods of surgical treatment of abdominal sepsis, particularly purulent peritonitis. These include: a closed method (passive and active drainage, peritoneal dialysis, re-laparotomy "on demand"(if shown)), Half (turning audit and restructuring "program" 'in readjustment period, the temporary closure of laparotomy wounds), open (laparostomy).

Clinical diagnosis and treatment of infectious thrombotic complications

The superficial thrombophlebitis. Acute thrombophlebitis revealed pain along the affected vein. Complaints to local heat sensation, redness and tenderness along the subcutaneous veins. Leaf palpation as dense painful cord hyperemia may extend beyond the sealing veins may occur infiltration of tissues that are near, lymphadenitis. Overall condition childbirth while broken sub febrile body temperature, accelerated pulse.

Deep vein thrombophlebitis. Complaints of pain on the side of lesion, swelling of affected limbs and skin discoloration. Objective manifestations corresponding compensation stage: fever (often the first and only sign of venous thrombosis), no pronounced violation of venous hemodynamics. Objective signs that match the stage of decompensation: intense pain, which often changes its localization feeling heaviness and tension, captures the entire limb swelling, increasing regional lymph nodes, skin color varies from pale to cyanotic, dominated by diffuse cyanosis all limbs.

Diagnosis based on clinical data, laboratory tests:

- assessment of the degree risk of thromboembolism - definition D- dimer level in plasma (D-dimer-test);
- thromboelastogram, coagulogram;
- determine the number of fibrin-monomer in blood serum ;
- identifying and fibrin degradation products in plasma fibrinogen (FDP PLASMA)

Used instrumental methods of investigation: duplex ultrasound with color Doppler mapping, radionuclide tracer study of fibrinogen, opaque retrograde ileocavography.

Septic pelvic vein thrombophlebitis. When endomyometritis infectious agent goes into venous circulation, affects the endothelium of vessels and promotes clot formation, usually prevailing anaerobic infection. The process involved in ovarian veins can penetrate into the lower hollow renal vein. Complaints of abdominal pain at the bottom of irradiation in the back, groin, may be nausea, vomiting, bloating, fever. In the study of vaginal palpation thickening in a rope in the corners of the uterus. When septic thrombophlebitis may be the migration of small blood clots in the pulmonary circulation of.

Treatment

Treatment thrombotic complications in postpartum period along with antibiotics and detoxification must include:

- a) bed rest with the deployment of lower extremity on the tire Bellera until disappearance of edema or express purpose of anticoagulant therapy;
 - Local hypothermia thrombose projection along the vascular bundle;
 - elastic compression using elastic bandages;
 - correction character act defecation with laxative use;
- b) medical therapy:

- anticoagulants in the acute stage of disease. Direct anticoagulants - heparin, low molecular weight heparin;
- indirect anticoagulants prescribed 2 days before the abolition of direct anticoagulants for up to 3-6 months;
- c) local treatment, which is held from 1-day diseases:
 - Local hypothermia;
 - application of ointments on the basis of heparin -with heparin, Lioton 1000, or NSAIDs - Fastum-gel, diclofenac gel.

Prevention of postpartum infection

To prevent postpartum septic complications, the proper organization of prenatal (rehabilitation of chronic septic foci), the maternity unit of postpartum wards, strict adherence to the principles of aseptic and antiseptic during childbirth and care bears, the isolation of women with signs of septic infection.

Great importance to prevent injuries during childbirth, bleeding and decrease the rate of surgical interventions during childbirth. It is necessary to prevent premature amniotic fluid effusion, timely treat deviations from the physiological course of labor (weakness of delivery), antibiotic for indications.

36.3. Requirements for the results of work.

- to take a medical history (general and specific) and record information in a standardized proforma,
- to perform general examination, assess the health status of the puerpera,
- to assess uterine involution, character of lochia, lab tests,
- to assess complaints of puerpera, explain the origins of minor ailments in postpartum period, give advice how to reduce the problem,
- to develop a plan of management of normal postpartum period,
- to understand the common disorders of the puerperium and how to manage them,
- to counsel woman about physiology of lactation, benefits of breastfeeding,
- to check up woman on discharge, give judicious advice regarding diet, drugs and hygiene,
- to evaluate clinical signs of postpartum infection,
- to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- to select the leading clinical symptom or syndrome;
- to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- to evaluate the indications for surgery.
- to write prescriptions for the treatment of the patient.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests:

1. On the 9th day after childbirth the obstetric patient developed high fever up to 38°C. She complains of pain in the right mammary gland. The examination revealed the following: a sharply painful infiltrate can be palpated in the right mammary gland, the

skin over the infiltrate is red, subareolar area and nipple are swollen and painful. What is your diagnosis?

- +A. Abscess of the right mammary gland
- B. Mastopathy
- C. Cancer of the right mammary gland
- D. Serous mastitis
- E. Fibrous cystic degeneration of the right mammary gland

2. A woman complains of temperature increase up to 39 °C, sharp pains in her lower abdomen, and purulent discharge from her genital tracts. From her case history it is known that 6 days ago she underwent illegal abortion. Objectively her blood pressure is 100/60 mm Hg, pulse is 110/min. Abdominal rigidity, rebound tenderness (Bloomberg's sign), and painful palpation of the lower abdomen are observed. On bimanual examination the uterus is enlarged up to 7 weeks of pregnancy, painful, and soft; posterior vaginal fornix overhangs. Make the diagnosis:

- +A. Pelvioperitonitis
- B. Endometritis
- C. Acute adnexitis
- D. Pyosalpinx
- E. Metroendometritis

3. A postparturient woman, who has been breastfeeding for 3 weeks, made an appointment with the doctor. For the last 6 days she has been feeling unwell, complains of body temperature of 38-39°C, general weakness; within the last 2 days she developed pain and redness in the area of her right mammary gland. Examination revealed her mammary gland to be significantly enlarged and deformed; breast tissue fluctuations and lymphadenitis are observed. What type of mastitis is the most likely?

- +A. Phlegmonous mastitis
- B. Serous mastitis
- C. Infiltrative mastitis
- D. Lactostasis
- E. Mammary edema

4. A 22-year-old postparturient woman on the 12th day after the normal childbirth informs of elevated body temperature up to 39°C for the last 3 days and pain in her right mammary gland. The right mammary gland is enlarged, hot to touch, tense, hyperemic, and painful. Palpation reveals there a dense infiltration 8x8 cm with a fluctuation in its center. What is the most likely diagnosis?

- A. Postpartum period, day 12. Right-sided lactostasis
- +B. Postpartum period, day 12. Right-sided infiltrative-purulent mastitis
- C. Postpartum period, day 12. Right-sided gangrenous mastitis
- D. Postpartum period, day 12. Right-sided phlegmonous mastitis
- E. Postpartum period, day 12. Right-sided serous mastitis

13. On the day 4 after the cesarean section a woman developed fever with body temperature up to 39°C and abdominal pain. Pulse - 104/min. She vomited twice. The

patient is sluggish, her tongue is dry and has gray coating. The abdomen is distended. Signs of peritoneal irritation are positive in all segments. Peristalsis cannot be auscultated. No passage of gas occurs. Uterine fundus is located at the level of the navel. The uterus is painful on palpation. The discharge is moderate and contains blood and pus. What is the most likely diagnosis?

- +A. Diffuse peritonitis
- B. Pelvic peritonitis
- C. Metroendometritis
- D. Progressive thrombophlebitis
- E. Parametritis

Questions:

1. What is the definition of postpartum infection?
2. What is the definition of «internally hospital (hospital) infection»?
3. What is the classification of postpartum infectious diseases?
4. What is the etiology of postpartum infectious diseases?
5. What is the pathogenesis of postpartum infectious diseases?
6. What are the risk factors of postpartum infectious diseases?
7. Which clinical features and diagnosis of postpartum infected wounds?
8. What are the treatments for postpartum infected wounds?
9. What are the clinical features and diagnosis of postpartum endometritis?
10. What are the treatments for postpartum endometritis?
11. What are the clinical features and diagnosis and treatment of milk fever?
12. What are the treatments for milk fever?
13. What is the modern classification of septic states?
14. What are the basic principles of treatment of obstetric sepsis?
15. What are the clinical features and diagnosis of obstetrical peritonitis?
16. What are the basic principles of treatment of obstetrical peritonitis?
17. What are the clinical forms of infectious thrombosis complications in obstetrics?
18. What are the basic principles of treatment of obstetric thrombosis complications?

Situational task:

1. The woman in labor on the 5th day of childbirth complained of pain in the left breast, fever up to 39.0°C. No pathology of the genitals was detected. The left breast is dense, painful on palpation.

Question: What are the doctor's tactics?

Correct answer: expressing milk

2. A 23-year-old woman was transferred to the observation department on the 5th day after delivery due to a rise in temperature to 38.8°C. Childbirth was complicated by a long dry period (19 hours). Objectively: body temperature 38.8°C, chills, pulse 100 beats / min. The abdomen is painful in the hypogastrium. The bottom of the uterus is 4 cm below the navel. At vaginal examination: the uterus is increased to 18 weeks of pregnancy, soft, painful. Discharge with an unpleasant odor.

Question: Which diagnosis is most likely?

Correct answer: postpartum endomyometritis

KK. SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
 - methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

“5”	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
“4”	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
“3”	The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
“2”	The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

RECOMMENDED LITERATURE

Basic:

1. Gladchuk I.Z. Obstetrics: student's book / Gladchuk I.Z., Ancheva I.A. . – Vinnitsia: Nova Knyha, 2021. – 288 p.

2. Obstetrics and Gynecology: in 2 volumes. Volume 1. Obstetrics: textbook / V.I. Gryshchenko, M.O. Shcherbina, B.M. Ventskivskyi et al. (2nd edition). – «Medicina», 2018. – 392 p.
3. Hiralal Konar DC Dutta's Textbook of Obstetrics (9th Ed.) / Hiralal Konar (Ed.). – Jp Medical Ltd, 2018. – 700 p.
4. F. Gary Cunningham Williams Obstetrics (26th Edition) / F. Gary Cunningham, Kenneth Leveno, Jodi Dashe, Barbara Hoffman, Catherine Spong, Brian Casey. – McGraw Hill / Medical, 2022. – 1328 p.
5. Jeremy Oats, Suzanne Abraham Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th Ed) / Jeremy Oats, Suzanne Abraham. – Elsevier, 2016. – 384 p.

Additional:

1. The PROMPT-CIPP Editorial Team. (2019). PROMPT-CIPP Course Participant's Handbook: Care of the Critically Ill Pregnant or Postpartum Woman (Critical Care Prompt Practical Obstetric Multi-professional Training). – Cambridge University Press; 1st edition, 2019. – 136 p.
2. L. A. Magee The FIGO Textbook of Pregnancy Hypertension. An evidence-based guide to monitoring, prevention and management. / L. A. Magee, P. Dadds, W. Stones, M. Mathai (Eds). – The Global Library of Women's Medicine, 2016. – 456 p.
3. Edwin Chandraran Handbook of CTG Interpretation: From Patterns to Physiology / Edwin Chandraran. – Cambridge University Press; 1st edition, 2017. – 256 p.
4. Louise C. Kenny, Jenny E. Myers Obstetrics by Ten Teachers (20th ed) / Louise C. Kenny, Jenny E. Myers. – CRC Press, 2017. – 342 p.
5. J. Studd Current Progress in Obstetrics and Gynaecology. Vol 4. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2017. – 419 p.
6. J. Studd Current Progress in Obstetrics and Gynaecology. Vol 5. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2019. – 403 p.
7. J. Studd Current Progress in Obstetrics and Gynaecology. Vol 6. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2022. – 309 p.
8. Mark Landon Obstetrics: Normal and Problem Pregnancies, 8th Edition / Mark Landon, Henry Galan, Eric Jauniaux, Deborah Driscoll, Vincenzo Berghella, William Grobman, et al. – Elsevier, 2021. – 1280 pp.
9. Mark B. Landon Gabbe's Obstetrics Essentials: Normal & Problem Pregnancies, 1st Edition / Mark B. Landon, Deborah A. Driscoll, Eric R. M. Jauniaux, Henry L. Galan, William A. Grobman, Vincenzo Berghella. – Elsevier, 2019. – 496 pp.
10. Ian M. Symonds, Sabaratnam Arulkumaran Essential Obstetrics and Gynaecology, 6th Edition / Ian M. Symonds, Sabaratnam Arulkumaran. – Elsevier, 2020. – 480 pp.
11. Myra J. Wick Mayo Clinic Guide to a Healthy Pregnancy, 2nd Edition / Myra J. Wick. – Mayo Clinic Press, 2018. – 520 p.

ELECTRONIC INFORMATION RESOURCES

1. <https://www.cochrane.org/>- Cochrane / Cochrane Library
2. <https://www.acog.org/>- The American College of Obstetricians and Gynecologists
3. <https://www.uptodate.com>– UpToDate
4. <https://online.lexi.com/>- Wolters Kluwer Health
5. <https://www.ncbi.nlm.nih.gov/>- National Center for Biotechnology Information / National Center for Biotechnology Information
6. <https://pubmed.ncbi.nlm.nih.gov/>- International Medical Library / National Library of Medicine
7. <https://www.thelancet.com/>- The Lancet
8. <https://www.rcog.org.uk/>- Royal College of Obstetricians & Gynecologists
9. <https://www.npwh.org/>- Nurse practitioners in women's health
10. <http://moz.gov.ua>- Ministry of Health of Ukraine
11. www.ama-assn.org– American Medical Association / [American Medical Association](#)
12. www.who.int- World Health Organization
13. www.dec.gov.ua/mtd/home/- State Expert Center of the Ministry of Health of Ukraine
14. <http://bma.org.uk>– British Medical Association
15. www.gmc-uk.org- General Medical Council (GMC)
16. www.bundesaerztekammer.de– German Medical Association
17. www.euro.who.int- European Regional Office of the World Health Organization
18. <https://www.cochrane.org/>
19. <https://www.ebcog.org/>
20. <https://www.acog.org/>
21. <https://www.uptodate.com>
22. <https://online.lexi.com/>
23. <https://www.ncbi.nlm.nih.gov/>
24. <https://pubmed.ncbi.nlm.nih.gov/>
25. <https://www.thelancet.com/>
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