

ONMedU, Department of Obstetrics and Gynecology. Practical lesson №1. Clinical anatomy and physiology of the female genital organs. Methods of examination of gynecological patients. General semiology in gynecology.

**MINISTRY OF HEALTH OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY**

Faculty international

Department of Obstetrics and Gynecology



I APPROVE
Vice-rector for scientific and pedagogical work
Eduard BURIACHKIVSKYI
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**METHODICAL DEVELOPMENT FOR PRACTICAL LESSONS
FROM EDUCATIONAL DISCIPLINE**

Faculty of international, course IV

Educational discipline "Obstetrics and gynecology"


Practical lesson № 2. Topic : « Clinical anatomy and physiology of the female genital organs. Methods of examination of gynecological patients.
General semiology in gynecology»

Approved:

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

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Head of the department _____  (Ihor GLADCHUK)

Developer: associate professor of the department of Obstetrics and Gynecology _____  Onyshchenko Yu.V.

Practical lesson № 2

Topic: “Clinical anatomy and physiology of the female genital organs. Methods of examination of gynecological patients. General semiology in gynecology”.

Goal: Recognition of gynecologic diseases is based on data from the anamnesis, subjective and objective examinations. A total of subjective and objective methods of examination promotes cognition of the processes which really occur in the patient’s organism.

Exact diagnostics, as a result, and rational treatment of gynecologic diseases can be conducted only under conditions of correct examination of the gynecologic patients, conducted on a certain system, which helps to take into account all the details and find the main facts, promoting correct recognition of the disease.

Basic concepts: educational (to introduce students to current topics, normal menstrual cycle, regulation of menstrual cycle, the volume of the survey of it.); scientific (logical train student clinical thinking and new methods of diagnosis for him); creative (see the deontological principles of management of patients with menstrual dysfunction, given the social aspects of the problem.); responsible (develop a sense of legal responsibility for the doctor to adequately carried out therapy.).

Equipment: Professional algorithms, structural-logical schemes, tables, models, power point presentations, video and paper media, results of laboratory and instrumental researches, situational tasks, patients, medical histories.

Training time: 4 hours

- I. Organizational activities (greetings, checking the audience, announcing the topic, the purpose of the lesson, motivating students to study the topic).**
- II. Control of basic knowledge (written work, written testing, face-to-face interview, etc.) (if necessary):**

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

Knowledge requirements:

- Communication skills and clinical examination of the patient.
- Ability to determine the list of necessary clinical, laboratory and instrumental studies and evaluate their results.
- Ability to establish a preliminary and clinical diagnosis of the disease.
- Ability to perform medical manipulations.
- Ability to provide advice on family planning.

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- Ability to keep medical records.
- Communication skills and clinical examination of the patient.

List of didactic units:

List of didactic units:

- Knowledge of the basic concepts of clinical anatomy and physiology of female genitalia.
- Ability to collect Special gynecological anamnesis.
- Possession of necessary methods general and special methods of examination of gynecological patients, methods of functional diagnostics of ovaries.
- Knowledge of general symptoms of gynecological pathology

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

Questions:

1. Clinical anatomy and physiology of female genitalia.
2. Special gynecological anamnesis.
3. General and special methods of examination of gynecological patients.
4. Main special examination methods in gynecology: visual examination of genitals, speculum examination, bimanual examination.
5. Additional specific examination methods.
6. Methods of functional diagnostics of ovaries.
7. Laboratory methods of examination in gynecology: microscopy of urogenital discharge, oncocytology, bacteriological study, PCR, ELISA, pathomorphological study.
8. Instrumental examination methods in gynecology: uterine probing, curettage of uterine cavity and cervical canal, biopsy, puncture of abdominal cavity through posterial fornix.
9. Endoscopic methods of examination in gynecology: colposcopy, hysteroscopy, laparoscopy.
10. Radiological examination methods in gynecology: MRI, CT, MSG.
11. Ultrasonic examination methods in gynecology: transvaginal and transabdominal USD.
12. General symptomatics of gynecological pathology.

Typical situational tasks:

1. Pregnant woman, 32 years old, in term of 30-31 weeks of pregnancy has arrived at maternity ward with complaints on intermittent pain in the lower abdomen which irradiates into lumbar area. Patient's blood type is A (II) Rh (-) negative. The current pregnancy is her fourth pregnancy. The first pregnancy ended with the birth of alive full-term baby with A (II) Rh (+) positive blood type, the second - antenatal fetal death in term of 28 weeks, the third - late spontaneous abortion.

What research methods should be undertaken to establish the diagnosis?

2. Secundigravida, 35 years old, arrives at women's health clinic with complaints on general weakness, discomfort, anorexia, constant nausea, vomiting up to 8-9 times per day, hypersalivation. The term of pregnancy is 8-9 weeks. Woman is under care of endocrinologist for over 5 years due to type I diabetes, mild form. Objectives: skin and visible mucous membranes are clean, pale pink. Tongue is dry, covered with white coating; abdomen is soft, painless on palpation. Liver and spleen are not enlarged. BP 100/60 mm Hg, pulse 80-90 beats/ min.

Which laboratory studies should be conducted to clarify the diagnosis?

3. Pregnant woman, 21 years old, has arrived at the hospital with complaints on back pain, fever up to 38,7° C, painful urination. Current pregnancy is the 1st, gestation duration is 24 weeks, no complications were noted previously.

On examination: skin and visible mucous membranes are pale, body temperature is 38,9°C. BP 110/70 mm Hg, Ps 108 beats/min. Heartbeat is rhythmic, with clear tones. Clear vesicular breathing is auscultated in lungs. Liver and spleen are impalpable. Pasternatsky symptom is positive on both sides. Abdomen is soft, painless, enlarged because of uterus. Height of uterine fundus is 24 cm; circumference of abdomen is 90cm, fetal position is unstable. No edemas. Mucous discharge from genital tract.

Define the diagnostic plan.

Typical test tasks:

The patient was 26 years old. Ill after the birth, which took place 12 months ago. Deliveries were heavy in the early postpartum period was bleeding. Complaints of headache, dizziness, drowsiness, weakness, loss of hair and pubic hair. BP - 90/50 mm Hg, body temperature - 35,8S. Menstrual function after birth is not restored. On gynecological examination revealed: reduced in size uterus, ovaries are not palpable, there is dryness of the vaginal mucosa. Monophasic basal temperature below 37C, the symptoms of "pupil" and "fern" negative. Why is the pathogenesis of the disease?

- + A. With a decrease in pituitary function.
- B. Since excessive production of prolactin.
- C. With a decrease in ovarian function.
- D. On the dysfunction of the adrenal glands.
- E. With hyper androgens.

2. Patient '28 admitted to the gynecology department complaining of a sharp pain in the right iliac region, which emerged after weight lifting. Last menstruation 10 days ago, in time. When viewed in the mirrors, the vagina and the cervix is normal. When vaginal study the body of the uterus and appendages are not available through palpation sharp pain and muscle tension anterior abdominal wall. Rear hanging set, painful. What should be done to refine the diagnosis?

- A. hysteroscopy.
- B. colposcopy.

C. Kuldoskopiyu.

D. Identify chorionic honadropin.

+ E. Puncture the abdominal cavity through the posterior vaginal vault.

3. Patient '27 treated for 5 years on chronic adnexitis, taken to the gynecology department with signs pelvioperitonit. In men with chronic urethritis. What research should be assigned to diagnose the causative agent?

A. bacteriological study of vaginal content.

B. Bacterioscopic study of vaginal content.

+ C. Puncture the abdominal cavity through the posterior vaginal vault, bak.posiv received punctate gonorrhea.

D. Clinical analysis of blood bak.posviv blood.

E. Bacteriological studies after provocation.

4. In a healthy woman on the 15th day of the menstrual cycle when kolpotsitoloichnomu study found that the level of maturation 0/12/88, kariopiknotichnyy index of 80%. As evidenced by these figures?

A. On the offensive early phase of proliferation.

B. Deep endocrine disorders.

+ C. On the offensive of ovulation.

D. On the offensive late phase of ovulation.

E. On the offensive phase secretion.

5. The doctor asked the woman prenatal '28 complaining of aching recurrent abdominal pain, low-grade fever, night sweats, olihomenoreyu, alhodysmenoreyu infertility for 7 years. Woman lost weight by 7 kg. If bimanual examination: the uterus is not enlarged, mobile, painless, epididymis tyazhysti painless. What priority should be to conduct the survey for further diagnosis?

A. X-ray study of the lungs.

B. urine.

C. hysterosalpingography.

D. Analysis of discharge.

+ E. Crops menstrual blood three times over a period.

6. In sanitary inspection ambulance transported the patient '32 complaining of intense abdominal pain that suddenly emerged half an hour later. It was a short-term loss of consciousness, disturbs dizziness, weakness, pain intensified. Body temperature 36,7 ° C. In branch hospitalized patients?

+ A. In the department of operative gynecology.

B. In observational department.

C. In the department of pathology of pregnancy.

D. In conservative gynecology department.

E. physiological department.

7. The patient complains of severe pain in the abdomen. Menses two weeks ago, after a delay. If bimanual examination the uterus is not enlarged, hanging back arch, painful palpation sharply painful appendages right, impossible. In order pathology diagnosis which shows the puncture of the abdominal cavity through the posterior vaginal vault?

- A. uterine bleeding.
- B. uterine pregnancy.
- C. progressing ectopic pregnancy.
- D. Limited peritonitis.
- + E. intraperitoneal bleeding.

8. Female 18 years appealed to the gynecologist with a desire to be tested for chlamydia. What is a "gold standard" in the diagnosis of urogenital chlamydiosis?

- A. ELISA.
- B. PCR.
- C. Cytological.
- D. Serological.
- + E. The culture.

III. Formation of professional skills, abilities (mastering skills, conducting curation, determining the treatment regimen, conducting laboratory research, 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 subgroup - to make a preliminary diagnosis.

Subgroup II - to make a plan for the management of a gynecological patient.

Subgroup III - assesses the correctness of the answer of subgroups I and II and makes adjustments.

Atypical situational tasks:

1. Secundigravida, 28 years old, complains on decreasing of fetal movements. The current pregnancy is the 2nd, 31 weeks. First pregnancy ended with delivery of full-term alive boy, with weight 2.390 kg, length - 49cm. The woman is smoking since adolescence period. On examination doctor found delay in height of uterine fundus for the given term. Fetal heartbeat is 138-156 beats per minute.

Which research methods can determine the condition of feto-placental complex and fetus?

2. Maternity patient, 34 years old, is transferred to the observational department on the 3rd day after labor because of worsening of her general condition: chills, fever up to 39,7°C. Labor was complicated with premature rupture of amniotic membranes (waterless period was 18 hours), weakness of contractile activity.

Objectively: skin is moderately hyperemic. Pulse is 94 beats /min, BP - 110/70 mm Hg on both hands. Pathology of internal organs is not revealed. Fundus of the uterus is two cross fingers lower than umbilicus. Bimanual examination: cervix of uterus is not formed, hangs down into vagina, the canal allows passage of 3 cross fingers. Uterus is enlarged to the size of 18 weeks of pregnancy, soft. Appendages are not palpated. Discharge is bloody, like "tomato paste" with an unpleasant smell.

Which laboratory examination is necessary to establish the diagnosis?

Atypical test tasks:

- I. The sanitary inspection ambulance transported the patient '36 complaining of severe abdominal pain, concern for three days recently intensified. Body temperature 38,2 ° C. In history - chronic bilateral adnexitis. In the branch hospitalized patients?
- A. In observational department.
 - + B. In conservative gynecology department.
 - C. In the department of pathology of pregnancy.
 - D. In the department of operative gynecology.
 - E. physiological department.
- II. Patient R. 50 years old, complains of intense bleeding from the genital tract for 8 days, which occurred after 2 years of amenorrhea, weakness. If bimanual examination: cervix intact body of the uterus of normal size and painless. Appendages were normal on both sides. With vagina - heavy spotting. Which tactic is most expedient?
- + A. Fractional scraping the uterine lining.
 - B. supravaginal amputation of the uterus.
 - C. hysterectomy.
 - D. Hormone therapy.
 - E. hemostatic therapy.

3.2. Recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills, etc.).

Clinical anatomy of female genitals.

The female genital tract is divided into external and internal genitalia.

The **external genitalia** (genitalia externa) include the vulva (vulva), which contains all the anatomical structures from the pubis to the perineum: pubis, large pudendal and small pudendal lips, clitoris, hymen, inlet to the vagina and its glands, female urethra, and also glands and vessels (codogram).

Pubis (mons pubis, mons Veneris) is the lowest part of the anterior abdominal wall, the spherical fat pad above the pubic symphysis (symphysis pubica) covered by skin and hair. Hair appearance and fat sediment on the pubis takes place at the beginning of puberty. The upper edge of the hair forms a horizontal line in women (female type) and in men the hairy integument is located along the white line as a stripe or in the form of a narrow triangle with its apex near the umbilicus (male type). In women hair grows down along the

external surface of the large pudental lips (triangle with its apex downwards). The appearance of the pubic hair changes during the phases of a woman's life. It does not exist in girls before puberty; during the reproductive age it varies in thickness, length and coloration, during menopause the hairy integument becomes thinner. The skin of the pubis contains sudoriferous and sebaceous glands. Quantity of subcutaneous fat depends on heredity, age, diet and, possibly, on the influence of steroid hormones. On the right and left side of the pubic surface, there are pubic tubercles (tubercula pubica). They are description points for determining the external openings of the inguinal canals, where the round ligaments of the uterus come from.

Clinical meaning. Dermatitis, pediculosis (phthyrus pubis) may evolve in the area of the mons pubis. Edema of the mons pubis may appear secondary as a result of infection, trauma, cancerous infiltration of the lymph nodes. Cancer of the vulva may spread to the mons pubis.

The large pudental lips (labia majora pudendi) - two folds of skin with connective and adipose tela, numerous vascular plexi descending from the mons pubis to the perineum on either side of the pudental slit (rima pudendi) and forming anterior and posterior commissura of the lips. The large pudental lips as a rule join in nulliparae but after each labour the distance between them increases and in aged women atrophy occurs. The skin on the lateral (external) surface of the large pudental lips is covered by hair and pigmented, on the medial (internal) surface - smooth, very thin, and looks like mucous membrane. It contains a lot of sudoriferous and sebaceous glands, their secretion gives off a specific smell to the area of genitalia.

Clinical meaning. The large pudental lips have no special functions. Cyst of the inguinal canal may occur; sometimes it is diagnosed as an indirect inguinal hernia. The large pudental lips may stick together at vulvitis in girls. As a consequence of external force (trauma) or complicated labour a hematoma may form. The tumour of the apocrine sudoriferous glands - hydropadenoma, malignase very rarely. Cysts of the sudoriferous glands are benign, but often they become infected.

The small pudental lips (labia minora pudendi) are two small, narrow and thin (there is no adipose layer) folds of skin between the labia majora and the vaginal opening. As a rule, they are covered by labia majora. The labia minora have sudoriferous glands, smooth muscular and elastic fibres and a lot of veins. They are extremely sensitive due to the presence of a number of nervous endings.

Clinical meaning. The labia minora close the vaginal entrance. They increase as the response to the stimulation by ovarian hormones and without oestrogen stimulation the atrophic changes take place in it. Squamous cell carcinoma of vulva often starts from the labia minora, exactly from the sebaceous glands. A sticking together of the labia minor in girls is an evidence of their inflammation (vulvitis), their adhesion may be an evidence of sexual differentiation disorders.

The **clitoris** is homologous to the penis cylindrical erectile body 2-3 cm in length, located in the anterior coner of the genital rima, between the labia minor. The head of the clitoris is nearly 0.5 cm in diameter, covered by squamous epithelium with numerous nervous

endings and sebaceous glands. The clitoris is attached to the lower part of the pubic symphysis by lig. suspensorium clitoridis and consists of two corpora cavernosa. During sexual excitement they observe their erection and as a consequence of it the vaginal entrance narrows. The corpora cavernosa comes from the low edge of the descending branches of the pubic bones, unite in the middle and form the body of the clitoris. The end of the clitoris is surrounded by the edges of the labia minora, their anterior edge forms the prepuce of the clitoris and both posterior edges form its frenulum (frenulum clitoridis). Because of numerous vessels and nerves clitoris is extremely sensitive, its friction causes orgasm. The clitoris is the main erogenic zone in women.

Clinical meaning. Cancer of the clitoris is seen very seldom, early metastatic spreading is inherent in it and it involves wide excision. Inguinal and femoral lymph nodes are damaged first, as a rule.

The vestibule of the vagina (vestibulum vaginae) is a triangle-shaped cavity, formed from the urogenital sinus and limited at the top by the clitoris, laterally by the labia minora, and inferiorly and posteriorly by the posterior commissure of the pudendal lips and the vaginal vestibule. Its bottom is the hymen. The vestibule vagina is lined with thin squamous epithelium. Six orifices open into it, they are: the urethra, the vagina, two ducts of the greater vestibular glands and two ducts of the smaller vestibular glands.

In the vaginal vestibule under the clitoris the **outer orifice of the urethra** (urethra feminina) is located. It may be of different forms (round, compressed, with two lateral lips) while usually it looks like a turned over letter "V". It, like the whole urethra, is lined with transitional epithelium and as a consequence has more intensive pink color than the mucous of the vaginal vestibule covered with squamous epithelium. Low two thirds of the urethra are located directly over the anterior vaginal wall. The urethral diaphragm supports the urethra position.

Clinical meaning. One may observe vegetation of the urethra mucosa, planocellular and transition-cellular carcinoma, developing from urovestibular zone may occur.

Just below the orifice of the urethra there are two small openings of the **smaller vestibular (paraurethral, the Skene's) glands (glandulae vestibularis minores)**, which are rudiments of the Wolffian duct (Fig). These glands are homologous to the prostate (prostata). Their ducts are lined with transitional epithelium. They have common with the urethra innervation and blood supply.

Clinical meaning. The Skene's glands, which produce a small amount mucous, are especially prone to gonococcus infections, which can be revealed for the first time in them. After successful anti-gonococcus therapies, non-specific infection can be recurring, that demands electro-cauterization or laser destruction of the glands' ducts.

The greater vestibular glands (the Bartholin's glands, glandulae vestibulares majores) are homologous to the Cowper's glands (bulbourethral glands) in men. They lie on the postero-lateral surface of the vaginal opening. Their ducts open on either side of the hymen in the vaginal vestibular (Fig. 4, b). Each gland has a narrow duct approximately 2 cm long and partially covered with cavernous tissue, bulbs of the vestibular (bulbi vestibuli, Fig. 5) located from the both sides of the vagina between skin

and m. bulbospongiosus. They are homologous to the bulbs of the penis. Viscous greyish mucoid secretion of these glands has alkaline reaction; it excretes at press, sexual excitement and supports normal moistness of the mucosa of the vaginal orifice.

The **hymen** is a thin elastic duplicate of mucosa covered with squamous epithelium which as a rule partially closes the vaginal orifice. It has one (rarely several) excentric opening for the outflow of the menstrual blood. Rarely the hymen has no an orifice. During first sexual contacts the hymen usually tears slightly, mainly inferiorly and laterally and after labour only its remnants may stay, papillae of hymen (carunculae hymenalis).

Clinical meaning. Bartholinitis is an often complication of sexually transmitted diseases and especially hemorrhage. Abscess of the greater vestibular gland (the Bartholin's) needs a surgical intervention and under relapsing the cyst's marsupialization should be performed. Rigid hymen may cause pain during sexual contacts which requires its dissection (surgical defloration).

The female internal genitalia (**organa genitalia feminina interna**) consist of the vagina, the uterus, the Fallopian tube and the ovaries.

The **vagina** is a tubular muscular-connective structure joining genital area with the uterus located between the urethra and the urinary bladder anteriorly and the rectum posteriorly. Its length along the anterior wall is 7-8 cm and 9-10 cm along the posterior wall. The vagina is narrowed near the hiatus; upwards it widens and ends with the vaults of the vagina. The vagina is a polyfunctional organ; it is an excretory organ of the uterus, the female organ of copulation and part of labour canal. Its upper part is formed from the Müller's ducts, and the low one from urogenital sinus. Anteriorly the vagina is separated from the bladder and the urethra orifice by the vesicovaginal septum; posteriorly it is limited from the rectum by the recto-vaginal septum. The superior one fourth of the vagina is separated from the rectum by the dome-shaped pocket of the peritonium, the rectouterine (Douglas') pouch.

The superior part of the vagina encompasses the uterus' cervix and forms the anterior, posterior and two lateral vaults (fornix). The vaginal walls, anterior and posterior, consist of muscular fascicles, connective tissue and mucous membrane. The muscular fascicles of the vaginal anterior wall spread on the muscular layer of the urethra and the muscular fascicles of its posterior wall — on the inferior part of the rectum. The thickness of the vaginal wall is approximately 3 mm. The vaginal wall consists of the three layers. The mucous membrane of an adult woman vagina is lined with stratified squamous epithelium; it is comparatively smooth on the lateral walls and forms anterior and posterior transversal folds (columnae rugarum) which allows it to stretch well in labour. The vaginal connective tissue is rich in blood vessels and contains lymph nodes. The vaginal mucous membrane is pale pink and during pregnancy it is cyanotic, it is glands-free. The vaginal discharges contain alkaline secretion of the cervix, desquamous epithelial cells and bacteria. Epithelium of the vagina is rich in glycogen which transforms into lactic acid under the influence of normal vaginal flora (Doderlein's bacilli). That is why pH of the vagina is acid (approximately 4.5) what is a protective barrier against infections.

Clinical meaning. The vaginal discharge (leukorrhoea) is a frequent complication, symptom of local or systemic diseases. The most frequent reason of] the vaginal discharge is an infection of the low parts of the reproductive tract. Other reasons may be either oestrogenic or psychogenic stimulation or deficiency of oestrogens as a result of senile atrophic vaginitis. Metastatic cancer of the vagina is met more often than primary one.

The **uterus (s. metra, hystera)** is an unpaired cavitory muscle organ located in the pelvic, cavity between the urinary bladder anteriorly and the rectum posteriorly.

The uterus consists of two parts: the upper, the body of the uterus (**corpus uteri**) and the low, the neck of the uterus (**cervix**). The upper part of the corpus is called the fundus of the uterus (**fundus uteri**) and in the cervix has 2 parts supravaginal and vaginal parts. There is the isthmus of the uterine (**isthmus uteri**) between its corpus and cervix, the clinical title is orificium internum uteri (some authors distinguish the anatomic and hystologic internum uteri). The uterine wall consists of three layers, the internal mucous membrane, (endometrium), the middle, muscular layer (myometrium), the external serous membrane (perimetrium). The uterine mucous membrane has two layers, the basal layer and the functional layer.

The **cervix** of the uterus is conic-shaped in a nullipara and 2-4 cm long with an average caliber of 2.5 cm. The canal of the neck of the uterus (**canalis cervicalis uteri**) has a rounded orifice (**ostium of the uterus**) which has anterior and posterior lips. Approximately half of the length of the cervix is its supravaginal portion; to the front the urinary bladder lies. The vaginal portion of the cervix up to the uterine orifice is lined with squamous epithelium, the cervical canal – cylindrical secretory epithelium, its glands, produce cervical mucous. Apart from the epithelial layer of the canal, the cervix 85% consists of connective tissue and 15% consists of circular muscular fibers which merge with myometrium superiorly. The corpus uterus, vice versa, consists of 85% muscular fibers and only 15% —connective tissue. The anatomic structure of the cervix changes during pregnancy and labour. Traumatic damage during labour cause changes connected with its location and form. The uterine orifice becomes slot-like. The cervix is held in its position due to the pubocervical, sacrouterine and transversal (cardial) ligaments.

Innervation of the cervix is from the second, third and fourth pair of sacral nerves and pelvic sympathetic plexus.

Blood supply is provided by the uterine, ovarian and internal genital arteries and veins.

Clinical meaning. Ectopia of the cylindrical epithelium of the cervical canal can lead to postcoital (contact) bleedings and infections. Squamous cell carcinoma of the cervix (second most frequent disease in women) in 90% of cases occurs at the junction of the cylindrical and flat epithelium. Cervicitis, especially with specific etiology, is often accompanied by leucoria and can cause infertility.

In reference to the pelvic axis the uterus is curved forward (anteflexio) in most cases or (rarely) backward (retroflexio). The body of the uterus is bent forward (anterversio) in reference to the cervix too. The peritoneum covers the posterior surface of the urinary bladder, turns at the level of the uterine isthmus and forms the vesicouterine pouch (excavatio vesicouterine). Encompassing the uterus from behind, the peritoneum comes

down the cervix, covers the posterior vaginal fornix and turns on the rectum, forming the rectouterine pouch (excavatio retrouterinae, Douglas pouch). Laterally the rectouterine pouch is limited by the rectouterine folds (plicae rectouterinae) of the peritoneum which stretch to the lateral surface of the rectum and are the uterine fixating apparatus. The fascicles of the smooth muscles (mm. rectouterini) pass in these folds. From the both sides of the uterus the peritoneum forms the folds, the right and left broad ligaments of the uterus located in the frontal plane. This ligament forms the mesosalpinx relating to the Fallopian tube, and relating to the ovary it forms the mesovarium and relating to the uterus — mesometrium. Part of the broad ligament of the uterus fixating its cervix is called the transversal (cardial) ligament of the uterus. The anterior layer of the large ligament of the uterus covers the round ligament of the uterus (lig. teres uteri) which stretches from the corner of the uterus, passes via the deep inguinal ring, comes up to the pubic symphysis and fixates on the mons pubis to the tub. pubicum.

The **blood supply** to the uterus includes the uterine, ovarian arteries and the arteries of the round ligament of the uterus. The uterine arteries run from internal iliac artery (a. iliaca interna s. a. hypogastrica) the ovarian — from the aorta, and they enter the broad ligament of the uterus via the ligament which supports the ovary. The uterine artery stretches along the uterine rib; on the level of the orificium internum uteri it divides into two branches - the ascending and descending branch, which in turn give off branches to the broad and round ligament, Fallopian tubes, ovary and superior portion of the vagina. At about 1-2 cm from the uterus the uterine artery crosses with the ureter and branches off again (ramus uretericum).

The ureters cross with the ovarian vessels, located above them on the level lin. innominata. They go retroperitoneally to the broad ligament of the uterus attaching to its posterior layer then descending entering into the parametrium behind the uterine arteries crossing it transversally. Then the ureters almost close adjoins the anterior vaginal fornix and comes to the cervix in front of the the urinary bladder (from the right - 102 cm; from the left - 2-3 cm).

Lymph outflow from the uterus into the superficial inguinal nodes, external iliac, lateral sacral, paraaortal and paracaval lymph nodes.

The uterine **innervation** is provided mainly by sympathetic nervous system. Parasympathetic nervous system is represented by the branches of the middle inferior pelvic plexus and by the second, third and fourth pairs of the sacral nerves.

Clinical meaning. The uterus is one of the organs of the female reproductive function. The development or acquired defects (for example, Ashermann's syndrome) may be the reason for reproductive dysfunction. The endometrium is the most frequent localization of cancer in women. Benign tumoral processes, leiomyomae and adenomyosis, develop often in the myometrium.

The **uterine appendages** include the Fallopian tubes and ovaries.

The **Fallopian tube (tuba uterina, s. tubae Fallopii)** is a pair organ stretching from the uterus to the ovaries; it performs transportation of the ovocytes into the cavity of the uterus. It is approximately 10 cm long; its caliber differs from 0.5-10 mm to 5-8 mm in

different portions. They differentiate the uterine portion of the tube - the narrowest portion, isthmus, ampule and infundibulum (the broadest portion).

The wall of the tube consists of three membranes, external (serous), middle (muscular) and internal (mucous). The serous membrane of the uterine ligament which forms the mesosalpinx. There is the subserous layer of connective tissue under serous membrane. It contains vessels and nerves. The muscles of the Fallopian tube consists of the internal circular and external longitudinal layers which supply its peristaltic contractions. The mucous membrane of the uterus forms longitudinal tubular folds and it is laid with monostratal columbar ciliated epithelium with goblet glands.

The infundibulum of the Fallopian tube is the broadest portion of the tube. There is an orifice opening into the peritonium with a caliber from 5 to 10 mm in it. There are a great number of the fimbriae of the tube around the opening. The largest fimbria is called the ovarian fimbria. These structures may form small fimbrial cysts, hydatids, which are mesonephral by origin. Such rudimentary formations as epoophoron and its longitudinal duct (ductus Gartneri) and paraophoron start from mesonephros. Distention intraligamental and nearovarian cysts and malignant tumors can form these formations.

Innervation of the Fallopian tubes is provided by the branches of the pelvic and ovarian parasympathetic and sympathetic ligaments.

Clinical meaning. Tubal pregnancy, salpingitis (mainly of gonococcal and chlamydial etiology), perisalpingitis (often of streptococcal etiology) are the most often pathological process in the Fallopian tubes. Tubal deformity with formation of commissures because of infection may be the reason of infertility. Primary tubal cancer is met very rarely.

Ovary (ovarium, oophoron) is the female sexual gland, a pair oval organ. Its sizes vary during reproductive period; it is 2.5 cm to 5 cm long; 1.5 to 3 cm broad and 0.6-1.5 cm thick. After menopause the ovarian sizes decrease significantly. The ovary is attached to the broad ligament of the uterus with the mesovarium. During the uterine corner it is connected by the proper ovarian ligament (lig. ovarii pro-prium), with the pelvic lateral wall by the suspensory ligament of the ovary (lig. suspensorium ovarii). They distinguish two surfaces in the ovary, the internal surface facing to the abdominal cavity and the external surface facing to the pelvic wall; two ends, the uterine and pelvic; two margins, the convex free (margo liber) and mesovarian (margo mesovaricus). In the area of the mesoovarian margin the ovarian hili are located (hilium ovarii), the vessels and nerves enter the ovary via them.

On the ovarian section one can see the external layer, a cortical substance of the ovary and the internal layer, a medullar substance of the organ.

The external layer, laid with the germinal epithelium is called the tunica albuginea. The ovarian stroma is located under it (stroma ovarii), it is the area of follicles, of different stages of development. The free surface of the ovary is laid with monostratal cubical epithelium.

The follicles increase as they mature. Tertiary (dominant, Graafian) follicle reaches the ovarian surface, ruptures, pushes out the ovum via stigma and then it luteinizes through the retention of the follicular liquid and forms the corpus luteum, the function of which is

the progestins secretion and the organism preparation for the impregnated ovum implantation. The hormones secretion (mainly progestins, oestrogens and androgens) is effected by endocrinocytes (luteinocytes and thecal endocrinocytes) of the corpus luteum. In the course of time the corpus luteum hyalizes and forms the white body (corpus albicans).

A newborn girl has 100,000 of primary (primordial) follicles, but only 400 of them can mature. But in every cycle during the reproductive period several follicles can start to develop and produce hormones; later they will be subject to atresia and absorbed.

Clinical meaning. The function of the ovaries is the production of hormones and development of the ovum for fertilization and pregnancy. This function is depended upon many factors. Benign and malignant tumors often develop in the ovary. The ovarian torsion may result in its necrosis. Infectious damages of the ovary may develop in climacterium.

Physiologic position of the female internal genitalia is kept by fixating, supporting and suspending apparatuses. Supporting the uterus and uterine appendages in physiologic position, they afford their mobility in considerable limits, what is important for normal development of pregnancy and course of labour.

Physiological changes of female genitals in different age periods. Neuroendocrine regulation of reproductive system function.

The Female Reproductive Cycle

Towards the end of puberty, girls begin to release eggs as part of a monthly period called the female reproductive cycle, or menstrual cycle (menstrual referring to "monthly"). Approximately every 28 days, during ovulation, an ovary sends a tiny egg into one of the fallopian tubes. Unless the egg is fertilized by a sperm while in the fallopian in the two to three days following ovulation, the egg dries up and leaves the body about two weeks later through the vagina. This process is called menstruation. Blood and tissues from the inner lining of the uterus (the endometrium) combine to form the menstrual flow, which generally lasts from four to seven days. The first period is called menarche. During menstruation arteries that supply the lining of the uterus constrict and capillaries weaken. Blood spilling from the damaged vessels detaches layers of the lining, not all at once but in random patches. Endometrium mucus and blood descending from the uterus, through the liquid creates the menstruation flow.

Menstrual cycle

The reproductive cycle can be divided into an ovarian cycle and a uterine cycle (compare ovarian histology and uterine histology in the diagram on the right). During the uterine cycle, the endometrial lining of the uterus builds up under the influence of increasing levels of estrogen (labeled as estradiol in the image). Follicles develop, and within a few days one matures into an ovum, or egg. The ovary then releases this egg, at the time of ovulation. After ovulation the uterine lining enters a secretory phase, or the ovarian cycle, in preparation for implantation, under the influence of progesterone. Progesterone is produced by the corpus luteum (the follicle after ovulation) and enriches the uterus with a

thick lining of blood vessels and capillaries so that it can sustain the growing fetus. If fertilization and implantation occur, the embryo produces Human Chorionic Gonadotropin (HCG), which maintains the corpus luteum and causes it to continue producing progesterone until the placenta can take over production of progesterone. Hence, progesterone is "pro gestational" and maintains the uterine lining during all of pregnancy. If fertilization and implantation do not occur the corpus luteum degenerates into a corpus albicans, and progesterone levels fall. This fall in progesterone levels cause the endometrium lining to break down and sluff off through the vagina. This is called menstruation, which marks the low point for estrogen activity and is the starting point of a new cycle.

Common usage refers to menstruation and menses as a period. This bleeding serves as a sign that a woman has not become pregnant. However, this cannot be taken as certainty, as sometimes there is some bleeding in early pregnancy. During the reproductive years, failure to menstruate may provide the first indication to a woman that she may have become pregnant.

Menstruation forms a normal part of a natural cyclic process occurring in healthy women between puberty and the end of the reproductive years. The onset of menstruation, known as menarche, occurs at an average age of 12, but is normal anywhere between 8 and 16. Factors such as heredity, diet, and overall health can accelerate or delay the onset of menarche.

Menstrual function regulation.

The activity of reproductive system is to reproduce, preservation of the species, that causes its ultimate reliability. Reproductive system as well as other systems of the organism is functional and is based on hierarchical principle consisting of 5 central and peripheral levels of regulation interacting by the direct and retroaction connections model.

I level of regulation – suprahypotalamic cerebral structures. The classical example of the cyclic process in female organism in the maturity period is ovario-menstrual cycle.

II level of reproductive system regulation - hypophysiothropic zone of mediobasal pituitary gland. A pulsing secretion of hypothalamic releasing-hormones(HRH) in the neurons of arcuate nucleus in circadian regimen occurs. The neurosecretion.(HRH) is transmitted to the portal system through the axons of nervous cells and is transported to the frontal part of pituitary gland with blood

III level of regulation – adenohipophysis (the frontal part of the pituitary gland). The secretion of gonadotropic hormones is performed in adenohipophysis; luteinizing one(LH), folliclestimulating(FSH), prolactine(PI), thyrotrophic hormon or thyrotropin(TH or TTH), somatotrophic hormon or somatotropin(STH), adenocorticotrophic hormon or corticotropin(ACTH), melanocyststimulating hormon of melanotropin(MSH).

IV level of reproductive system regulation is ovarian. Cyclic changes in ovaries are called ovarian cycle. In the first phase primordial follicle develops, at the second one

Luteal follicle develops from the cells of Graafian follicle (the follicle where the process of ovulation occurred) endocrine gland – yellow body is formed.

Organs and target organs (genitals, mammary glands, hair follicles, skin, fat tissues) belong to the V level of regulation. The cells of these organs have receptors to sex hormones (estradiol, progesterone, testosterone). The amount of steroid hormones in blood changes depending on the phase of menstrual cycle. The molecule of hormone is taken by the cytoplasmic receptor and complex hormone-receptor is transported to the cell nucleus. In the nucleus the complex is attached to the chromatin, which regulates the processes of transcription. Cyclic adenosinomonophosphat (cAMP) and prostogladines also belong to the V level of reproductive system which act as intracellular regulators. On the V level of regulation cyclic changes are mostly marked in endometrium (uterine cycle), the process of its preparation to menstruation or implantation is on.

Menstrual dysfunction may result from intense production of estrogen and progesterone by the functional cyst of ovaries (for example in yellow body persistence etc.).

The age of menarche (the first menstruation in life) normally ranges from 10 to 16 years old and on average is 12-13. Stabilization of ovulatory menstrual cycle is characterized by regular, cyclic menstruations with 24-35 day intervals, the bleeding duration is 3-8 days and general loss of blood about 30-80 ml.

I. Instrumental examination methods: probing of uterus, curettage of uterine cavity, biopsy, puncture of abdominal cavity through posterior vaginal fornix.

1. **Probing the uterus** is performed under aseptic and antiseptic. It allows you to specify the length of the uterus, cervical canal patency, stenosis and atresia, partitions, fibroids. Probing is used not only for diagnostic purposes, but before endometrial curettage, abortion. Sounding the uterus is contraindicated in acute and subacute inflammatory diseases of the vagina, uterus and appendages, when establishing or suspected pregnancy.

2. **Fractional diagnostic curettage** of the mucous membrane of the cervix and uterine body channel is performed to determine the state of the mucous membrane in benign and malignant processes (hyperplasia, precancerous lesions, cancer). First, scrape the mucous membrane of the cervical canal, then the body of the uterus. Scrapings are collected separately in receptacles with formalin, labeled and sent for histological examination.

3. **Biopsy** is performed in pathological processes, suspected malignancy localized in the area of the cervix, vagina, external genitals and the uterus. Material is taken by excision with a scalpel on the border of healthy tissue and the altered area.

4. **Aspiration biopsy** is performed by Brown syringe in inpatient and outpatient. Get the endometrium of the uterus from different departments (bottom corners). From the resulting material make smears on a slide.

5. **Aspiration curettage** is performed with a special hollow curette, connected to a vacuum pump. Aspiration curettage has advantages over the endometrial mucosa of the uterus due to scraping without traumatization of tissue at the possibility of re-use and during the menstrual cycle.

II. Endoscopic examination methods: colposcopy, hysteroscopy, laparoscopy.

1. Colposcopy - method of diagnosis of pathological states vaginal of the cervix, cervix, vagina and external genitalia. With the help of a colposcope inspect the mucous membranes of the vagina and the cervix, vulva, produce biopsy. To evaluate the pathological focus in the dynamics method is used repeatedly, it is harmless. It uses simple (review), enhanced, color (chromocolposcopy) and fluorescent colposcopy. Simple colposcopy estimated, determine the shape and size of the vaginal w / uterus, the external os, color and relief of the mucosa, the transition zone of a flat columnar epithelium, vascular pattern. Extended colposcopy based on the use of pharmacological agents to detect changes in the tissue level of the cell and its components. 3% solution of acetic acid, 0.5% solution of salicylic acid causes swelling of the epithelium of the cervix. Lugol solution (Sheeler test) reveals tumor and premalignant sites consisting of depleted glycogen cells: cells containing a sufficient amount of glycogen (normal), painted in a dark brown color, with a deficit of glycogen cells (pathological) remain pale.

2. Hysteroscopy - the uterine cavity examination method using an optical instrument (hysteroscope) inserted into the uterus through the cervical canal. Highly informative method for the diagnosis of intrauterine pathology (as compared to MSG, US), allowing to make surgery. Environment for distention is 30-70% solution of dextran, 5-10% solution of dextrose and carbon dioxide. According to its purpose diagnostic hysteroscopy is divided into (establishment of intrauterine pathology), surgical (operational) and control (evaluation of the effectiveness of therapy).

- **Indications for hysteroscopy:** AUB, infertility, developmental abnormalities, intrauterine adhesions, submucous uterine fibroids, uterine cavity examination and cervical canal after the abortion and haemorrhage after caesarean section, plastic surgery on the uterus, endometrial hyperplasia, polyps, foreign bodies in the uterus (IUD), aiming biopsy, monitoring the effectiveness of therapy, endometriosis, uterine tuberculosis.
- **Contraindications:** acute infectious processes, pregnancy, heavy uterine bleeding, suspected cancer of the cervix and uterine body, severe somatic diseases. hysteroscopy technique involves the preparation and examination of the patient for surgery, the choice of anesthesia method (intravenous anesthesia), carrying out the procedure. Complications: exacerbation of chronic inflammatory disease, uterine perforation, uterine rupture, bleeding, air embolism, vascular overload, thermal lesions of the pelvic organs, anaphylactic shock.

3. Laparoscopy - osmotr abdominal organs and pelvis using the laparoscope through the anterior abdominal wall, in the background pneumoperitoneum used oxygen, nitrous oxide or carbon dioxide. Laparoscopy involves the steps of: abdominal wall puncture needle, the introduction of gas through it to create a pneumoperitoneum, trocar laparoscope, viewing pelvic and abdominal surgery, removal of the endoscope and gas removal. Laparoscopy is done for diagnostic and surgical purposes is carried out in a planned or emergency basis. Indications for routine diagnostic laparoscopy, infertility, dif. diagnosis of tumors of

internal genital malformations of internal genital organs, sklerokistoz ovarian ectopic, pregnancy.

- **Indications for emergency laparoscopy:** a suspicion of uterine perforation, cyst capsule rupture, piosalpins, ovarian torsion leg tumor, ovarian rupture, pipe miscarriage, dif. Diagnosis of acute adnexitis, ectopic pregnancy and appendicitis.
- **Contraindications:** decompensation of somatic diseases, extensive adhesions, acute infectious diseases. Complications: emphysema, damage of the abdominal cavity needle or trocar, vascular injury, complications of anesthesia.

III. Ultrasound examination methods in gynecology.

US - the leading method of research in gynecology: screening, non-invasive, harmless, highly informative, relatively simple, affordable. With this method it is possible to visualize and evaluate the condition of the pelvic organs: the bladder, uterus, ovaries, vagina proximal department rektosigmoidalny thick intestine, muscle, and blood vessels of a small basin. Ultrasound does not require special preparation of the patient, only filling bladder bubble.

This method is highly informative studies (assessment of the pelvic organs in severe adhesions, accurate topical diagnosis of education, the use in women with metabolic disorders, flatulence, abdominal pain), there is no need for filling the bladder. Preferred is in urgent gynecology. Ultrasound is now complemented by Doppler studies for blood flow in the arteries and veins of the internal reproductive organs to diagnose tumors, genesis of infertility, other endocrine diseases.

IV. Radiological examination methods: MRI, CT, MSG.

With the development of ultrasound and endoscopic methods of X-ray diagnostics was used less frequently.

The following types of x-ray studies are used in gynecology: hysterosalpingography, pnevmopelviografiya, contrast peritoneografiya, vaginografiya, phlebography, arteriography and lymphography pelvis and retroperitoneal space, X-rays of the skull, the adrenal glands.

1. Hysterosalpingography (MSG) - a radiological method isledovanija, allowing to determine the status of the uterus and fallopian tubes. MSG is carried out on 8-12 day of the menstrual cycle, for the diagnosis of CIN MSG - 23-24 days. A study carried out with X-ray contrasting solutions: liposoluble (lipildol), water-soluble (urografin) and vodnoviskoznymi (polyvidone, medopak). Preparation of the patient includes: a survey to assess the general condition and exclusion of inflammation, intestinal cleansing and emptying of the bladder, the introduction of antispasmodics for 30 minutes. prior to the study. Perform 2 shots: 1 after the uterine cavity filling contrast agent, 2- after the new administration of contrast.

Indications: uterine infertility options, suspected tuberculosis, internal genitalia anomalies, monitor the effectiveness of plastic surgery on the uterus and tubes, tumors and uterine polyps, endometrial hyperplasia, suspected malignancy. Contra-indications:

feverish conditions of different etiology, acute and subacute inflammatory processes, pregnancy, DMK, decompensated somatic diseases. Complications: 1) early (reflux vascular, lymphatic reflux pipe rupture, perforation of the uterus, and allergic reactions); 2) recent (acute inflammation).

2. X-ray examination of the skull is used for the diagnosis of neuroendocrine diseases. X-ray study of the shape, size, sella circuits are used for the diagnosis of pituitary tumors.

3. Computer tomography (CT) is based on the change in the intensity of x-ray radiation as it passes through different densities of tissue. Computed tomography provides a complete picture of the organ or the pathological focus, which explores quantitative information on the layer thickness and the nature of the lesion. With the help of computer tomography can obtain reflected longitudinal study area, rekonstruktirovat slice and get it in any plane. Currently, imaging region sella reveals small tumors located intrasellyarno and non-deformable wall of the sella. Radiation exposure during CT is lower than with other methods of x-ray studies.

V. Methods of functional diagnostics of ovarian condition.

To evaluate the functional state of the ovaries using cytological examination of vaginal smears, cervical mucus study of channel, measurement of basal body temperature.

1. Cytology vaginal smears based on the definition in these specific kinds of vaginal epithelium. Surface flat layered neorogovevayuschii vaginal epithelium -gormonozavisim is the target organ. When 2-phase ovulatory menstrual cycles in vaginal smear are found in different proportions superficial and intermediate epithelial cells. In the assessment of the proportion of the surface stratum and the total number of superficial cells based calculation kariopiknoticheskogo index (CPI). In the follicular phase of the normal menstrual cycle is 25-30% of the CPI, during ovulation - 60-70%, in the phase of development of the corpus luteum - 25-30%. With this! the method can determine the woman's hormonal background (estrogen deficiency, hyperandrogenism), hormone treatment to control, diagnose, and to justify hormone miscarriage in early pregnancy, to make selection OK DMK treatment, the premenstrual syndrome.

2. "Pupil Symptom" - the amount of mucous secretion in the cervical canal, reflects the production of estrogen by the ovaries. Based on the expansion of the external opening of c / channel and it appears in a transparent glassy mucus. Determined during the inspection w / uterus in the mirror, the external os resembles a zrachek. Symptom "pupil" depending on its degree is estimated at points (1.3): negative (-), weak positive (+), positive (++) , rezkopolozhitelny (+++). The greatest amount of mucus is observed at the time of ovulation, the smallest - before menstruation. No symptoms of the pupil indicates a weak estrogenic effects, long rezkovyrazhenny symptom - of hyperestrogenism. The test gives an indication of the form of the MQM, premenstrual syndrome and other endocrine disorders. The test is not characteristic pathological changes of the cervix.

3. Symptom "fern leaf" is based on the crystallization of cervical mucus deposited on a glass slide. The crystallization of the mucus occurs in the presence of mucin by the action of estrogen, a symptom can be set between 7-20 day of a normal menstrual cycle, reaching

its highest development at the time of ovulation, there is no before menstruation. Estimated in points (1-3): negative (-), weak positive (+), positive (++), zerkopolozhitelny (+++).

4. **Symptom tension of cervical mucus** - a simple and informative method of determining the body's estrogen saturation. Kortsangom take cervical mucus and by diluting the jaws define its elasticity (stretchability). Pulling mucus more than 6-8 cm. Evidence of sufficient estrogen saturation.

5. **The basal temperature test** is based on hyperthermal effects of progesterone on the thermoregulatory center. Change the basal body temperature (rectal morning) allows you to establish the presence, severity and duration of the progesterone phase. In the normal menstrual cycle, the basal temperature rises by 0.4-0.8 in the progesterone phase. Measuring basal body temperature is made within 2-3 months. With this test it is possible to judge about ovulation and anovulation, the shortening of the luteal phase, nedortatochnosti corpus luteum function.

VI. Laboratory diagnostics: oncocytopology, bacterioscopy, bacteriology, ELISA, PCR, pathomorphological examination.

Along with common laboratory tests: general blood and urine tests, blood chemistry, blood test group and Rh factor, coagulation (determination of blood clotting), there are specific tests in gynecology, which include: analysis on TORCH-complex (identification of woman's blood antibodies to rubella, herpes, toxoplasma, cytomegalovirus and chlamydia), a hormonal screening, microbiological diagnostic methods, enzyme-linked immunosorbent blood analysis, polymerase chain reaction, a pregnancy test, a blood test for the presence of tumor markers.

Identification hormone concentration in the blood (hormonal screening)

This diagnostic method allows to identify endocrine pathology. Hormonal screening can reliably assess the nature of the basal secretion of steroid and tropic hormones in a woman's blood. In this study the level of hormone activity in the different phases of the menstrual cycle (study performed prolactin, gonadotropins (LH, FSH), testosterone, estradiol, cortisol, thyroid hormones (T3, T4), and many others).

Microbiological diagnostic methods

ELISA, or enzyme-linked immunosorbent blood test

Immunoassay blood is more accurate (compared with a microbiological method) research method. This method of diagnosis other than to identify the etiology of the pathogen can also identify the stage of pathological process (acute, subacute, chronic, reinfection, subsidence of the pathological process, the traumas of the inflammation process).

Polymerase chain reaction - PCR (or method of DNA-diagnostics)

PCR is the most accurate method of reliable diagnosis of infectious and inflammatory diseases (but also the most expensive). In carrying out this reaction from biological material (vaginal swab, urine, blood) being withdrawn microorganism DNA fragment. PCR has a high degree of diagnostic accuracy and detect a wide range of pathogens (protozoa, bacteria, fungi, viruses).

Pregnancy test

It is used for the diagnosis of pregnancy. It is based on the identification in the urine of pregnant women chorionic gonadotropin, which is produced by the embryo in the first weeks of pregnancy.

A blood test for the presence of tumor markers

This assay is non-specific, is appointed in cases of suspicion of the presence of ovarian cysts, malignant neoplasms of the female reproductive organs, therefore, it requires repeated repetition and additional diagnostic techniques.

VII. Additional examination methods in gynecology.

Morphological (histologic) methods.

Biopsies obtained from the cervix, uterus, ovaries necessarily subject to histological examination. Material prepared by various gynecological operations.

1. Biopsy - vivo excision of a small piece of tissue for microscopic examination. Produce in pathological processes, suspected malignancy with in the area of the cervix, vagina, external genitals and take material by excision with a scalpel on the border of healthy tissue and the altered portion is collected in containers filled with formalin, labeled and sent for histological examination.

2. Split (fractional) diagnostic curettage of the mucous membrane of the cervix and uterine body channel produce to ascertain the condition of the mucous membrane in benign and malignant processes (cyclic changes, hyperplasia, precancerous changes, endometrial cancer, cervix). The operation is performed in a hospital under obzbolivaniem. Vnachale scrape mucous membrane of the cervical canal, then the body of the uterus. Scrapings are collected separately in receptacles with formalin, labeled and sent for histological examination.

An examination is required, which is carried out in a planned manner

Algorithm for performing practical skills.

Bimanual (vaginal) examination:

- 1) to introduce to the patient;
- 2) to identify the patient (name, age);
- 3) to inform the patient about the need for research;
- 4) to explain to the patient how the study is conducted;
- 5) to obtain permission to conduct research;
- 6) wash your hands;
- 7) wear inspection gloves;
- 8) with the first and second fingers of the left (right) hand to spread the labia majora, the middle finger of the "dominant" hand to place at the level of the posterior adhesion, gently press on it to open the entrance to the vagina;

- 9) carefully and slowly insert the middle finger, then the index finger into the vagina along the posterior wall to the vault and cervix, bring the fourth and fifth fingers to the palm, the thumb to the top;
- 10) determine the length of the vaginal part of the cervix in centimeters;
- 11) determine the consistency of the cervix (dense, soft);
- 12) determine the patency of the outer os of the cervical canal (closed, passes the fingertip);
- 13) assess the pain of the cervical os;
- 14) carefully place the second palm on the abdomen (above the symphysis) and press moderately to determine the bottom of the uterine body;
- 15) bring the body of the uterus between two hands and determine:
 - position of the uterus relative to the cervix (anteflexio, retroflexio);
 - body size of the uterus (normal, reduced, enlarged);
 - consistency of the uterine body (dense-elastic, soft, compacted);
 - mobility of the uterine body (relatively mobile, limited mobility);
 - sensitivity to palpation (painful, painless);
- 16) place the fingers in the bottom of the right lateral arch and using both hands to palpate the right vaginal arch and the right appendages of the uterus, determine their size, mobility and pain;
- 17) place the fingers in the bottom of the left lateral arch and using both hands to palpate the left vaginal arch and the left appendages of the uterus, determine their size, mobility and pain;
- 18) determine the capacity of the vaginal vaults;
- 19) inform the patient about the results of the study;
- 20) thank the patient;
- 21) remove inspection gloves;
- 22) wash your hands.

Clinical examination of the mammary glands:

- 1) to introduce to the patient;
- 2) identify the patient (name, age);
- 3) to inform the patient about the need for research;
- 4) explain to the patient how the study is conducted;
- 5) obtain permission to conduct research;
- 6) wash your hands;
- 7) wear inspection gloves;
- 8) examine the mammary glands, assess their shape, skin color, nipples, areas around the nipple (asymmetry, retraction, etc.);
- 9) examine the tissue of the mammary glands clockwise or in quadrants and determine its density, homogeneity, sensitivity, presence / absence of bulky tumors;
- 10) at detection of a new growth to define its form, the sizes, a consistence, borders of formation, mobility, a parity with fabric of a mammary gland, morbidity;

- 11) palpation of lymph nodes in the supraclavicular, subclavian and axillary areas;
- 12) to determine the presence of pathological secretions from the mammary glands;
- 13) inform the patient about the results of the study;
- 14) thank the patient;
- 15) remove inspection gloves;
- 16) wash your hands.

3.3. Requirements for the results of work, including before registration.

- Collect general and special history, an allocation of a typical case-patient data.
- To appoint examination- Analysis and discussion of the results of the patient's examination.
- Show the phantom method of physical examination on organ systems.
- Show on phantom gynecological examination.
- Demonstrate phantom performance tests of functional diagnostics, fractional diagnostic curettage of the uterus.
- 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 lesson: tasks, tasks, tests, etc.

Atypical situational tasks:

1. A woman, 48 years old, addressed a family doctor with complaints of bleeding from sexual pathways. From anamnesis: menstruations since 14 years old, stabilized at once, for 4-5 days every 28 days, moderate, painless. During the last 2 years interval between mensruations is 2-3 months. 15 days ago after a 2-months absence of menstruation a bleeding started and still continues. On examination: skin and visible mucous membranes are pale, Ps – 76 beats/min, BP – 110/80 mm Hg, hemoglobin - 100 g/l. Abdomen is soft, painless on palpation. On bimanual examination no pathology of internal genital organs is revealed.

Make the right diagnosis.

What methods of examination can help to confirm diagnosis?

Make plan of treatment of the patient.

2. Patient A, 23 years old, addressed with complaints of discomfort, itching in external genital organs. She is ill for 5 days. From anamnesis: sexual life since 21 years old. She had two pregnancies, one of which ended with labor, and the other - medical abortion. She denies gynecological diseases.

Objectively: general condition of the patient is satisfactory. Temperature - 36,5°C. Pulse - 86 beats/min, of satisfactory properties. BP- 115/70 mmHg. Skin and visible mucous membranes are of usual color. Abdomen is soft, painless. Physiological evacuation is normal. Speculum examination: sharp hyperemia and edema of mucous of vagina and cervix. In posterior vault of vagina there is cheesy milk-white discharge. The same

discharge is in external os and urethra. Bimanual examination: vagina of a parous woman. Uterine cervix is of cylindrical shape, external os is closed, shifting of uterine cervix is painless. Uterus is of usual size, dense, mobile and painless. The appendages of uterus on both sides are not enlarged, painless. Vaginal vaults are painless. Microscopic analysis: analysis of microflora from vagina, cervical canal and urethra revealed plentiful leucocytes, mixed microflora and Candida.

Make the right diagnosis.

What methods of examination can help to confirm diagnosis?

Make plan of treatment of the patient.

Test tasks KROK-2:

1. Patient K., 30 years old, with symptoms of nausea, vomiting in the morning, and drowsiness for the past two weeks. She has delivery 6 month ago and lactation amenorea now. She was not warned about pregnancy. Which of the methods should be used to clarify the diagnosis?
 - A. Two-handed vaginal examination
 - B. Ro-graphy of the pelvic organs
 - C. Palpation of the mammary glands and squeezing milk
 - D. Ultrasound examination *
 - E. Research with the help of mirrors
2. A 24 year old woman, married, decided to conceive and stopped taking oral contraceptives. After the last one, she had one menstruation and then for 2 months she has amenorrhea. With what test should a doctor begin her examination?
 - A. Computer tomography of the head
 - B. HCG (human chorionic gonadotropin)
 - C. Serum testosterone
 - D. Progesterone test *
 - E. Ultrasound of the organs of small pelvis and mammary glands

IV. Summing up (criteria for evaluating learning outcomes).

Current control: oral examination, testing, assessment of practical skills, solving situational clinical problems, assessment of activity in the classroom, etc.

The structure of the current assessment in the practical lesson:

1. Assessment of theoretical knowledge on the topic of the lesson:
 - methods: survey, solution of situational clinical problem;
 - maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.
2. Assessment of practical skills and manipulations on the topic of the lesson:
 - methods: assessment of the correctness of practical skills;

ONMedU, Department of Obstetrics and Gynecology. Practical lesson №1. Clinical anatomy and physiology of the female genital organs. Methods of examination of gynecological patients. General semiology in gynecology.

- maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.

3. Evaluation of work with the patient on the topic of the lesson:

- methods: assessment: a) communication skills of communication with the patient, b) the correctness of the appointment and evaluation of laboratory and instrumental studies, c) compliance with the algorithm for differential diagnosis d) justification of clinical diagnosis, e) treatment plan;

- maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.

Criteria for evaluating the learning outcomes of students during the practical class:

«5»	It is presented to a student who systematically worked during the semester, showed during the exam versatile and deep knowledge of the program, is able to successfully perform the tasks provided by the program, mastered the content of basic and additional literature, realized the relationship of individual sections of the discipline, their importance for future profession. showed creative abilities in understanding and using educational material, showed the ability to independently update and replenish knowledge; level of competence - high (creative);
«4»	It is presented to a student who has shown full knowledge of the curriculum, successfully performs the tasks provided by the program, mastered the basic literature recommended by the program, showed a sufficient level of knowledge in the discipline and is able to independently update and update during further study and professional activities; level of competence - sufficient (constructive-variable)
«3»	Exhibited to a student who has shown knowledge of the basic curriculum in the amount necessary for further study and further work in the profession, copes with the tasks provided by the program, made some mistakes in answering the exam and when performing exam tasks, but has the necessary knowledge to overcoming mistakes under the guidance of a research and teaching staff; level of competence - average (reproductive)
«2»	Exhibited to a student who did not show sufficient knowledge of the basic curriculum, made fundamental mistakes in performing the tasks provided by the program, cannot without the help of the teacher to use the knowledge in further study, failed to master the skills of independent work; level of competence - low (receptive-productive)

LIST OF RECOMMENDED EDUCATIONAL LITERATURE

Basic:

Methodical development of a practical lesson, OPP "Medicine", 4th year, international faculty.
Discipline: "Obstetrics and Gynecology".

1. Zaporozhan V.M., Miwenko V.P. Collection of test tasks for clinical paints: science-medical collection. - Odessa: Odessa state medical university, 2008.- 176 p.s- Language: eng.
2. The Linde's operative gynecology - John A.Rock, 2003
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