MINISTRY OF HEALTH OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Faculty international

Department of Obstetrics and Gynecology

CONFIRMED by
Vice-rector for scientific and pedagogical work
Eduard BURIACHKIVSKYI
«01»September 2023

METHODOLOGICAL RECOMMENDATIONS FOR THE PRACTICAL LESSON FROM ELECTIVE DISCIPLINE

Faculty international, 5th year

Elective discipline «SIMULATION TRAINING IN OBSTETRICS AND GYNECOLOGY».

Practical lesson № 7 Providing manual assistance during childbirth with pelvic presentation.

Approved

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

Protocol No. 1 of August 28, 2023.

Head of the Department (Ihor GLADCHUK)

Developed by:
Ph.D., Associate Professor Shytova G.V.

Ph.D, Associate Professor Pavlovska O.M.

Ph.D, assistant Tarnovska G.P.

Ph.D, assistant Zhovtenko L.V.

Practical lesson № 7 Providing manual assistance during childbirth with pelvic presentation.

LEARNING OBJECTIVE is to gain basic knowledge about management of breech presentation, the mechanism of labor in breech presentation, manual assistance in breech presentation.

BASIC CONCEPTS:

Types of breech presentation

Factors that may contribute to a fetus being in a breech presentationDiagnostic criteria for breech presentation at external examination Diagnostic criteria for breech presentation at vaginal examination Pregnancy management of breech presentation Mechanism of labor in breech presentationManual assistance in breech presentation

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

- **ORGANIZATIONAL STAGE**

- greetings
- checking attendees
- defining of educational goals
- providing of positive motivation

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

- **Requirements for the theoretical readiness of students to performpractical classes.**

Knowledge requirements:

SC1. Ability to collect medical information about the patient and analyze clinical data

SC 2. Ability to determine the necessary list of laboratory and instrumental studies andevaluate their results

SC 3. Ability to establish a preliminary and clinical diagnosis of the disease

SC 4. Ability to determine the necessary regime of work and rest in the treatment andprevention of diseases

SC 5. Ability to determine the nature of nutrition in the treatment and prevention ofdiseases

SC 6. Ability to determine the principles and nature of treatment and prevention ofdiseases

SC 8. Ability to determine tactics and provide emergency medical careSC 9. Ability to carry out medical evacuation measures

SC 14. Ability to plan and carry out preventive and anti-epidemic measures for infectiousdiseases

List of didactic units:

Fetal orientation

Types of breech presentation
Obstetric examination
Diagnostic criteria for breech presentationPregnancy management
Mechanism of labor in breech presentationManual assistance in breech presentation

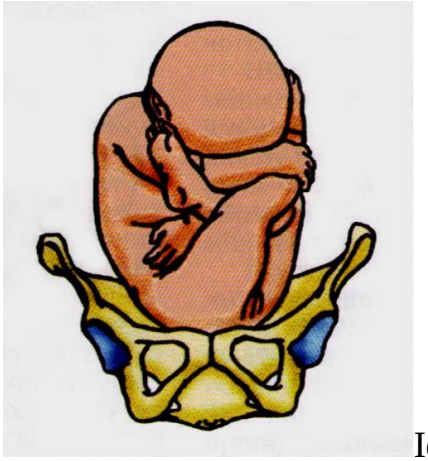
- **Questions (test tasks, tasks, clinical situations) to test basic knowledge onthe topic of the class.**

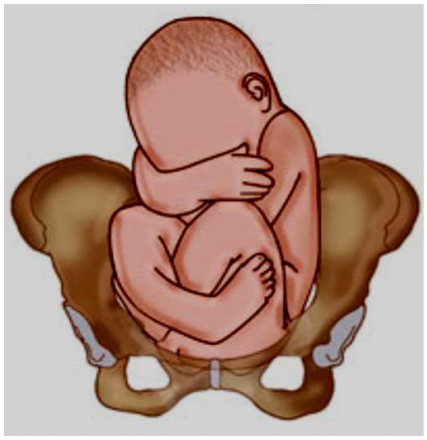
Questions:

- What is complete breech presentation?
- What is frank breech presentation?

- What is single footling breech presentation?
- What is double footling breech presentation?
- What is kneeling breech presentation?
- What are diagnostic criteria for breech presentation at external examination?
- What are diagnostic criteria for breech presentation at vaginal examination?
- What are possible complications of breech presentation during pregnancy?
- What are possible complications of breech presentation during vaginal delivery?
- What are cardinal movements of the fetus during vaginal delivery in case ofbreech presentation?

Tasks

-  Identify the fetal orientation in the uterus.
- Identify the fetal orientation in the uterus.



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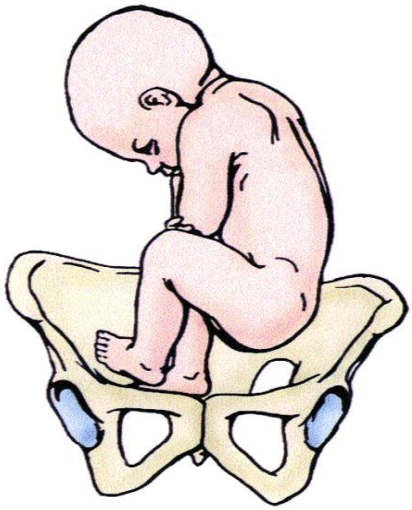
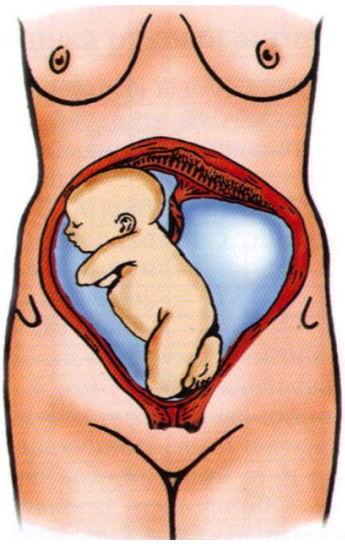


- Identify the fetal orientation in the uterus.



- **FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).**
- **Content of tasks (tasks, clinical situations, etc.).Interactive task:**

Students of the group are divided into 2 subgroups of 3-4 people each.

Tasks for the students of Subgroup I:

- to perform obstetric abdominal examination
- to determine fetal presentation and position
- to perform manual assistance in breech presentation (Tsovyanov I)
- to perform manual assistance in foot presentation (Tsovyanov II)
- to perform manual assistance if delivery of the fetal head delays (Mauriceau-Leuvret maneuvre)

Task for the students of Subgroup II:

- to assess answers of the students of Subgroup I and make adjustments.

Clinical situation A

A 40 year-old primigravida has weak labor activity for 10 hours. The gestation age is 40 weeks. Pelvis size is 25-28-31-17 cm. Abdominal circumference is 100 cm, fundal height is 38 cm. Fetal heart rate is 115/min., auscultated on the right above the navel, closer to the linea nigra. Internal obstetric examination: cervical dilation is 6 cm, amniotic sac is intact.

Identify the fetal orientation in the uterus.

What is the optimal mode for delivery in this clinical case?

Clinical situation B

A multigravida at 35-36 weeks of gestation arrived at the maternity ward. Labor activity is normal. Pelvis size is 26-29-30-21 cm. Fetal heart rate is 148/min., auscultated on the left above the navel, closer to the lateral abdominal wall. Abdominal circumference is 95 cm, fundal height is 33 cm. Internal obstetric examination revealed cervical effacement, opening by 8-9 cm. Amniotic sac is absent. Fetal buttocks are in the pelvic cavity.

Identify the fetal orientation in the uterus.

What is the optimal mode for delivery in this clinical case?

Clinical situation C

A woman, para 4, at 37 weeks, has an extended breech presentation. Pelvis size is 25-28- 30-20 cm. Abdominal circumference is 100 cm, fundal height is 32 cm. The placenta is not low, and she is keen to deliver vaginally.

Choose from one of the following answers

- Caesarean section
- No intervention
- External cephalic version
- Attempted vaginal delivery with assisted breech delivery
- Breech extraction
- Offer admission to hospital and wait

Clinical situation D

A woman is in advanced labour with a breech presentation. She is fully dilated, has been pushing for an hour and the buttocks are not visible.

Choose from one of the following answers

- Caesarean section
- No intervention
- External cephalic version
- Attempted vaginal delivery with assisted breech delivery
- Breech extraction

- Offer admission to hospital and wait

Correct answers

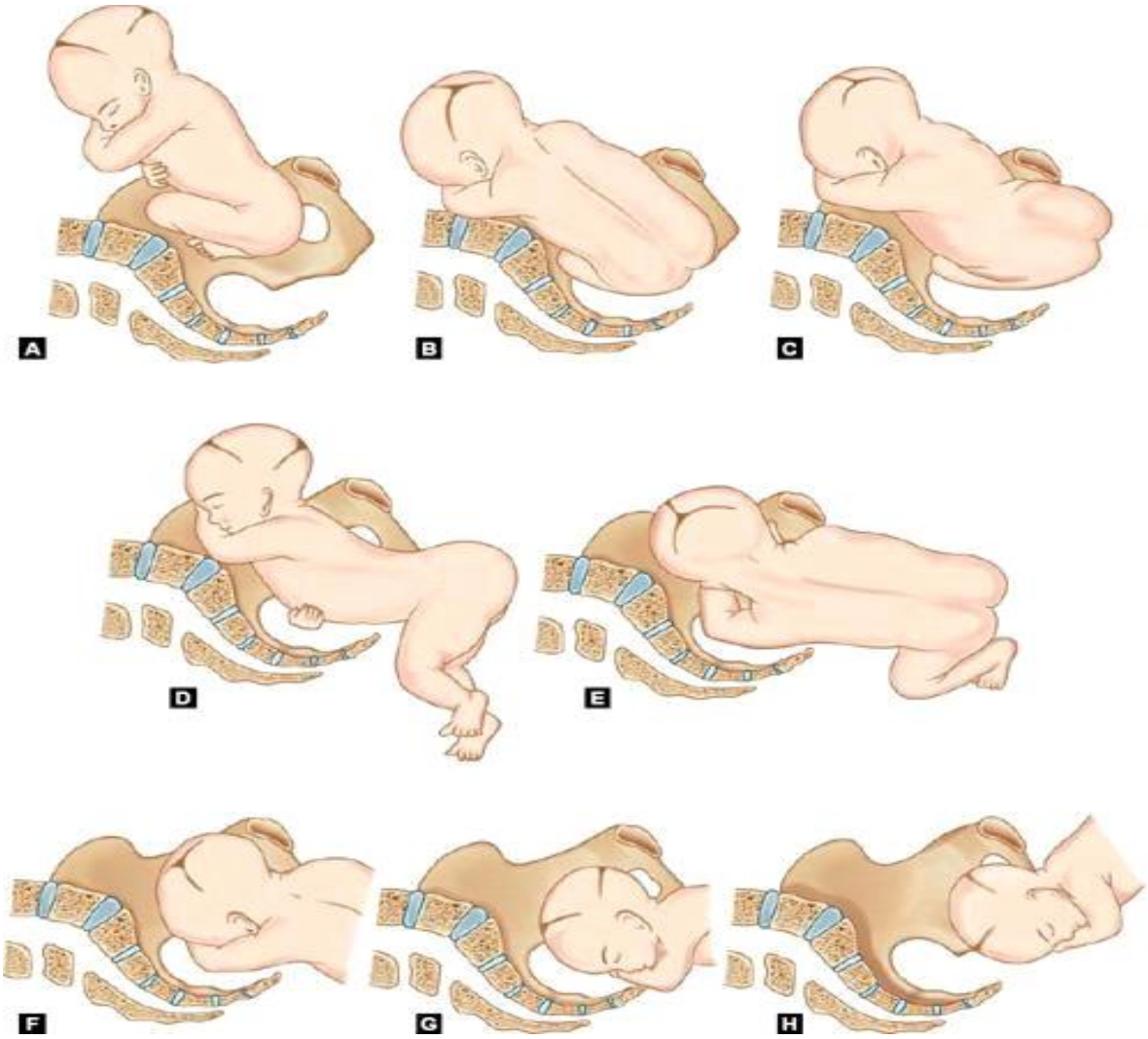
Task 1 - Longitudinal lie. Incomplete breech presentation (frank breech presentation).Right sacrum posterior (RSP) position.
Task 2 - Longitudinal lie. Complete breech presentation. Left sacrum posterior (LSP)position.
Task 3 - Longitudinal lie. Incomplete breech presentation (single footling breechpresentation). Right sacrum posterior (RSP) position.
Task 4 - Longitudinal lie. Incomplete breech presentation (double footling breechpresentation). Left sacrum transverse (LST) position.
Task 5 - Longitudinal lie. Incomplete breech presentation (kneeling breech presentation).Left sacrum transverse (LST) position.

Clinical situation A - Longitudinal lie. Breech presentation. Right sacrum anterior (RSA) position. Caesarean section.
Clinical situation B - Longitudinal lie. Incomplete (frank) breech presentation. Left sacrum posterior (LSP) position. Attempted vaginal delivery with assisted breech delivery.
Clinical situation C - Attempted vaginal delivery with assisted breech delivery.Clinical situation D - Caesarean section.

- **Educational materials, recommendations (instructions) for performing tasks**

During a full-term pregnancy the incidence of pelvic presentation is 3-4%, and during a preterm pregnancy it is considerably higher - 1 in 5 labours in the term of pregnancy till 30 weeks. According to US prospective data, the pelvic presentation is usual for the fetus at the end of the II trimester of pregnancy. But as the result of the larger sizes of the pelvic ending of fetus in comparison with its head, gradually the major part of the fetuses acquire the cephalic presentation at III trimester.

Biomechanism of labour during the pelvic presentation has the same laws as duringthe cephalic one, and consists of 7 moments (Fig.).



The first moment - insertion of buttocks in the cavity of the pelvic inlet (Fig. A). Linea intertrochanterica, or interbuttockal, plays the role of saggital suture during cephalic presentation and stands in the cavity of the pelvic inlet by one of oblique sizes; sacrum of the fetus is turned to the front or to the back.

The second moment - lowering of the buttocks. While developing of parturition, buttocks as the result of their compression lower into the pelvis. The anterior buttock lowers the first, which is the entering point; a labour tumour forms on it.

The third moment - sacral rotation of the buttocks. Performing the oscillation movements, the buttocks pass the promontorium and lower into the wide part of the pelvic cavity (Fig. B).

The fourth moment - internal turn of the buttocks (Fig. C). Both the buttocks and the head make the internal turn and lower on the pelvic floor. A buttock line is set in the direct size.

The fifth moment - delivery of the buttocks and trunk till the inferior angle of the scapula (anterior scapula; Fig. C, D, E). At first, the anterior iliac bone of the fetus is fixed to the inferior margin of the pubic arch, which works as a fulcrum, around which the fetal body is flexed to a high degree, and the posterior buttock is delivered. Then the anterior buttock rests too. The buttocks are delivered together with the legs in complete breech presentation, and the legs prolapse after the delivery of the body in frank breech presentation. After the lower end of the body has been delivered, it is deflexed and by a few contractions is delivered to the navel and then to the lower angle of the shoulder blades. The body is slightly turned with its back anteriorly.

The sixth moment - delivery of the upper extremities (shoulder girdle, Fig. E, F). The shoulder girdle performs the same movements as during the vertex presentation in the pelvis. Biacromial size of shoulders during the progressive move to the front transfers from the oblique diameter of the inlet in the direct diameter on the pelvic outlet. If the normal location of the fetus preserves, the column of the brachial bone of anterior arm fixates near the lower margin of the pubic symphysis; the posterior arm is delivered the first, then the anterior arm moves out from the pubis. If the location of the fetus disturbs, the arm throws back, which requires a special obstetrical assistance.

The seventh moment - delivery of the head (Fig. G, H). The head enters in the pelvis simultaneously with delivery of the shoulders. Saggital suture is set in the oblique diameter of the pelvis, opposite to the biacromial size of the shoulders. Then the head performs all its movements, according with the laws of biomechanics, as during the occipital presentation. However, all movements occur rapidly, the head, if it is not straighten, moves by the small (9.5 cm) or middle oblique diameter (from the suboccipital fossa till the anterior margin of the anterior (major) fontanel - 10 cm). The head fixates with suboccipital fossa under the pubic symphysis, and around this point of fixation the chin, face and fetal forehead disengage above the perineum.

Management of vaginal labour at pelvic presentation of the fetus is recommended to perform under following conditions:

- breech presentation of the fetus;

- normal sizes of the maternal pelvis;
- fetal weight less than 3,600 g, which is confirmed with 2 and more US;
- individual experience and skills of the doctor on management of labour of pelvic presentation of the fetus; 5) presence of anaesthesiologic and neonatologic reanimation department.

At the I stage of labour one should prevent therupture of the fetal bladder, perform the prophylaxis of uterine inertia and intrauterine hypoxia of the fetus. Right after the discharge of amniotic fluid internal obstetrical examination to establish correctly the diagnosis and to prevent the cord prolapse is done. If the amniotic fluid bursted ill- timely and there is uterine inertia, a parturient woman is introducted adequate doses of oxytocin, prostaglandins or their combination. It should be remembered that only duringactive parturition a successful labour outcome is possible. Overdosage of the tonomotor drugs can causeacute hypoxia of the fetus, pretem separation of the placenta. That's why during prolonged uterine inertia (during 3 h) and intensification of the fetal hypoxia itis expedient to change the plan of labour management and begin caesarean delivery.

II stage of labour requires a particular attention. 1 ml of 0.001% solution of atropine sulfate or other spasmolytic drugs are introduced intravenously for prophylaxis of the cervical spasm in 30-40 min before delivery of the child. To reduce a possibility of labour injury and make the head delivery easier, episiotomy and pudendal anaesthesia are done. The heart rate of the fetus is auscultated after each prelum muscles contraction. A parturient woman inhales the oxygen in intervals between the prelum muscles contractions. From the disengagement of the buttocks of the fetus a parturient woman is laid on the edge of the bed, a polster is put under the sacrum to reduce the angle of the pelvic slope. Some obstetricians recommend to press the hips to the abdomen during the prelum muscles contractions. Discharge of meconium by the fetus during the pelvic presentation occurs mechanically and is not the sign of hypoxia of the fetus.

In management of labour of the pelvic presentation of the fetus there are 4 stages:

- delivery of the fetus till the umbilicus;

- delivery of the fetus till the inferior angle of the scapulas;
- delivery of the arm;
- delivery of the head

In Ukraine during labour management of pelvic presentation of the fetus a manualassistance according to M. A. Tsovyanov is applied.

Manual assistance according to Tsovyanov I (during the breech presentation of thefetus) is based on the moment that after the disengagement of the buttocks, the

obstetrician takes them with the hand by such a way that thumbs locate on the pressed to the abdomen legs of the fetus, and other 4 fingers - along the sacrum (Fig. I).

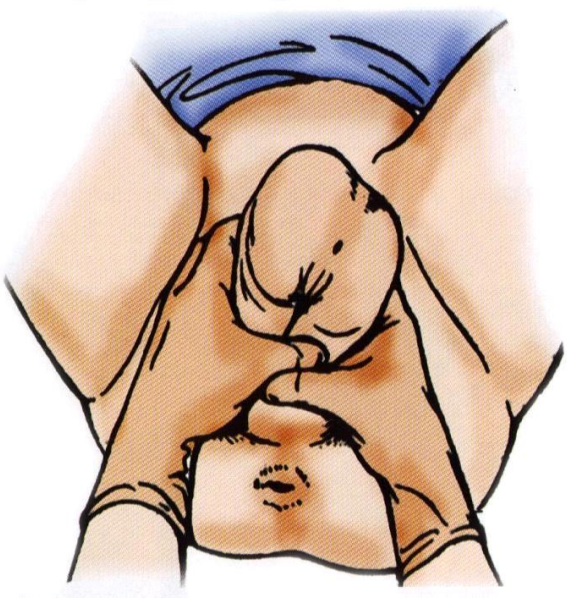


Fig. I

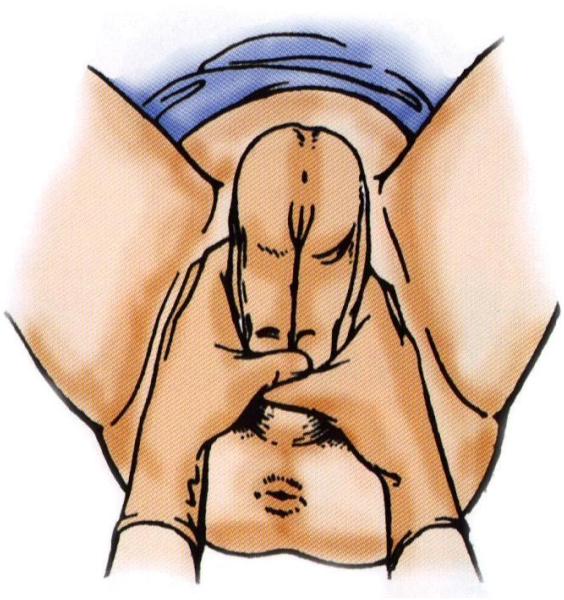


Fig. J

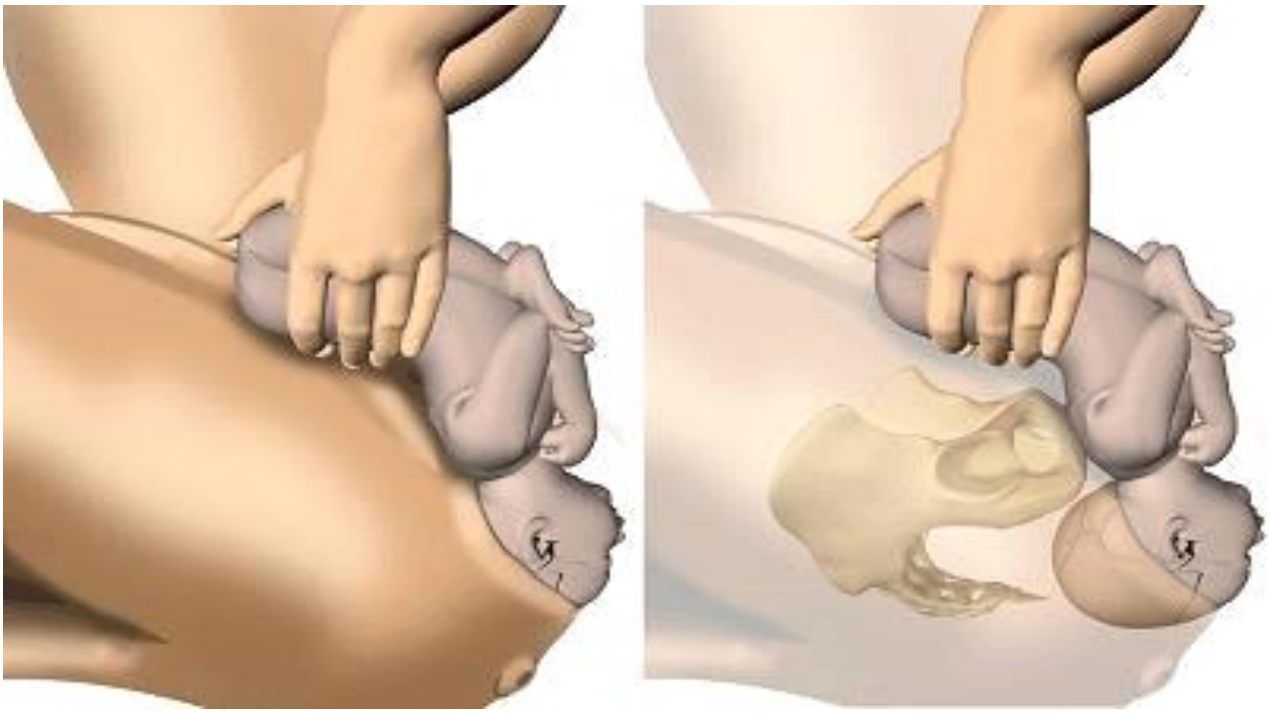


Fig. K Fig. L

The trunk of the fetus lifts up - along the axis of labour canal. Such location of obstetrician's hands prevents the preterm prolapse of the legs, droping of the buttocks and contributes to the upward moving of the body - to the pubis. While the trunk delivers,

obstetrician's hands slide along it, staying with the pudendal slit of the parturient woman (Fig. J). It should be remembered that tractions are forbidden. The doctor should slide the hand along the trunk of the delivering fetus. After the disengagement of the girdle of the upper extremities, the hand can prolapse. It is important that legs should not be prolapsed earlier than delivery of the shoulder girdle. If the arms of the fetus do not deliver by themselves, the doctor without changing the position of his hands sets the shoulder girdle in the direct diameter of the pelvic outlet and deviates the trunk of the fetus to the back (Fig. K, L). During this the anterior arm moves out from the pubic arch. Then the trunk should be lifted up, make delivery of the posterior arm from the pubic arch easier. In the depth of the pudendal slit the chin and mouth of the fetus appear. The trunk is lifted up to deliver the fetal head. Careful, but powerful pressing on the pubic arch by the obstetrician (Naujok method) can assist delivery of the head (Fig. M, N).

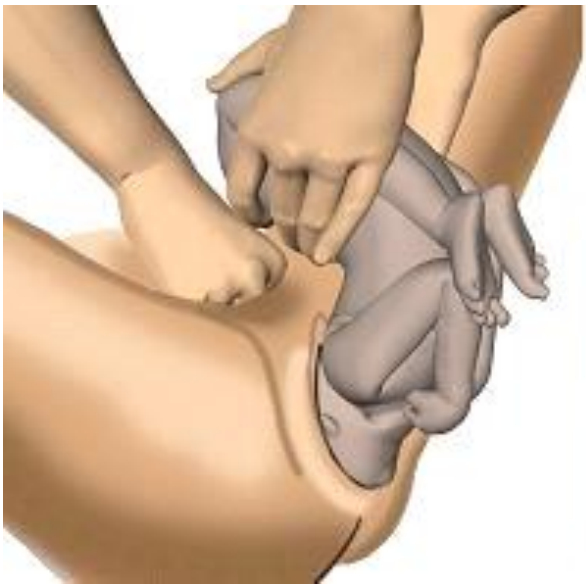


Fig. M

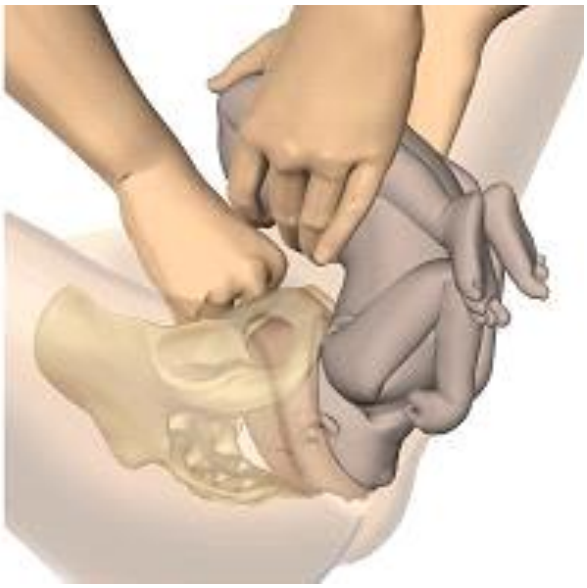


Fig. N

If delivery of the head delays, it is released by Mauriceau-Leuvret maneuvre (Fig. O). In order to extract the head by the Mauriceau - Leuvret method the fetus is sit down on the obstetrician's forearm. By the second finger in the mouth of the fetus the doctor holds the head flexed. By the second and middle fingers of the free arm he takes the shoulder girdle of the fetus. Tractions are carried out by a free arm firstly downwards - to forming of the point of fixation of the suboccipital fossa above the pubis, then - upwards. Movements should be careful to prevent the injuries of the cervical segment of the vertebral column of the fetus.

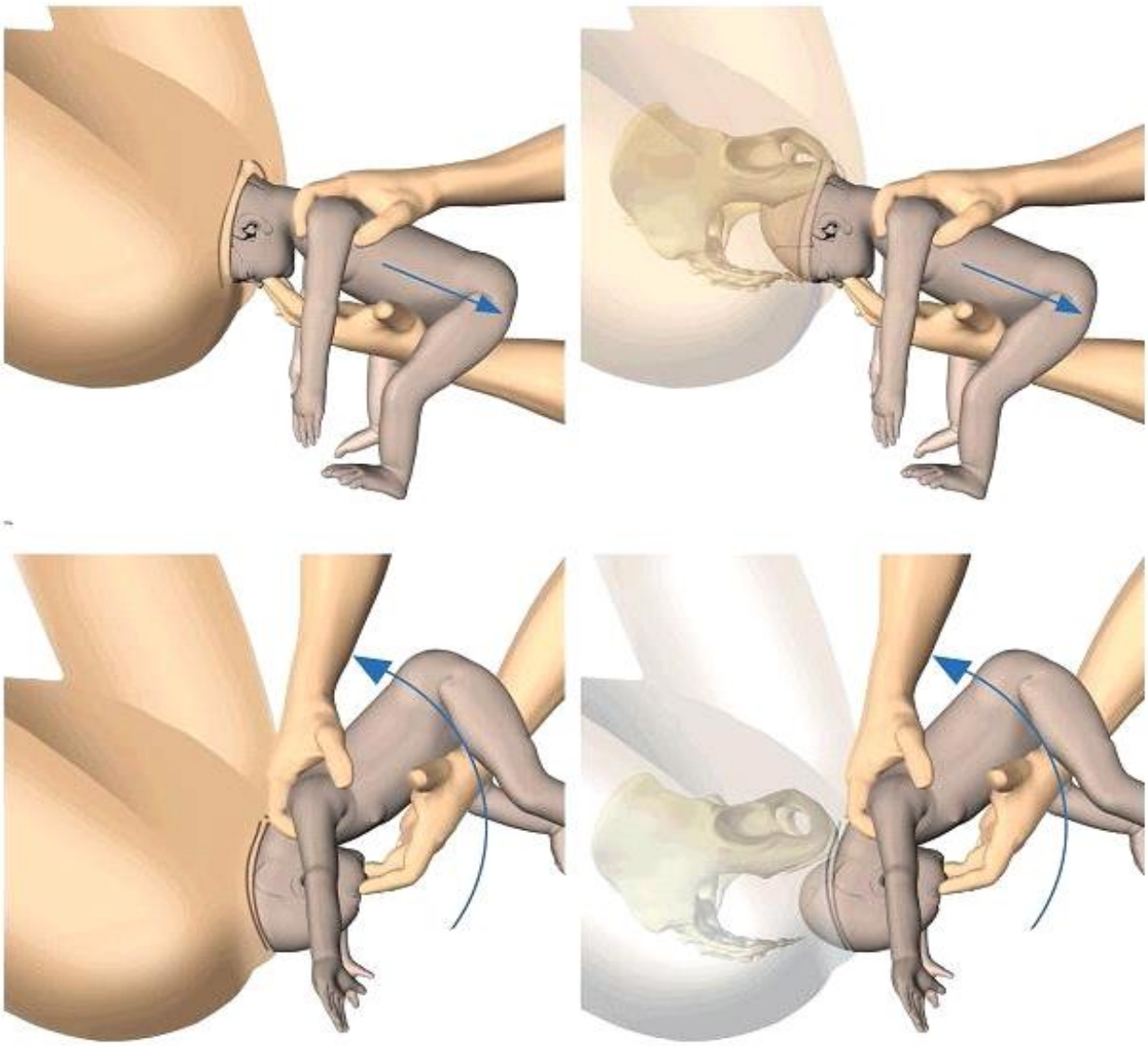


Fig. O

Manual assistance by Tsovyanov II of the foot presentation is based on the making a barrier for moving the fetus to intensify the parturition. As soon as the legs appear from the vagina, the doctor should cover the external genitalia with a sterile napkin and with his palm during each pain counteract the preterm prolapse of the legs out of the pudendal slit (Fig. P).

Fig. P

Such counteraction is required till the complete dilation of the uterine orifice. Till this time the buttocks lower down on the pelvic floor, and fetus squats down forming a mixed breech presentation. Counteraction is stopped, when the legs of the fetus begin to move out from the palm of the obstetrician. This method can be applied during mixed breech presentation; actions are made untill the pelvic ending of the fetus lowers down on the pelvic floor. If during the Tsovyanov's assistance after delivery of the fetus till the umbilicus its further independent move stops, it is necessary to perform classical obstetrical assistance to release arms and head (Fig. P). Each arm is released by a proper arm of obstetrician - the right - by the right, the left - by the left. The posterior hand is released the first, which locates above the perineum (more space for manipulations). The trunk of the fetus with legs are lifted up - to the inguinal plica of the mother. By the second and middle fingers of the hand, corresponding to the posterior hand of the fetus, the obstetrician slides to the front on the back of the fetus along the scapula, presses on the crook of an arm, and by slides along the chest of the fetus, extracting its posterior arm. The anterior arm is transferred to the posterior, turning the trunk of the fetus by 180°; back of the fetus should pass under the pubic symphysis. The second arm is extracted the same as the first one.

Fig. P

- **Requirements for the results of work.**

- to know types of breech presentation
- to know biomechanism of labour in breech presentation
- to perform manual assistance in breech presentation (Tsovyanov I)
- to perform manual assistance in foot presentation (Tsovyanov II)
- to perform manual assistance if delivery of the fetal head delays (Mauriceau-Leuvret maneuvre)

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

Task

A multigravida at 38 weeks of gestation arrived at the maternity ward after the beginning of labor activity. Uterine contractions take place every 6-7 minutes, last around 30 seconds. Pelvis size is 25-28-30-20 cm. Abdominal circumference is 96 cm, fundal height is 33 cm. Fetal heart rate is 128/min., auscultated on the left above the navel, closer to the linea nigra. Internal obstetric examination revealed cervical effacement, opening by 4 cm. Amniotic sac is intact. Fetal buttocks and feet are pressed against the pelvic inlet.

Point all components of the diagnosis.

What is the optimal mode of the delivery in this clinical case.

Correct answer:

Gestational age is 38 weeks (full term pregnancy)

Uterine contractions take place every 6-7 minutes, last around 30 seconds (regular laboraction)
Pelvis size is 25-28-30-20 cm (normal, gynecoid pelvis)

Abdominal circumference is 96 cm, fundal height is 33 cm (estimated fetal weight is3168±200 g)
Fetal heart rate is 128/minutes (normal fetal condition)

Fetal orientation is longitudinal lie, complete breech presentation, left sacrum anteriorposition
Internal obstetric examination revealed cervical effacement, opening by 4 cm (1^{st} stage oflabour, active phase)
Attempted vaginal delivery with assisted breech delivery.

- **SUMMING UP**

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

Criteria for current assessment on the practical lesson:

1	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.
2	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.
4	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:

- Zaporozhan V.M., Mishchenko V.P. Obstetrics and gynaecology in 2 Books : Book 1 : Obstetrics, 2007. – 373 pp.

• Williams Manual of Obstetrics (24th Ed) F. G. Cunningham, K. J. Leveno, S. L. Bloom, C. Y. Spong, J. S. Dashe, B. L. Hoffman, B. M. Casey, J. S. Sheffield, McGraw- Hill Education/Medical. – 2014. – 1377 pp.
• Textbook of Gynecology (6th Ed) Dutta DC., Hiralal Konar (Ed.). – JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD, 2013. – 702 pp.
• DC Duttas Textbook of Obstetrics including Perinatology and Contraception (8th Ed.) Dutta DC., Hiralal Konar (Ed.). – JAYPEE BROTHERS MEDICAL PUBLISHERS(P) LTD, 2015. – 782 pp.
• Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th Ed). Jeremy Oats, Suzanne Abraham. Elsevier. 2016. – 384 pp.
• The FIGO Textbook of Pregnancy Hypertension. An evidence-based guide to monitoring, prevention and management. L. A. Magee, P. Dadelszen, W. Stones, M. Mathai (Eds), The Global Library of Women's Medicine. – 2016. – 456 pp.
• Mayo Clinic Guide to a Healthy Pregnancy. Roger W. Harms (Ed). Rosetta books, 2011. – 612 pp.
• Best practice in labor and delivery / edited by Richard Warren, S. Arullkumaran. Cambridge University Press. – 2009. – 362 pp.
• Basic Science in Obstetrics and Gynaecology / edited by Philip Bennet, Catherine Williamson. 4th Edition. 2010, Churchill Livingstone Elsevier. – 386 pp.

Additional:

• Maternal-Fetal Medicine. Creasy R.K., Resnik R – 2009. – 1296 pp.

• Gibbs R. S., Karlan B. Y., Haney A. F., Nygaard I. E. Danforth's Obstetrics andGynecology (10th Ed).- Lippincott Williams & Wilkins. – 2008. – 2225 pp.
• CTG Made Easy / edited by Susan Gauge, Christine Henderson. 3rd Edition,2009.- Elsevier Churchill Livingstone. – 280 pp.
• Obstetrics: Normal and Problem Pregnancies, 7th Edition S. Gabbe, J. R. Niebyl, J.

L. Simpson, M. B. Landon, H. L. Galan, E. R. M. Jauniaux, D. A. Driscoll, V. Berghellaand W. A. Grobman, Elsevier. – 2017. – 1320 pp.
• Obstetrics by Ten Teachers (20th ed) Louise C. Kenny, Jenny E. Myers. – CRCPress. – 2017. – 342 pp.

• Current Progress in Obstetrics and Gynaecology. Vol 4. Eds. J. Studd, Seang LinTan, F. Chervenak. – 2017. – 419 pp.

• Recent Advances in Obstetrics and Gynaecology. Vol 26. W. Ledger, J. Clark. –JP Medical. – 2015.– 230 pp.
• Proactive Support of Labor. Reuwer P., Bruinse H., Franx A. – 2015. – 216 pp.

INTERNET SOURCES:

- https://www.cochrane.org/
- https://www.ebcog.org/
- https://www.acog.org/
- https://www.uptodate.com
- https://online.lexi.com/
- https://www.ncbi.nlm.nih.gov/
- https://pubmed.ncbi.nlm.nih.gov/
- https://www.thelancet.com/
- https://www.rcog.org.uk/
- https://www.npwh.org/