

MINISTRY OF HEALTH OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY

Faculty International

Department of Obstetrics and Gynecology


CONFIRMED by
Vice-rector for scientific and pedagogical work
Eduard BURYACHKIVSKYI
September 1st 2023

**METHODICAL DEVELOPMENT FOR A PRACTICAL LESSON
IN ELECTIVE DISCIPLINE**

Faculty international, 6th year

Elective discipline "ULTRASOUND DIAGNOSTICS IN OBSTETRICS AND
GYNECOLOGY"

Practical lesson No3. Topic: "Ultrasound diagnosis of benign ovarian neoplasms"

Methodical development Practical Classes, OPP "Medicine", 6th year, medical Faculty. Custom
Discipline: «Ultrasound diagnostics in obstetrics and gynecology»

ONMedU, Department of Obstetrics and Gynecology. Practical Classes №3. Ultrasound diagnosis of benign tumors of ovary

Approved:

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

Protocol No1 of August 28, 2023

Head of the Department (Ihor GLADCHUK)



Developers:

Candidate of Medical Sciences, Assistant

of the Department of Obstetrics and Gynecology



(Yulia ONYSHCHENKO)

Practical lesson No 3

Subject: «Ultrasound diagnosis of benign ovarian neoplasms».

Purpose: Ultrasound examination of a woman is quite important on the way to establishing a correct diagnosis in order to further determine the tactics of treatment of the pathology that is really present in a particular case.

Therefore, such knowledge is necessary for the doctor for a clear orientation during the examination of a woman, as well as during surgical interventions. In the accuracy of the correct interpretation of ultrasound scans when observing benign formations of the ovaries is significantly significant for the differentiation of diseases and the choice of the method of surgical treatment of pathology.

Standardization of preoperative non-invasive visual diagnosis of AE is very important, since incorrect results and misunderstandings on the part of radiologists and gynecologists can lead to serious consequences for patients: unnecessary surgical interventions or delayed start of treatment of malignant neoplasms. Ultrasound is highly accurate for the diagnosis of benign neoplasms in cases of simple cysts and neoplasms of a solid structure, which have a well-developed vascular network, especially when associated secondary lesions of the peritoneum are detected on the background of ultrasound or elevated CA-125.

Basic concepts: The main parameters of ultrasonic diagnostics in the complex clinical study of gynecological patients with ovarian neoplasms. Ultrasound criteria for benign ovarian tumors. Differential ultrasound diagnosis of neoplasms of uterine applications. An examination plan and parameters are required during ultrasound examination of the pelvic organs.

Equipment: Professional algorithms, structural and logical schemes, tables, dummies, video-photo materials of ultrasound results, results of laboratory and instrumental studies, situational tasks, patients, medical histories.

I. Organizational measures (greetings, checking those present, communicating the topic, the purpose of the lesson, the motivation of higher education students to study the topic).

The relevance is due to the widespread introduction of ultrasound echography, as a modern highly informative and affordable method of research in obstetrics and gynecology, which allows to provide a high-quality qualified level of medical care. Minimally invasive research, the absence of contraindications and the need for special training, the possibility of repeated use, if necessary, provides an opportunity to widely apply this method in the practical activities of doctors.

Ultrasound diagnostics (ultrasound) in most cases of gynecological practice is the most reliable diagnostic method that allows doctors to recognize pathology in emergency conditions in a timely manner and identify pelvic neoplasms, identify the causes of abnormal uterine bleeding and infertility in women.

2. Control of the reference level of knowledge (written work, written testing, online testing, frontal survey, etc.). Requirements for knowledge:

- communication and clinical examination skills of the patient;
- the ability to determine the main and etiological and pathogenetic and factor and benign neoplasms of the uterus;
- knowledge of ultrasonic treatment of ovarian neoplasms according to the ORADS classification system;
- determining the list of necessary clinical, laboratory and instrumental studies and assessing the interpretation of their results;
- the ability to prescribe appropriate management tactics (principles of surgical interventions, conservative treatment, rehabilitation measures) for suspicious or abnormal ultrasound results. List of didactic units:
 - ORADS classification
 - Dry nodular dispersed VMEast
 - Papillary component
 - Solid structure
 - Multi-chamber education
 - Vascularization index

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

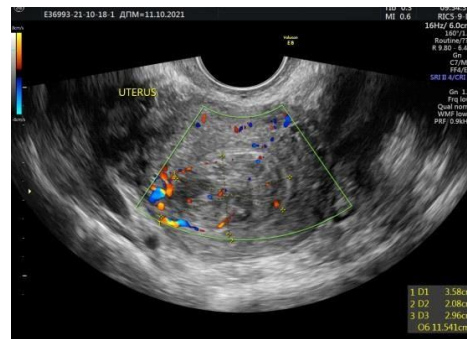
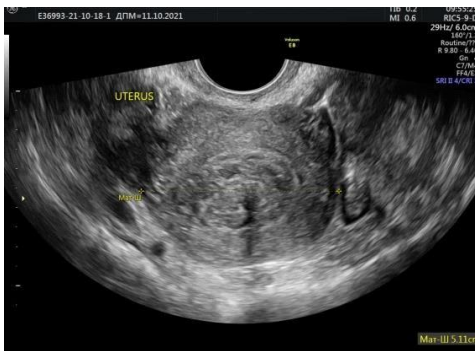
Question:

- Differential ultrasound diagnosis of benign neoplasms/ovarian cysts
- Using the O-RADS classification system No. 1 and 2 (Ovarian Adnexal Reporting and Data System) when detecting ovarian neoplasms on ultrasound
- Using the O-RADS classification system No. 3 and 4 (Ovarian Adnexal Reporting and Data System) when detecting ovarian neoplasms on ultrasound
- Using the O-RADS classification system No. 5 (Ovarian-Adnexal Reporting and Data System) when detecting ovarian neoplasms on ultrasound

Situational tasks:

Problem 1.

1. A woman, 37 years old, complained to the obstetrician-gynecologist about abundant bleeding from the genital tract, accompanied by aching pain of the lower abdomen, for 9 days. In a bimanual study: the uterus is enlarged 7x5x7 cm, the appendages are not determined. According to the results of ultrasound OMT -matka: state of anteflexio, medium position; the form is irregular, deformed. Endometrium: vaguely differentiated from the myometrium, visualized in fragments, modified by hyperechoic formation, round shape, located in 2/3 of the uterus. The right ovary at the right rib of the uterus, dimensions 23.8x11.6x20.8mm, volume 3 ml, echostructure is homogeneous, the follicular apparatus is not narrowed. Left ovary: in the left rib, dimensions 21x13x20.6 mm, volume 2.9 ml, echostructure is homogeneous, the follicular apparatus is not narrowed. The left fallopian tube on the left is not visualized.



Task:

- What diagnostic methods should be carried out first?
- What is the most likely diagnosis?

Answer:

- Laboratory foreexamination of the patient - complete blood count, coagulogram, biochemical blood test.
- Uterine fibroids, submucous variant, type 0-1 FIGO.

Test tasks:

- The patient is 17 years old, turned to a gynecologist with complaints of delayed menstruation for 12 days, aching pain in the lower abdomen. An ultrasound examination revealed a cavity, fluid-filled utvir of considerable size, placed above the uterus of a correctly rounded or oval shape, the contents of a monogeneous structure without internal inclusions. Most likely is:"
 - Follicular cyst

- Serous cystadenoma
- Papillary cystadenoma
- Ovarian teratoma
- Mucinous cystadenoma
- A 36-year-old patient went to an ultrasound doctor for irregular MC for a year. An ultrasound scan revealed a unilateral formation of the right testicles, located at the level of the bottom of the uterus, which extends to the parametric area on the right, multi-chamber with an uneven, sometimes large-tuberous surface
 - Serous cystadenoma of the right ovary
 - Papillary cystadenoma of the right ovary
 - Mucinous cystadenoma of the right ovary
 - Dermoid of the right ovary of the right ovary
- During an ultrasound of the pelvic organs, a 16-year-old girl was found on the right and behind in and behind the uterus of a rounded neoplasm, limitedly mobile, with unequal wall thickness in different places from 2 to 8 mm and the presence of fine contents. The echo density of the wall is low or medium. Probable diagnosis.
 - Dermoid cyst
 - Follicular cyst
 - Endometrioid cyst
 - True ovarian tumor

Correct answers: 1 – A, 2 – B, 3 – C.

1. Formation of professional skills and abilities (mastering skills, conducting curation, determining the treatment regimen, conducting laboratory research, etc.).

— **The content of the tasks (tasks, clinical situations, etc.).**

Interactive task:

Students of the group are divided into 3 subgroups in the amount of 4-5 people each. We work in ultrasound diagnostic rooms with pregnant patients, we give tasks:

And the subgroup – assessment of the patient, history taking

Ii subgroup – advising the patient according to ultrasound screenings

Subgroup III – evaluates the correctness of the answer of the I and II subgroups and makes its own adjustments.

Clinical tasks:

Problem 1.

The patient of 32 years entered the clinic with complaints of abdominal discongestion in volume, a feeling of heaviness in the lower abdomen, periodic pain, more on the left. The abdomen increased for the last 2-3 months. The last medical examination is 6 months. back – a tumor of the left ovary 5 cm in diameter. A further examination was proposed, which the patient refused. Menstrual function is not impaired, 1 normal birth. During clinical, laboratory, gynecological, ultrasound examination, a tumor of the left testicle with dimensions of 30 x 45 cm was detected, movement ma, tightly elastic and consistency, moderately painful, according to ultrasound - uneven intensity and solid formation of the type "motley pattern". **Task:** Formulate a preliminary diagnosis and determine further treatment tactics **Answer:** Ovarian dysgerminoma. Operative treatment

Problem 2.

A patient of 26 years old turned to the doctor of the LCD about bloody otters of a dark shade, appearing before menstruation in 3 days, pain on the left. Bimanual examination: the uterus is not enlarged, correctly shaped, dense, the applications on the left are enlarged due to cystic formation, sensitive. On ultrasound OMT n ravy ovary at the right rib of the uterus, increased to 50.7x34x49.1mm, volume 44.32 ml due to hyperechoic fine echostructure of formation, size 42.9x26.9x41 mm, volume 24.77 ml with KDK avascular . On the periphery, ovarian tissue containing follicles up to 4-5, 2.0 in size, is visualized; 2,2; 3.1 mm .



Challenge: Establish a diagnosis and determine further treatment tactics

Answer: Cyst of the previous ovary according to the type of endometrioid. Taking into account the size of the cyst, do you need operative laparoscopy – laparoscopy.

Test tasks:

- In a girl of 1-9 years old, a sonographic examination on the 16th day of the menstrual cycle in the right ovary revealed a hypoechoic formation with a diameter of 55 mm with thin walls. During recto-abdominal examination, in addition to an enlarged right ovary, no pathological changes are noted. Specify the tactics of this patient."
 - Determination of tumor marker CA 125 in the blood
 - Repeated ultrasound and gynecological examination on the 6-9th day of the next menstrual cycle
 - Course of anti-inflammatory therapy D. Immediate surgical treatment
- E.
- In a patient of 14 years, a tumor-like creature of densely elastic consistency was found to the right and top of the uterus, tuberous with clear contours, painless, mobile, up to 10 cm in diameter.
 - Cyst of the right ovary
 - Fibromatous node of the uterus
 - Cystoma of the right ovary
 - Endometrioma of the ovary
 - Ovarian fibroma

Correct answers: 1 – B, 2 – C.

— Recommendations (instructions) for the implementation of tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.).

One of the causes of tumors of the reproductive system of a woman is a violation of the complex mechanism of neuroendocrine regulation. A temporary decrease in the estrogenic function of the ovaries can occur with inflammation of the uterus, infectious diseases, malnutrition, etc., which leads to a violation of hormonal relationships in the woman's body. Often, ovarian tumors occur in women after 40 years, which is explained by changes in the function of the hypothalamus.

Classification. There are many classifications of ovarian tumors according to clinical, clinical, morphological and histological principles, but none of them completely satisfies clinicians. Today, the histological classification of ovarian tumors, adopted in 1973 with the participation of the International Reference

Center (Leningrad) and 12 centers of other countries that collaborated with it, is used:

I. Epithelial tumors.

A. Serous tumors.

- Benign: a) cystadenoma and papillary cystadenoma; b) adenofibroma and cystadenofibroma; c) superficial papilloma.
- Borderline (potentially low degree of malignancy): a) cystadenoma and papillary cystadenoma; b) superficial papilloma; c) malignant adenofibroma and cystadenofibroma.
- Malignant: a) adenocarcinoma, papillary adenocarcinoma and papillary cystadenocarcinoma; b) superficial papillary carcinoma; c) malignant adenofibroma and cystadenofibroma.

B. Mucinous tumors

- Benign: a) cystadenoma; b) adenofibroma and cystadenofibroma.
- Borderline (potentially low degree of malignancy): a) cystadenoma; b) adenofibroma and cystadenofibroma.
- Malignant: a) adenocarcinoma and cystadenocarcinoma; b) malignant adenocarcinoma and cystadenofibroma.

B. Endometrioid tumors

- Benign: a) adenoma and cystadenoma; b) adenofibroma and cystadenofibroma.
- Intermediate (potentially low degree of malignancy): a) adenoma and cystadenoma; b) adenofibroma and cystadenofibroma.
- Malignant: a) carcinoma, adenocarcinoma, adenoacanthoma, malignant adenofibroma and cystadenofibroma; b) mesodermal (muller) mixed tumors, homologous and heterologous.

G. Light-cell (mesonephroid) tumors.

- Benign: adenofibroma.
- Intermediate (potentially low degree of malignancy).
- Malignant: carcinoma and adenocarcinoma.

- Benign.
- Intermediate (intermediate malignancy).
- Malignant.

E. Mixed epithelial tumors.

- Benign.
- Intermediate (intermediate malignancy).
- Malignant.

J. Undifferentiated carcinoma.

- Q. Unclassified epithelial tumors.
- II. Tumors of the stroma of the sexual cord.
- A. Granulostromal-cell tumors.
 - B. Granulosa cell tumor.
 - 2. Thecoma-fibroma group: a) thecoma; b) fibroma; c) unclassified.
- B. Androblastoma: tumors from Sertoli and Leydig cells.
 - Highly differentiated: a) tubular androblastoma, tumor from Sertoli cells, b) tubular androblastoma with lipid accumulation, tumor from Sertoli cells with lipid accumulation (Leydig follicle); c) a tumor from Sertoli and Leydig cells; d) a tumor from Leydig cells, a tumor from theca cells.
 - Intermediate (transitional) differentiation.
 - Low differentiated (sarcomatous).
- V. Gynandroblastoma.
 - D. Unclassified tumors of the stroma of the sexual cord.
 - Lipid-cell (lipoid-cellular) tumors.
 - Germinal tumors.
 - A. Dysgerminoma.
 - B. Tumor of the endodermal sinus.
 - B. Embryonic carcinoma.
 - G. Polyembryoma.
 - Chorionepithelioma.
 - Teratomas.
 - Immature.
 - Mature: a) solid; b) cystic (dermoid cyst, dermoid cyst with malignancy);
 - Monodermal (highly specialized): a) ovarian carcinoma; b) carcinoid; c) ovarian fibroma and carcinoid; d) other tumors.
 - J. Mixed germinal tumors.
 - V. Gonadoblastoma.
 - Pure (without admixtures of other forms).
 - Mixed with dysgerminoma and other forms of germinal tumors.
 - Soft tissue tumors that are not specific to the ovary.
 - Unclassified tumors.
 - Secondary (metastatic) tumors.
 - Tumor-like processes.
 - Luteoma of pregnancy.
 - Ovarian stroma hyperplasia and hyperandrogenism.
 - B. Massive swelling of the ovary.
 - D. Single follicular cyst and cyst of the corpus luteum.
 - Multiple follicular cysts (polycystic ovary).
 - Multiple luteinized follicular cysts and (or) cysts of the corpus luteum.

J. Endometriosis.

C. Superficial epithelial cysts inclusion (germinal cyst inclusion).

I. Simple cysts.

K. Inflammatory processes.

L. Paraovarian cysts.

Most of these tumors are rare.

The importance of the exact characteristics of ovarian lesions in imaging lies, on the one hand, the possibility of ultraorgan-preserving treatment of benign formations and the assessment of the feasibility of complete cytoreduction, based on the correct assessment of resectivity in malignant neoplasms, on the other.

To date, there are a large number of methods for evaluating and interpreting diagnostic data. One such method is RADS (English. Reporting and Data System), which includes a large number of manuals for reporting and evaluation of various bodies.

- The corpus luteum with color Doppler and without color Doppler shows a central cystic component (asterisks) with a smooth thickened wall, non-vascular internal echoes, and peripheral vascularization (arrow).
- Corpus luteum with central component, thickened wall and jagged inner edge (arrow).
- Anechoic thick-walled cyst with intense peripheral vascularization.
- The energy doppler shows peripheral vascularization in this cystic corpus luteum with a clot (arrow) retracted.
- The corpus luteum as a hypoechoic region (asterisk) without a central cystic component, but with a peripheral flow (arrow) in a color Doppler study.

Ovarian cysts are a group of pathological lesions that are most often diagnosed by ultrasound, in about 50% of cases asymptomatic. Cysts are a group of structural changes characterized by the presence of fluid bounded by the membrane. Today, the optimal method for diagnosing ovarian cysts is the ultrasound method. Modern equipment, highly qualified doctors - the necessary conditions for accurate diagnosis of not just the presence of an ovarian cyst, but also its type.

It is also very important to use modern ultrasound classification tools such as IOTA rules and the O-RADS system. Using the system allows you to accurately describe ultrasonographic data and clearly predict the risk of ovarian cancer. Pelvic ultrasound is a study of choice followed by magnetic resonance imaging (MRI) and/or computed tomography (CT). In some postmenopausal women, it is difficult to identify the ovary due to its relatively small size ($<2 \times 2$ cm), its position in the pelvic depth and the absence of identifiable structures such as cysts. Relatively simple ultrasound rules can be used to diagnose ovarian malignancies, such as the

rules of the International Analysis of Ovarian Tumors (IOTA). The American Board of Radiologists, the Preventive Ultrasound Services Task Force, the American College of Obstetricians and Gynecologists, the Society of Gynecologist Oncologists, and the National Comprehensive Cancer Control Network have published recommendations for imaging ovarian cancer.

In recent decades, 4 large randomized trials have been conducted that have highlighted the lack of high specificity in clinical diagnosis of the measurement of the CA-125 marker in combination with transvaginal ultrasound (ULTRASOUND) to detect and characterize OYA.

Before using this system, it is important to consider a clinical history, including symptoms and an increased risk of ovarian cancer(e.g., a mutation in the BRSA gene).

In addition, it is necessary to rely on the basic definitions for assessing the formation of the ovary:

- cystic formation – a formation containing fluid; however, it may consist of one chamber or several and have wall seals, papillary growths, a solid component (does not include the dominant follicle / yellow) body);
- solid formation – soft-woven component, key – with increasing signal intensity in post-contrast images.

The main criteria for evaluating ovarian formations. (brief outline).

Fig. 1 - Main indicators

1a - Physiological assessment of the ovaries (ratio with the physiological norm of the state of the stroma of the ovaries)

1b - Category of education (different e a from the norm of education)

- - The size of the formation of the ovary, in the presence of a solid component - its size
- - Characterization of the structure with a presence of an isolated solid formation

3a - Evaluation of the external contour of the neoplasm

3b - Evaluation of the internal component

Fig. 4 - Characteristics of cystic formation/cystic component

4a Evaluation of the internal contour of formation

4b Evaluation of cystic component - presence of dermoid/hemorrhagic/high-protein component

4c - Characteristics of a solid component of cystic formation

Fig. 5 - Blood flow and blood vessels

Fig. 6 - Assessment of the condition of surrounding organs, presence of paraovarial / inorganic cysts / condition of the fallopian tubes / presence of fluid / signs of peritoneal damage/condition of the lymph nodes.

Category	Term	Definition	Comments
1	Major Categories		
	Physiologic Category (consistent with normal ovarian physiology)		
	Follicle	Simple cyst \leq 3 cm in premenopausal group	
	Corpus luteum (CL)	Thick walled cyst \leq 3 cm that may have crenulated inner margins, internal echoes and intense peripheral color Doppler flow	CL can sometimes appear as a hypoechoic region in the ovary with peripheral vascularity without a characteristic cystic component
	Lesion Category (not consistent with normal physiology)		
	Unilocular, no solid component	Cystic lesion that contains a single compartment. May contain \geq 1 incomplete septum, wall irregularity $<$ 3mm height or internal echoes	*Simple cyst is a subset of unilocular cyst with a smooth, thin wall, acoustic enhancement and no internal elements, thus anechoic
	Unilocular cyst with solid component(s)	As above but includes solid component(s) \geq 3mm in height	
	Multilocular cyst, no solid elements	Cystic lesion with more than one compartment (at least one complete septum) but no solid component(s) \geq 3mm in height	
	Multilocular cyst with solid component(s)	As above but includes \geq 1 solid component(s) \geq 3 mm in height	
	Solid or solid appearing (greater than or equal to 80%)	Lesion with echogenicity suggestive of tissue without characteristics of a cyst. Lesion is at least 80% solid when assessed in orthogonal 2-dimensional plane	Confirmed with color or spectral Doppler with absence of color Doppler flow less informative. Lack of internal motion with transducer pressure is helpful.
2	Size		
	Maximum diameter	Maximum diameter of a lesion in any plane	
3	Solid or Solid-Appearing Lesions		
	External contour		
	Smooth	Regular outer margin	
	Irregular (Not Smooth)	Non-uniform outer margin	A lobulated outer margin is considered irregular
	Internal contents		
Acoustic shadowing	Artifact produced by attenuated echoes behind a sound absorbing structure	Descriptor is commonly associated with calcification(s) or fibromatous type lesion	
4	Cystic Lesions		
	Inner Margin or Walls Including Solid Component		
	Papillary projection or nodule	Solid component whose height \geq 3 mm, arises from the cyst wall or septation and protrudes into the cyst cavity	Number of papillary projections should be included
	Smooth	Regular, uniform inner margin that may include inner margin of a solid component that is not a papillary projection	
Irregular (not smooth)	Irregular, non-uniform inner margin. May include wall irregularities due to incomplete septations, solid components $<$ 3mm height, papillary projections, the contour of the solid component or the margin of any internal cystic area within the solid component		

Requirements for the results of work, including design.

- Consult the patient and determine the general anamnestic parameters necessary for the ultrasound.
- Explain the need for ultrasound examination of the pelvic organs.
- Analyze the results of ultrasound examination based on the results of scans.
- Determine the further tactics of patient management and the need to prescribe further examination.

— Control materials for the final stage of the lesson: tasks, tasks, tests, etc.

Situational tasks:

Patient 21 year of hic, complained of moderate pain in the lower abdomen, which occurs periodically, is aching. I have not contacted a doctor before. In a clinical, laboratory, gynecological study, a tumor of the right ovary with dimensions of 3x2x4cm was detected, mobile, sensitive, and there are no other pathological changes. According to the ultrasound of OMT - p o lateral pole of the ovary, a solid-cystic hyperechoic formation, deforming the outer contour of the ovary, with

dimensions of 17.9x13.9x18.7 mm, volume 2.4 ml, avascular during KDK, is located. The menstrual function of a woman is not Broken.

Task: Your likely diagnosis, treatment tactics.

Answer: Dermoid ovarian cyst (ORADS-3). Surgical treatment is laparoscopy.

Test tasks KROK-2 (2021):

A patient of 30 years old complained of pain in the lower abdomen of a aching nature, of medium intensity, disturbing for 2-3 weeks. Last menstruation 6 weeks ago, normal, timely. At the time of the examination, there is a delay of menstruation of 2 weeks. The pregnancy test is negative. As a result of clinical, laboratory, gynecological and ultrasound examinations, a cyst of the left ovary was found 6 cm in diameter, smooth-walled, moderately painful, densely elastic consistency, movementa. Your diagnosis, treatment tactics.

A. Follicular ovarian cyst, recommended observation with ultrasound in dinami, if necessary - hormonal treatment*. B. Serous ovarian cyst, surgical treatment.

- Paraovarial ovarian cyst with perection of the leg, observation.
- Secondary ovarian tumor, surgical treatment.

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

Current control: oral questioning, testing, evaluation of practical skills, solving situational clinical problems, evaluation of activity in the classroom, etc. ***The structure of the current assessment in the practical lesson:***

- Evaluation of theoretical knowledge on the topic of the lesson:
- methods: survey, solving a situational clinical problem;
- The maximum score is 5, the minimum score is 3, the unsatisfactory score IS 2.
- Assessment of practical skills and manipulations on the topic of the lesson:
- methods: assessment of the correctness of practical skills;
- The maximum score is 5, the minimum score is 3, the unsatisfactory score IS 2.
- Evaluation of work with the patient on the topic of the lesson:
- methods: assessment of: 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 conducting a differential diagnosis d) justification of the clinical diagnosis, e) drawing up a treatment plan;

- The maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

Criteria for the current assessment in a practical lesson:

Score	Evaluation criteria
«5»	The student is fluent in the material, takes an active part in the discussion and solution of a situational clinical problem, confidently demonstrates knowledge of ultrasound screening diagnostics in obstetrics and the correct appointment of laboratory and instrumental studies, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«4»	The student is well versed in the material, participates in the discussion and solution of a situational clinical problem, demonstrates knowledge of ultrasound screening diagnostics and the correct appointment of laboratory and instrumental studies with some errors, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«3»	The student does not have enough knowledge of the material, uncertainly participates in the discussion and solution of a situational clinical problem, demonstrates knowledge of ultrasound screening diagnostics and the correct appointment of laboratory and instrumental studies with significant errors.
«2»	The student does not own the material, does not participate in the discussion and solution of a situational clinical problem, does not demonstrate knowledge of ultrasound screening diagnostics and the correct appointment of laboratory and instrumental studies.

List of recommended literature.

Main:

1. Obstetrics and Gynecology: in 2 books. - Book 2. Gynecology: textbook (university III-IV r.a.) / ed. V.I. Gryshchenko, M.O. Shcherbyna - 3rd ed., vypr., 2020. – 376 s

- Clinical Obstetrics and Gynecology: 4th Edition/ Brian A. Magovan, Philip Owen, Andrew Thomson. – 2021. – 454 p.
- Boyko V. V, Kharchenko K. V, Manjura O. P, Karacharova I. Y. The role of sonography in the early detection of recurrence of ovarian cancer. Bukovinian Medical Bulletin. 2016;20(3):18-22

- Stasiv I. D. Clinical and sonographic picture of the state of the reproductive system organs in women with tumor-like ovarian formations. Abstracts of II International Scientific and Practical Conference: Eurasian Scientific Congress. 24-25 February 2020, Barcelona, Spain 2020:92-6

- Oxford Textbook of Obstetrics and Gynecology / Sabaratnam Arulkumaran, William Ledger, Lynette Denny, Stergios Doumouchtsis – Oxford University Press, 2020, 928 p. **Additional:**

- Situational tasks in gynecology: a textbook. / I.Z.Gladchuk, A.G.Volyanska, G.B.Shcherbyna and others.; ed. prof. I.Z.Gladchuk. – Vinnytsia: LLC "Nilan-LTD", 2018.-164 p.
- Clinical tasks in obstetrics and gynecology for students of IV-VI courses (part I). Methodical development for practical classes in obstetrics and gynecology for students of IV-VI courses of the School of Medicine / O.O. Korchynska, N.Y. Bysaga / ed. prof. Malyara V.A. – Uzhhorod: "Lira", - - 2019.-119s.
- Clinical tasks in obstetrics and gynecology for students of IV-VI courses (part P). Methodical development for practical classes in obstetrics and gynecology for students of IV-VI courses of the School of Medicine / O.O. Korchynska, N.Y. Bysaga / ed. prof. Malyara V.A. – Uzhhorod: "Lira"- - 2019.-119s.
- Boychuk OG, Guliy DYA. Diagnosis of benign ovarian tumors during pregnancy. Bulletin of Marine Medicine. 2021; 2(91):105-6.
- Meys EMJ, Jeelof LS, Achten NMJ, et al. Estimating risk of malignancy in adnexal masses: external validation of the ADNEX model and comparison with other frequently used ultrasound methods. Ultrasound Obstet Gynecol 2017;49(6):784–792
- Andreotti RF, Timmerman D, Benacerraf BR, et al. Ovarian-Adnexal Reporting Lexicon for Ultrasound: A White Paper of the ACR OvarianAdnexal Reporting and Data System Committee. J Am Coll Radiol 2018;15(10):1415–1429 [Published correction appears in J Am Coll Radiol 2019;16(3):403–406.] <https://doi.org/10.1016/j.jacr.2018.07.004>
- Current "Clinical Protocols", approved by the order of the Ministry of Health of Ukraine on obstetrics and gynecology.

Online sources for preparation:

- Practical recommendations of the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG). Internet:

- www.isuog.org/ISUOGGuidelines HYPERLINK
["http://www.isuog.org/ISUOGGuidelines"](http://www.isuog.org/ISUOGGuidelines)
- Ultrasound protocols. Internet-resource: Ukrainian portal of ultrasound diagnostics. Internet-resource: <http://ultrasound.net.ua/> HYPERLINK
["http://ultrasound.net.ua/"](http://ultrasound.net.ua/)
 - <https://medstandart.net/browse/266> – Uterine leiomyoma and benign genital neoplasms
 - <https://www.cochrane.org/> HYPERLINK ["https://www.cochrane.org/"](https://www.cochrane.org/)
 - <https://www.ebcog.org/> HYPERLINK ["https://www.ebcog.org/"](https://www.ebcog.org/)
 - <https://www.acog.org/> HYPERLINK ["https://www.acog.org/"](https://www.acog.org/)
 - <https://www.uptodate.com> HYPERLINK
["https://www.uptodate.com/"](https://www.uptodate.com/)
 - <https://online.lexi.com/> HYPERLINK ["https://online.lexi.com/"](https://online.lexi.com/)
 - <https://www.ncbi.nlm.nih.gov/> HYPERLINK ["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/):// HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)www HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/). HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)ncbi HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/). HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)nlm HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/). HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)nih HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/). HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)gov HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)/ HYPERLINK
["https://www.ncbi.nlm.nih.gov/"](https://www.ncbi.nlm.nih.gov/)
 - <https://pubmed.ncbi.nlm.nih.gov/>:// HYPERLINK ["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)pubmed
HYPERLINK ["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/). HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)ncbi HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/). HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)nlm HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/). HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)nih HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/). HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)gov HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)/ HYPERLINK
["https://pubmed.ncbi.nlm.nih.gov/"](https://pubmed.ncbi.nlm.nih.gov/)

- <https://www.thelancet.com/>
- <https://www.rcog.org.uk/> HYPERLINK "https://www.rcog.org.uk/" HYPERLINK
<https://www.rcog.org.uk/> www HYPERLINK
<https://www.rcog.org.uk/>. HYPERLINK
<https://www.rcog.org.uk/> rcog HYPERLINK
<https://www.rcog.org.uk/>. HYPERLINK
<https://www.rcog.org.uk/> org HYPERLINK
<https://www.rcog.org.uk/>. HYPERLINK
<https://www.rcog.org.uk/> uk HYPERLINK
<https://www.rcog.org.uk/> HYPERLINK "https://www.rcog.org.uk/"
- <https://www.npwh.org/> HYPERLINK "https://www.npwh.org/"

