ENDOSCOPY IN GYNECOLOGY

Methodical guidelines
for students' independent extracurricular work

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
Харківський національний медичний університет

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ЕНДОСКОПІЯ В ГІНЕКОЛОГІЇ

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для самостійної позааудиторної роботи
здобувачів вищої медичної освіти

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Chapter: Obstetrics and gynecology

Subchapter: Endoscopy in gynecology

Topic 1. History of introduction of laparoscopy in gynecological practice. Anatomy of the abdominal cavity. Anatomical aspects of gynecological endoscopy. Legal documents, orders of the Ministry of Health, regulating the performance of endoscopic operations.

1. Relevance of the topic: Protection of women's reproductive health is one of the important problems of the health care of the population of Ukraine. Wide use of laparoscopy in the practice of an obstetrician-gynecologist allows early diagnosis and treatment of many gynecological diseases. Laparoscopy is a minimally invasive surgical intervention that minimizes the negative impact on the organs of the reproductive system in women.

2. Educational goals formed at the levels of mastery:

To know, learn: the structure of the external and internal genital organs, topography, blood and lymph supply of the genital organs, anatomical and physiological features of the structure of the female genital organs in different age periods, neurohumoral regulation of the menstrual cycle, modern regulatory documents.

To be able to master the skills and abilities: name and identify the external and internal genitals, blood supply and innervation of the female genital organs on the phantom, perform a bimanual examination, perform an examination using a speculum, draw up medical documentation.

3. Materials for independent classroom work.

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy and physiology	Structure of external and internal genital organs, topography, blood and lymph supply of genital organs; anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle	Name and define external and internal genital organs, blood supply and innervation of female genital organs on the phantom
2. Topographic anatomy	Topography of internal genital organs	Determine the ratio of organs and vessels on the phantom
3. Laboratory and instrumental diagnosis	Normal indicators of biochemical and clinical studies	Evaluate the data of biochemical and clinical studies, ultrasound, perform a bimanual examination, perform an examination using a speculum

3.2. Contents of the topic:

The idea of examining the organs of the abdominal cavity with the help of introducing lighting devices into it belongs to the obstetrician-gynecologist D. O. Ott. He called this method ventroscopy and applied it during vaginal operations, which was announced at the meeting of the St. Petersburg Obstetrics and Gynecology Society on 19 April 1901. Later, the method was called differently: celioscopy, peritoneoscopy, pelvioscopy, organoscopy, abdominoscopy.

The following terminology was used at different times:

1. Laparoscopy (peritoneoscopy) - examination of abdominal organs using an endoscope inserted through the anterior abdominal wall.

2. Culdoscopy - an examination of the organs of the abdominal cavity using an endoscope inserted through the posterior vault of the vagina.

In 1907, G. N. Seryozhnikov and V. L. Yakobson, students of D. Ott, reported on the use of ventroscopy for the purpose of diagnosing ectopic pregnancy, genital tuberculosis, as well as the possibility of cauterization of adhesions in the pelvis.

In the following years, in some surgical, gynecological and therapeutic clinics, surgeons accumulated experience in the use of endoscopy, and the equipment was improved. Reports on the diagnostic value of laparoscopy in diseases of the pelvic organs continued to be published. So, in 1920, Orndoff described the endoscopic picture of pyosalpinx, tubal pregnancy and ovarian cysts. Examination of the abdominal cavity was combined with X-ray examination against the background of pneumoperitoneum.

The works of H. Kalka and his students (1928, 1929) were of great importance for the development of laparoscopy. They describe indications and contra-indications for examination of internal organs, possible complications and prevention of the latter. H. Kalka is rightfully considered the founder of laparoscopy as a clinical research method.

Later, laparoscopy was used not only for diagnosis, but also as a method that allows for some manipulations in the abdominal cavity: cauterization of adhesions, puncture of cysts followed by cytological examination. Photography began to be used when examining organs. Since the 1940s, both surgeons and gynecologists have increasingly used laparoscopy.

In the 1960s, studies devoted to the use of laparoscopy and laparoscopy in the diagnosis of gynecological diseases were held (V. A. Golubev, 1961; I. M. Gryaznova, 1961; N. M. Dorofeev, 1965; N. D. Seleznyova , 1962). In 1965 and 1972, monographs by I.M. Gryaznova, summarized the experience of using endoscopy in gynecology. They describe in detail the technique of abdominal endoscopy, its indications and contra-indications, and describe possible complications.

In the 1960s and 1970s, the important role of laparoscopy in the diagnosis of ovarian tumors was noted in connection with the possibility of conducting a biopsy during laparoscopy and obtaining washings for cytological examination (I. M. Gryaznova, 1965; N. D. Seleznova, 1966; E. Kastendik, 1975; K. Zemm, 1977, etc.). Great importance was attached to endoscopic methods in the diagnosis of ectopic pregnancy (I. M. Gryaznova, 1970; L. T. Zabarskyi, 1973; N. S. Borsuk et al., 1976; M. Cohen, 1968; F. Strube, 1974). Also, laparoscopy (culdoscopy) was used to identify the causes of both tubal and peritoneal infertility (R. Palmer, 1947, 1960; A. Decker, 1944; H. Frangenheim, 1964; M. Cohen, 1968; J. Phillips et al., 1977; M. Bruis et al., 1977, etc.).

In the 1970s and 1980s, the wide introduction of endoscopic research methods into clinical practice began, which was connected with the invention of fiber optics and special tools. As a result, not only did the quality of diagnostics improve, but some interventions on the organs of the abdominal cavity became possible: biopsy, dissection of adhesions and salpingotomy (V. Gomel, 1975; K. Zemm, 1977), cutting and clipping of fallopian tubes for the purpose of sterilization (J. Phillips et al., 1977; H. M. Savelieva et al., 1983), ventrosuspension of the uterus (K. Zemm, 1976), drainage of the abdominal cavity in acute inflammatory processes of the genitals (L. T. Zabarskyi, 1978; H. M. Savelyeva et al., 1979).

The next step forward was the possibility of obtaining photos and filming during laparoscopy. The first report on a successfully performed laparoscopic tubectomy belongs to Shapiro et al. (1973). They performed electrocoagulation of the mesosalpinx and fallopian tube in the isthmic section, after which the tube was removed from the abdominal cavity

In the 80s, they began to successfully transition from diagnostic laparoscopy to operative. Undisputed successes were achieved during operations on the adnexa of the uterus for ectopic pregnancy and benign ovarian tumors. In many gynecological clinics around the world, laparoscopic surgery on uterine adnexa, including benign ovarian tumors, became the method of choice (M. Bruis, 1980; K. Zemm, 1984; H. Rich, 1987, etc.).

The first report on laparoscopic hysterectomy belongs to H. Rich (1989). In 1991, K. Zemm described an endoscopically performed hysterectomy without colpotomy. In 1990, M. Kanis et al. the first laparoscopic radical hysterectomy with removal of regional lymph nodes was performed for stage Ia cervical cancer.

The creation of training centers for endoscopy methods in gynecology became important for the development of laparoscopic surgery. In Europe, they were organized in the clinics of Professor M. Bruis (France, Clermont-Ferrand) and Professor K. Zemm (Germany, Kiel).

3.4. Oriented map for independent work with literature on the topic: History of introduction of laparoscopy in gynecological practice. Anatomy of the abdominal cavity. Anatomical aspects of gynecological endoscopy. Normative documents, orders of the Ministry of Health regulating the performance of endoscopic operations.

Main tasks	Instructions	To learn:
To learn:		
1. Structure of external and internal genital organs, topography, blood and lymph supply of genital organs.	Pay attention to the features of the topographic anatomy, blood circulation and innervation of the pelvic organs.	
2. Normative documents of the Ministry of Health of Ukraine	Pay attention to the orders of the Ministry of Health of Ukraine No. 620, 676	

3.5. Materials for self-control:

A. Questions for self-control:

1. Concept of endoscopic surgery method.
2. Historical stages of development of endoscopic surgery.
3. Ways to improve technical equipment.
4. Modern possibilities of surgical interventions with endoscopic access.
5. Topographic anatomy of the pelvic organs.
6. Anatomical and physiological features of the structure of internal genital organs.
7. Blood supply and innervation of female genital organs.
8. Anatomical and physiological features of the structure of female genital organs in different age periods.
9. Protocols of the Ministry of Health of Ukraine regarding endoscopic surgery in gynecology.
10. Maintenance of medical documentation.

B. Tests for self-control:

1. The internal genital organs include all of the above, except:

A. Uterus. *C.Ovary.* *E. Vagina.*
B. Fallopian tubes. *D. Bartholin's glands.*

2. The uterus is located in the pelvis as follows:

A. The body and cervix are located at an angle to each other
B. The body of the uterus is located in the narrow part of the pelvic cavity.
C. The vaginal part of the cervix and the external orifice are located below the ischial bone.
D. All options are correct.

3. The ovary is supported in the abdominal cavity by which of the following ligaments:

A. Round. *B. Cardinal.* *C. Infundibulopelvic.* *D. Sacro-uterine.*

4. Tissue surrounding the uterus (parametrium):

A. Is located between the sheets of the broad uterine ligament.

B. Is located at the level of the uterine cervix.

C. Is located at the base of the broad uterine ligaments.

E. All options are correct.

5. The ovaries are supplied with blood by which of the following arteries:

A. Uterine.

B. Ovarian.

C. Iliolumbar.

D. Internal genital and ovarian.

E. Uterine and ovarian.

6. Uterine artery is a branch of:

A. Aorta.

B. Common iliac artery.

C. Internal iliac artery.

D. External iliac artery.

E. Iliolumbar artery.

7. The topographical anatomy of the uterine artery has the following characteristic features, except:

A. It is divided into ascending and descending branches.

B. At the first intersection with the ureter, it is located behind the ureter.

C. Its vaginal branch anastomoses with the renal artery.

D. Its vaginal branch goes along the anterior-lateral wall of the vagina on both sides.

8. Which of the following structures are not incised during extirpation of the uterus and adnexa:

A. Iliopelvic ligaments.

B. Round ligaments.

C. Sacro-uterine ligaments.

D. Cardinal ligaments.

E. Uterine ends of tubes.

C. Tasks for self-control:

1. A 16-year-old girl presented to a gynecologist's clinic with a menstrual cycle disorder. With the help of ultrasound, the doctor examines the female genital organs located in front of the rectum. What organs or their parts are located in front of the rectum in women?

A. Posterior surface of the uterus and posterior wall of the vagina.

B. Anterior surface of the uterus and anterior wall of the vagina.

C. Fallopian tubes.

D. The bottom of the uterus.

E. Right and left edges of the uterus.

2. A 52-year-old woman was admitted to the gynecological department with a tumor in the uterine fundus. Where is the bottom of the uterus located?

A. Between the body of the uterus and the cervix.

B. Above the line of entry of the fallopian tubes into the uterus.

C. Under the vaginal part of the cervix.

D. Under the supravaginal part of the cervix.

E. Between the cervix and the vagina.

3. A 25-year-old woman was hospitalized in the gynecological department due to an ovarian tumor. When performing the operation, it is necessary to dissect the ligament connecting the ovary to the uterus. What is the exact name of the ligament?

A. Lig. suspensoriumovarii.
B. Lig. sardinale.
C. Lig. latum uteri.
D. Lig. Ovariiproprium.
E. Lig. umbilicalelaterale.

4. A 30-year-old woman presented to the gynecological department of the polyclinic, with an impossibility of getting pregnant. The doctor examined the patient and found that her uterus is in a retroflexiouteri position. This position is determined by:

A. The angle between the body and the cervix, open forward.
B. The angle between the body and the cervix, open backward.
C. With the bottom of the uterus directed forward.
D. With the bottom of the uterus directed backward.
E. Tilting of the uterus to the left.

5. A woman was admitted to the gynecological department by ambulance with acute pain in the right inguinal area secondary to delayed menstruation. After examining the patient, the doctor diagnosed a rupture of the fallopian tube wall as a result of tubal pregnancy with irritation of her mesentery. What is the name of fallopian tube mesentery?

A. Mesentery.
B. Mesoovarium.
C. Mesometrium.
D. Mesosalpinx.
E. Mesocolonsigmoideum.

6. A 28-year-old woman was diagnosed with an ectopic pregnancy, which was complicated by a fallopian tube rupture. A hemorrhage to which structure of the peritoneum is the most likely?

A. Recto-uterine cavity.
B. Lower ileo-cecal fold.
C. Right mesenteric sinus.
D. Left mesenteric sinus.
E. Intersigmoid fold.

7. Immediately after ovulation in women, the ovum enters the peritoneal cavity and is captured by the ends of the fallopian tube to advance into the uterine cavity. Through which parts of the fallopian tube does the ovum advance successively into the uterine cavity?

A. Isthmus, ampulla, infundibulum, pars uterina.
B. Ampulla, infundibulum, isthmus, pars uterina.
C. Infundibulum, ampulla, isthmus, pars uterina.
D. Infundibulum, isthmus, ampulla, pars uterina.
E. Ampulla, isthmus, infundibulum, pars uterina.

8. A woman presented to a gynecologist with acute pain in the lower abdomen. After examining the woman, the doctor found endometritis. Inflammation of which lining of the uterus causes this disease?

A. Mucous.
B. Muscular.
C. Serous.
D. Subserous.
E. Peri-uterine cellular.

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– endoscopic presentation of the pelvic organs.
– endoscopic presentation of the blood flow of the pelvic organs.
– topography of pelvic organs.
– anatomy of adjacent organs (bladder, urethra, intestines).
– extraperitoneal space of the small pelvis.
– fixing apparatus of the pelvic organs.

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Tasks	Instructions	Notes
The structure of the internal genital organs, topography of the pelvic organs (working on a phantom)	Report the structure, blood supply and innervation of the internal female genital organs and adjacent organs; topography of the pelvic organs	
2. Management of a gynecological patient	During the examination, to identify: 1. Presence of changes in examination. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination. 5. Fill out the medical documentation.	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for independent extracurricular work.

Topics of students' educational research work and scientific research work

Topic 2. Indications and contra-indications for laparoscopy. Preoperative preparation and management of patients in the postoperative period. Justification of access during laparoscopy. Basics of safety when working with electrosurgical instruments

1. Relevance of the topic: Wide use of laparoscopy in the practice of an obstetrician-gynecologist allows early diagnosis and treatment of many gynecological diseases. It is important to note that laparoscopy is a minimally invasive surgical intervention that minimizes the negative impact on the organs of the reproductive system in women. That is why the deepening and improvement of students' knowledge on issues of gynecological endoscopy is an actual direction of the educational process.

2. Educational goals formed at the levels of mastery:

To know, learn: the structure of the external and internal genital organs, topography, blood and lymph supply of the genital organs, technical equipment and tools of the endoscopic operating room; indications and contra-indications for planned and urgent endoscopic operations; laparoscopy technique.

To be able to master the skills and abilities: name and identify the external and internal genitals, blood supply and innervation of the female genital organs on the phantom, perform laparoscopic access, master the laparoscopy technique.

3. Materials for independent classroom work.

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy, physiology and topographical anatomy	Structure of external and internal genital organs, blood and lymph supply of genital organs; Topography of the pelvic organs	Name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on the phantom. Determine the ratio of organs and vessels on the phantom
2. Technical equipment	Endoscopic operating room equipment. Instrumentation for performing laparoscopy. Safety rules when working in the operating room	Prepare equipment for laparoscopy. Assemble the operating table with endoscopic instruments
3. Endoscopic surgery	Indications and contra-indications for laparoscopic operations. Technique of laparoscopy. Basics of safety when working with electrosurgical instruments. Types of analgesia during endoscopic operations	Choose the type of access during laparoscopic surgery, demonstrate the technique of laparoscopy (working on a phantom). Prepare the patient for surgery and manage the postoperative period. Select the type of anesthesia during surgical endoscopy

3.2. Contents of the topic: In gynecological practice, methods of minimally invasive surgery are being actively implemented, which are highly informative in the diagnosis and effective in the treatment of gynecological pathology. Among these methods, the leading place is given to diagnostic and surgical endoscopy. These methods have indisputable advantages over conventional

surgical interventions, namely, a significant reduction of the patient's hospital stay, reduction of the medication load in the postoperative period and the risk of complications, acceleration of the patient's recovery, etc.

Equipment for endoscopic surgery:

1. A laparoscope is an optical device inserted into the abdominal cavity to visualize internal organs. Laparoscopes differ in diameter (5 or 10 mm) and the direction of the axis of vision (0o, 30o or 45o). For gynecological operations, optical tubes with a diameter of 10 mm and a direction of the visual axis of 0° are most often used. Thin 5-millimeter laparoscopes are used in diagnostic laparoscopy, as well as in pediatric gynecology to reduce the degree of invasiveness of the procedure.

2. The video camera consists of a video signal processing unit and a camera head connected to it by a cable, which is fixed to the eyepiece of the laparoscope. The main parameters of modern video cameras are resolution and sensitivity. Immediately before the operation, it is necessary to focus the video camera on a white object 5 cm away - the average visualization distance during endoscopy.

3. Video monitor - a device for visualizing video information. In endoscopy, it is preferable to use video monitors with a diagonal of at least 20 inches. The quality of the image depends on the number of points (pixels) into which the image is divided when displayed on the monitor. Modern flat HD video monitors with an aspect ratio of 16:9 have the best qualities, which improves anatomical orientation.

4. A recording device to store and review the video image obtained during the operation.

5. The light source serves to illuminate the internal cavities. The light is supplied through the laparoscope, with which the light source is connected by a flexible light guide, which is hundreds of thin glass fibers in a common shell.

6. An insufflator is a device that supplies gas to the abdominal cavity to create the necessary space and maintains a given pressure. Laparoscopy is performed under conditions of pneumoperitoneum with a pressure in the range of 12–16 mmHg.

Among existing gases, preference is given to carbon dioxide, which is inexpensive, available, quickly absorbed by the peritoneum, does not support combustion, is harmless to personnel, and quickly dissolves when it enters the bloodstream. Its disadvantage is the ability to cause cardiac arrhythmia and acidosis in patients with cardiopulmonary diseases.

7. Aspiration-irrigation system (Aquapurator) is intended for sanitation of the abdominal cavity, combines the functions of supplying sterile liquid to the abdominal cavity and removing it by electrosuction. Physiological solution or Ringer's solution are usually used for sanitation of the abdominal cavity.

8. Electrosurgical apparatus is a device for receiving high-frequency electrical impulses, which provides electrotomy and electrocoagulation of tissues in monopolar or bipolar mode.

Instruments for laparoscopic surgery

Surgical instruments for endoscopic operations are divided into access tools and manipulation tools, which can be single-use or reusable.

Access tools:

▪ The Veress needle serves to create primary pneumoperitoneum and consists of two hollow parts.

▪ Trocars for laparoscopy differ in shape and size:

– the central (primary) trocar corresponds to the diameter of the selected laparoscope and is used to insert it into the abdominal cavity; is introduced in most cases through the umbilical ring blindly;

– lateral (secondary) trocars are used to introduce manipulators into the abdominal cavity and have a diameter corresponding to the diameter of the instruments used.

▪ the trocar is introduced with a stylet, which is inserted into the lumen of the trocar and has a different-shaped end.

Instruments for procedures:

▪ Clamps are divided into traumatic (for rigid fixation) and atraumatic (gentle) depending on the design of the tool branches (wide or narrow branches, the presence of prong, claws, etc.), mainly with a diameter of 5 and 10 mm (2 mm instruments are also often used within general trend to reduce operative trauma)

▪ Scissors are intended for sharp dissection of tissues:

– beak-shaped scissors for cutting tubular structures (appendix, vascular bundle, etc.); this form is used to grab and then cross the object, preventing it from slipping out of the scissors;

– straight scissors (for classic separation of tissue, cutting threads);

– curved scissors are the most convenient for performing various types of preparation.

▪ Monopolar electrodes:

– L- or J-shaped hooks are used for dissection, especially when dividing large joints;

– round (spherical), electrodes – "blades" are used to stop parenchymal bleeding (from the bed of a myomatous node, ovarian cyst, after forceps biopsy of the ovary, etc.);

– needle electrodes are used to disconnect and cross tissues

▪ Bipolar tools:

– with wide branches for coagulation of large tissue masses (large omentum, uterine tubes, uterine vessels, etc.);

– narrow branches for finer coagulation (short and thin adhesions, etc.)

– thin-lipped dissecting forceps in the bipolar tweezer type (for fimbrolysis) are used for simultaneous dissection, cutting, grasping of tissues and hemostasis.

▪ Tools for applying knots, stitches:

– needle holders of various designs with different shapes of branches and handles. the node pusher is designed to advance loops of suture material;

– the Bersi device is used to apply a reliable suture to the area of the incision of the abdominal wall (hemostasis, closure of the fascia defect).

▪ Auxiliary tools:

– aspirator-irrigator is a system for automatic supply and removal of liquid;

– the palpator (laparoscopic probe, retractor) has a blunt end and is used for atraumatic displacement of organs for a more convenient examination; with the help of the applied measuring scale, it is possible to estimate the true size of organs and formations in the conditions of enlargement;

– the uterine manipulator is intended for mobilization or fixation of the uterus and adnexa during both diagnostic and radical laparoscopic interventions to improve visualization of the pelvic organs.

▪ A puncture needle should be used to evacuate fluid from the cavity of fluid formations, as well as for hydropreparation of tissues (for example, during myomectomy).

▪ A morcellator – manual or automatic – is used to extract from the abdominal cavity tumors and organs of large sizes by fragmentation.

Indications and contra-indications for laparoscopic operations:

Both planned and emergency gynecological operations are performed laparoscopically.

Planned laparoscopic gynecological interventions include:

• diagnostic laparoscopy with biopsy;
• sterilization;
• operations for tubal and peritoneal infertility;
• operations for ovarian tumors and cysts, polycystic ovary syndrome;
• tubectomy;
• surgical treatment of endometriosis;
• enucleation of myomatous nodes of the uterus;
• hysterectomy;
• reconstructive and plastic operations for malformations of the internal genital organs;
• colpopexy.

According to emergency indications, laparoscopic operations are performed for:

• tubal pregnancy;
• ovarian apoplexy;
• ovarian cyst ruptures;
• torsion of the uterine adnexa;
• torsion of the subserous myomatous node;
• acute inflammatory diseases of the uterus (purulent salpingitis, pyosalpinx, purulent tuboovarian formations);

• the need for differential diagnosis between acute surgical and gynecological impairments.

In addition to indications, there are also contra-indications to laparoscopic intervention. At present, there are absolute and relative contra-indications.

Absolute contra-indications:

• Diseases of the cardiovascular and respiratory systems in the stage of decompensation.

• Shock, coma states.

• Cachexia.

• Acute kidney and liver failure.

• Acute infectious diseases.

• Widespread peritonitis.

• Widespread cystic process in the abdominal cavity, established during the previous laparotomy.

• Late-term pregnancy.

• Complications during pneumoperitoneum application or trocar insertion, large emphysema, damage to the hollow organs of the abdominal cavity, large vessels.

• Coagulopathy.

Relative contraindications:

• Past operations in the area of the object of intervention.

• III–IV degree obesity.

Endoscopic surgery is used for radical interventions without wide dissection of the skin through point punctures of tissues.

The advantages of laparoscopy are:

• minimally invasive and cosmetic effect;

• reduction of the patient's stay in the hospital and rehabilitation as a result of rapid recovery of vital functions and work capacity;

• decrease in the frequency and severity of complications due to a lower risk of adhesions, postoperative intestinal paresis and the formation of ventral drooping.

3.4. Oriented map for independent work with literature on the topic: Indications and contra-indications for laparoscopy. Preoperative preparation and management of patients in the postoperative period. Justification of access during laparoscopy. Basics of safety when working with electrosurgical instruments.

Main tasks	Instructions	Answers
To learn:		
1. Technical equipment and tools of the endoscopic operating room	Pay attention to the preparation of equipment and instruments for laparoscopy. Learn safety rules when working with electrosurgical instruments	
2. Indications and contra-indications	Determine the indications for planned and urgent laparoscopy, contra-indications for endoscopy, the tactics of preparation for surgery, the main types of clinical and laboratory research.	
3. Technique of laparoscopy	Determine access options during laparoscopy, stages of operation, possible complications during endoscopy and their prevention	

3.5. Materials for self-control:

A. Questions for self-control:

1. Contra-indications and indications for laparoscopy.
2. Principles of preparing patients for endoscopic intervention.
3. Methods of analgesia in gynecological endoscopy.
4. Complications during endoscopic interventions.
5. Endoscopic operating room equipment.
6. Endoscopic instruments.
7. Safety rules when working in the endoscopic operating room.
8. Stages of laparoscopy.

B. Tests for self-control:

1. What method is the most reliable for determining the obstruction of the fallopian tubes:

A. Culdocentesis. *C. Hysterosalpingography.* *E. Ultrasound.*
B. Colposcopy. *D. Hysteroscopy.*

2. Endoscopic methods in gynecology include:

A. Colposcopy. *C. Laparoscopy.* *E. None of the above.*
B. Hysteroscopy. *D. All of the above.*

3. Indications to planned diagnostic laparoscopy include:

A. Suspected tumor. *D. Sterilization.*
B. Differential diagnosis of acute abdomen. *E. Acute endometritis.*
C. Infertility.

4. Contra-indications to laparoscopy are:

A. Pulmonary heart failure in the stage of decompensation.
B. Acute infectious diseases.
C. Acute appendicitis.
D. Obesity.
E. Infertility.

5. Which of the examination methods is the most informative in the diagnosis of tubo-peritoneal infertility:

A. Chemopertubation. *C. Transvaginal echography.*
B. Hysterosalpingography. *D. Laparoscopy with chromosalpingoscopy*.

6. The diagnostic value of laparoscopy in gynecology is particularly high in all the listed conditions, except:

A. Progressive ectopic pregnancy. *C. Ovarian tumors.*
B. Myoma of the uterus. *D. Uterine pregnancy.*

7. In the diagnosis of acute abdomen it is irrelevant to perform:

A. Puncture of the vagina through the posterior vault. *C. Percussion.*
B. Bimanual study. *D. Hysteroscopy.*

8. The most informative method for diagnosing tubal pregnancy is:

A. Puncture of the abdominal cavity through the posterior vault.

B. Laparoscopy.

C. Radiography of abdominal organs.

D. Colposcopy.

C. Tasks for self-control:

1. A patient presents with loss of consciousness, pain in the lower abdomen, delay of menstruation for 2 weeks. The skin and mucous membranes are pale. Pulse'– 110/min, filiform, Hb – 76 g/l, T – 36.8 °C. Blood pressure – 80/60 mmHg. On vaginal examination: cyanosis of the mucous membranes, dark bloody discharge, the body of the uterus is somewhat enlarged, sharply painful when moved, a tumor-like formation of unclear dimensions on the right. The back vault of the vagina overhangs and is painful. What is the most likely diagnosis? What measures should be undertaken? (Disrupted ectopic pregnancy, laparoscopy).

2. A 26-years-old married woman presents with absence of menstruation (the delay is 26 days) and nausea, mostly in the morning. The pregnancy test is positive. Before, the menstrual cycle was regular. She has been sexually active since 19. There were no pregnancies. On examination: the mucous membrane of the cervix and vagina is cyanotic, the body of the uterus is soft in consistency, slightly increased in size. Ultrasound findings: no fetal bladder was found in the uterine cavity. What is the most likely diagnosis? What treatment tactics should be chosen? (Suspected progressive ectopic pregnancy, laparoscopy)

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– technical equipment of the endoscopic operating room;

– basics of safety when working in the operating room;

– instruments for performing laparoscopy and hysteroscopy;

– choice of access method during laparoscopy;

– preparation of patients for endoscopic intervention;

– management of patients in the postoperative period;

– methods of analgesia in gynecological endoscopy;

– methods of preventing complications during endoscopic intervention.

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Task	Instructions	Notes
1. Examination of a gynecological patient	1. History taking, general examination, bimanual and speculum examination, ultrasound, preparation of medical documentation	
2. Management of a gynecological patient	During the examination, identify: 1. Presence of changes in the study. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination	
3. Principles of work and regime of the gynecological department. Peculiarities of preparation for surgery and the course of the postoperative period	Catheterization of the urinary bladder, assessment of laboratory parameters, bowel preparation, taking smears from the vagina. Conducting interviews with gynecological patients	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for independent extracurricular work.

Topics of students' educational research work and scientific research work

Topic 3. Laparoscopic operations for acute abdomen syndrome in gynecology. Laparoscopic operations during pregnancy. Indications and contra-indications

1. Relevance of the topic: Protection of women's reproductive health is one of the important problems of the health care of the population of Ukraine. The wide use of laparoscopy in the practice of an obstetrician-gynecologist allows for early diagnosis and treatment of such urgent conditions as ectopic pregnancy, ovarian apoplexy, and malnutrition of ovarian and uterine tumors. Laparoscopic intervention allows to minimize the negative impact on the organs of the reproductive system in women.

2. Educational goals formed at the levels of mastery:

To know, learn: the structure of external and internal genital organs, topography, blood and lymph supply of genital organs, anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle, modern research methods, semiotics, differential diagnosis and treatment tactics of diseases with the acute abdomen presentation in gynecology.

To be able to, master the skills, abilities: name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on the phantom, perform a bimanual examination, perform an examination using a speculum, perform laparoscopic access, laparoscopy technique in case of ectopic pregnancy, ovarian apoplexy, impaired nutrition of tumors of ovary and uterus, draw up medical documentation.

3. Materials for independent pre-classroom work

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy, physiology and topographic anatomy	Structure of external and internal genital organs, topography, blood and lymph supply of genital organs; anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle	Name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on a phantom
2. Clinical gynecology	Presentation, diagnosis, differential diagnosis and management tactics of gynecological patients with acute abdomen symptoms. Indications for surgical interventions, modern endoscopic methods of treatment	Carry out differential diagnosis, prescribe clinical and laboratory tests for patients with acute abdominal symptoms, choose a method of surgical intervention
3. Endoscopic surgery	Endoscopic picture of diseases with the acute abdomen presentation in gynecology (ectopic pregnancy, ovarian apoplexy, ovarian and uterine tumor nutrition disorders)	Laparoscopy technique for ectopic pregnancy, ovarian apoplexy, disruption of nutrition of ovarian and uterine tumors (on a phantom)

3.2. Contents of the topic:

Ectopic pregnancy.

Classification:

1. Tubular.
2. Ovarian.
3. Abdominal.
4. Cervical.
5. Pregnancy in the rudimentary horn of the uterus.

Implantation of a fertilized egg outside the uterine cavity can occur due to a violation of the transport function of the fallopian tubes, as well as in connection with a change in the properties of the fertilized egg itself.

The basis of the pathogenesis of ectopic pregnancy is a violation of the physiological transport of the fertilized egg.

Presentation:

A distinction is made between progressive and aborted tubal pregnancy. It is difficult to diagnose a progressing tubal pregnancy in the early stages, since at the same time there are changes in the body characteristic of pregnancy. Sometimes delayed menstruation, nausea, engorgement of the mammary glands, cyanosis of the vagina and cervix are observed. The uterus due to the presence of a decidual membrane and hypertrophy of muscular elements increases and softens. During bimanual examination, it is possible to palpate some softness in the area of the uterine adnexa. Laboratory findings: human chorionic gonadotropin in blood.

An aborted tubal pregnancy can occur either by the type of tubal abortion or by the type of rupture of the fallopian tube. When the tube ruptures, there are sudden pains in the lower abdomen, in the groin, radiating to the shoulder or shoulder blade (phrenicus symptom caused by irritation of the phrenic nerve), cold sweat, decreased blood pressure, loss of consciousness, weak frequent pulse, nausea, pallor of the skin and mucous covering and membranes, cyanosis. The abdomen is painful on palpation, more so on the side where the tube rupture occurred. The Shchyotkin-Blumberg symptom is weakly positive. Percussion reveals dullness of sound in the soft parts of the abdomen. Body temperature is normal. As blood loss increases, severe posthemorrhagic collapse develops. A vaginal examination reveals minor bleeding, the uterus is enlarged, softened, mobile more than usual. In the region of the adnexa, there is a pastiness or a palpable tumor-like formation, the posterior vault is sometimes flattened. There is sharp pain when trying to shift the cervix forward and sharp pain in the back vault of the vagina. In the case of tubal abortion, there is a paroxysmal pain in the lower abdomen, more often on the side of the pregnant tube, and bloody discharge from the genital tract. Short-term unconsciousness often occurs. During the vaginal examination, a slightly enlarged uterus of soft consistency and a tumor-like formation in the area of the adnexa, painful on palpation, limited in mobility, are palpated.

Diagnosis:

To clarify the diagnosis of tubal pregnancy, there are numerous additional research methods, the most informative are the following:

• Determination of chorionic gonadotropin (hCG) in blood serum or urine.

• Ultrasound examination is a widely used non-invasive method, which in combination with hCG can provide high diagnostic accuracy.

• Targeted culdocentesis (puncture of the Douglas space under ultrasound control) allows diagnosing the presence of intra-abdominal bleeding.

• Laparoscopy is the most accurate, reliable and informative method of detecting ectopic pregnancy. Diagnostic laparoscopy is performed when clinical and ultrasound research methods are insufficiently informative.

During laparoscopy, a progressive tubal pregnancy looks like a spindle-shaped thickening of a bluish-purple color in one of the sections of the tube. The size of the tube depends on the period of pregnancy. The vessels of the broad ligament, mesosalpinx and mesovarium are significantly expanded on the side of the lesion. If the integrity of the tube is violated, one or more holes of an irregular shape are visible in it. There may be hemorrhages on the wall of the tube, dark blood may flow from its lumen. Liquid dark blood with the presence of clots accumulates in the posterior vault.

An absolute contra-indication for laparoscopy in ectopic pregnancy is the 3rd–4th degree hemorrhagic shock, which more often occurs with blood loss exceeding 1 500 ml.

Relative contra-indications are:

• unstable hemodynamics (the 1st–2nd degree hemorrhagic shock) with blood loss exceeding 500 ml;

• interstitial localization of the fertilized egg;

• the location of the fertilized egg in the additional horn of the uterus;

• rupture of the fallopian tube wall;

• general contra-indications to laparoscopy (obesity, pronounced adhesion process, cardiovascular and pulmonary insufficiency).

Ovarian apoplexy

Ovarian apoplexy is a sudden hemorrhage in the ovary, accompanied by a violation of its integrity and bleeding into the abdominal cavity.

Etiology:

Ovarian apoplexy can be caused by exogenous (external) and endogenous (internal) causes. Endogenous causes include: sebaceous and inflammatory processes in the pelvis, incorrect position of the uterus, compression of blood vessels, which leads to a violation of blood supply to the ovary, compression of the ovary by a tumor. Exogenous causes include violent intercourse, physical exertion.

Presentation:

Ovarian apoplexy is characterized by sudden pain in the lower abdomen. The presentation is determined by the nature of the bleeding and the presence of concomitant disorders.

Leading symptoms of ovarian apoplexy:

• pain in the lower abdomen and lower back, pain radiating into the rectum (anus);

• weakness;

• bloody discharge from the vagina;

Diagnosis

The diagnosis of ovarian apoplexy is established on the basis of characteristic presentation, history and examination data.

The most informative in diagnosis are ultrasound, puncture of the abdominal cavity through the posterior vault of the vagina (culdocentesis) and laparoscopy.

Laparoscopic diagnosis has a fairly high accuracy (98 %). The surgical picture of ovarian apoplexy is characterized by the presence of a number of criteria:

• blood in the pelvis, possibly with clots;

• the uterus is not enlarged, and its serous coating is pink;

• signs of a chronic inflammatory process in the form of peritubar nodules are often found in the fallopian tubes;

• the damaged ovary is usually of normal size.

Treatment

The goal of treatment: to stop bleeding from the ovary, restore its integrity and eliminate the consequences of blood loss.

Conservative treatment. In hemodynamically stable patients, when peritoneal symptoms disappear with a small amount of fluid in the pelvis, conservative treatment with follow-up is sufficient. Conservative therapy includes: rest, cold on the lower abdomen (contributes to spasm of blood vessels), hemostatic drugs, antispasmodics, vitamins. Conservative treatment must be carried out in a hospital under the round-the-clock supervision of medical personnel. Deterioration of the general condition, appearance of objective signs of internal bleeding or increasing anemia are indications for operative treatment.

Operative treatment. If necessary, diagnostic laparoscopy becomes therapeutic. Operative intervention in patients with ovarian apoplexy is performed by laparoscopic or laparotomy access.

Torsion of the tumor pedicle

In 15–25 % of observations, there is torsion of the pedicle of an ovarian tumor, but it is possible to twist the pedicle of any tumor (for example, a subserous node), fallopian tube, intact ovary, and even the entire uterus or its adnexa. Mobile mature teratomas, as well as paraovarian cysts, dense fibroids of the ovary are prone to torsion.

The presentation of the disease is determined by the tumor's nutrition disorder. The disease begins suddenly with the appearance of sharp pain in the lower abdomen on the side of the lesion, nausea, vomiting, delayed bowel movements (intestinal paresis).

The diagnosis of torsion of the tumor pedicle is based on presentation, history data (indication of a cyst or ovarian tumor), typical symptoms of the disease, examination findings. The skin becomes pale, cold sweat appears, the body temperature rises (usually up to 38 °C), the pulse increases. The tongue is dry, coated with plaque. The abdomen is distended, painful in the place of tumor projection, the muscles of the anterior abdominal wall are tense, the Shchyotkin-Blumberg symptom is positive. In the blood, leukocytosis, ESR is increased. The disease can be confirmed by a gynecological examination, which reveals a bulky mass in the region of the uterine adnexa, usually oval in shape, with a tight-elastic consistency, limited mobility, and sharply painful upon palpation and attempted displacement. The uterus and adnexa, on the other hand, are unchanged.

Ultrasound scanning is an important method of diagnosing torsion of the tumor pedicle, during which a volumetric formation with signs of a tumor or ovarian cyst is determined in the region of the uterine adnexa.

Endoscopic examination reveals a purplish-cyanotic tumor with or without signs of necrosis in the small pelvis, as well as serous or serous-hemorrhagic effusion.

Treatment of twisting of the tumor pedicle is operative (laparoscopic or laparotomy access). Delaying the operation leads to necrosis of the tumor, attachment of secondary infection, fusion of the tumor with neighboring organs, development of peritonitis. After a visual examination of macrospecimen, and sometimes after an urgent histological examination, the scope of surgical intervention is finally determined.

3.3. Oriented map for independent work with literature on the topic: Laparoscopic operations for acute abdomen syndrome in gynecology. Laparoscopic operations during pregnancy. Indications and contra-indications

Main tasks	Instructions	Answers
To learn:		
1. Structure of external and internal genital organs, topography, blood and lymph supply of genital organs	Pay attention to the peculiarities of topographic anatomy, blood circulation and innervation of the female genital organs	
2. Presentation, diagnosis, differential diagnosis and tactics of management of gynecological patients with acute abdomen presentation	Study semiotics and differential diagnosis of gynecological diseases (ectopic pregnancy, apoplexy of the ovary, torsion of the tumor of the ovary and uterus)	

3.4. Materials for self-control:

A. Questions for self-control:

1. Presentation, diagnosis, differential diagnosis of ectopic pregnancy.
2. Laparoscopy in the diagnosis and treatment of ectopic pregnancy.
3. Presentation, diagnosis, differential diagnosis of ovarian apoplexy.
4. Endoscopic tactics of organ-preserving surgery in ovarian apoplexy.
5. Malnutrition of an ovarian tumor, differential diagnosis.

6. Modern approaches to operative treatment of ovarian tumor pedicle torsion.

7. The role of laparoscopy in the treatment of inflammatory diseases of the female genital organs.

8. Acute abdomen in the practice of a gynecologist.

9. Contra-indications to endoscopic interventions in the acute abdomen presentation in gynecology.

10. Prevention of complications in the postoperative period.

B. Tests for self-control:

1. Apoplexy of the ovary:

A. Torsion of the ovary. *C. Rupture of the ovarian membrane.*

B. Necrosis of the ovary. *D. Swelling of the ovary.*

2. Most often, ovarian apoplexy occurs during:

A. The first phase of the menstrual cycle. *C. In the middle of the cycle.*

B. The second phase of the menstrual cycle. *D. Regardless of the phase.*

3. The differential diagnosis of ectopic pregnancy is benefited by:

A. History taking. *C. Laparoscopy.*

B. Pregnancy test. *D. All options are correct.*

4. Which form of ovarian apoplexy is an indication for an operative intervention:

A. Hemorrhagic. *B. Painful.* *C. Not indicated.*

5. Ectopic pregnancy can be localized everywhere except:

A. Fallopian tube. *B. Cervix.* *C. Abdominal cavity.* *D. Vagina.*

6. Causes of ectopic pregnancy include all of the listed below, except:

A. Inflammatory processes in the adnexa of the uterus.

B. Endocrine disorders.

C. Increased trophoblast activity.

D. Anovulation.

7. In tubal pregnancy, the most unfavorable location of the fertilized ovum is in the region:

A. Interstitial. *B. Isthmic.* *C. Ampullar.* *D. Fimbrial.*

8. When the fallopian tube ruptures, pain radiating to the scapula and shoulder (phrenicus symptom) is associated with irritation of:

A. Sciatic nerve. *C. Diaphragmatic nerve.*

B. Solar plexus. *D. Parietal peritoneum.*

9. Spasm-like pains during tubal pregnancy are typical for:

A. Tube rupture. *C. Progressing pregnancy.*

B. Tubal abortion. *D. Not typical for ectopic pregnancy.*

10. The best choice in progressive tubal pregnancy is:

A. Laparotomy. *B. Laparoscopy.* *C. Hysteroscopy.* *D. Waiting tactics.*

C. Tasks for self-control:

1. A 22-year-old patient N. presents with severe pain in the lower abdomen for 2 days, which is temporarily relieved by taking NSAIDs. According to history: menarche since the age of 12. The menstrual cycle is regular, 4–5 days, after 28–29 days, menstruation is moderate, painful. The last menstruation began 52 days ago, lasted 5 days, moderate, painful. Absence of pregnancies. Contraception – interrupted intercourse.

Status genitalis: The external genitalia are developed correctly, according to the female type. The urethra and paraurethral passages are not changed.

Examination using a speculum: Mucous membranes of the vulva and vagina of normal color, clean. The cervix is conical in shape, clean, and the external opening is rounded. Discharges are dark brown, scanty (according to the patient lasting for 4–5 days).

Bimanually: The body of the uterus is slightly enlarged, softened, mobile, painless on palpation. The adnexa on the left are not enlarged, on the right there is a palpable, oblong, three-dimensional mass of 2×4 cm, painful on palpation. Vaults are free, deep.

1. Establish a preliminary diagnosis.
2. Determine the indications for surgical intervention and its scope.
3. What conditions is it necessary to differentiate it from?

Answer:

1. Ectopic (tubal) pregnancy on the right.

2. Diagnostic laparoscopy is indicated to clarify the diagnosis and determine operative tactics.

3. Acute inflammatory disease of the pelvic organs (purulent salpingitis, tuboovarian abscess), acute appendicitis, ovarian apoplexy, torsion of the pedicle of the ovarian tumor, torsion of the uterine appendages.

2. A 36-year-old patient. There are 4 uncomplicated abortions in history, at the time of admission, menstruation was delayed for 4 weeks. She became acutely ill: spasm-like pain appeared in the lower abdomen, she suddenly lost consciousness. During the examination: the skin is pale, the patient is lethargic, the pulse is 120 beats per minute, blood pressure is 80/40 mmHg. The abdomen is soft, painful in the lower parts. Symptoms of peritoneal irritation are positive in the hypogastric area. Dulling of percussive sound. During a bimanual examination, the displacement of the cervix is sharply painful, it is impossible to clearly palpate the body of the uterus and adnexa due to the tension of the muscles of the anterior abdominal wall, sharp pain in the posterior vault, secretions from the genital tract are with blood.

Establish the diagnosis and management plan.

Answer:

Diagnosis: ectopic pregnancy. Interruption by the type of rupture of the fallopian tube. Bleeding in the abdominal cavity.

Differential diagnosis: ovarian apoplexy, acute appendicitis.

Tactics: general tests + hCG, ultrasound of the uterus and adnexa, laparoscopy or laparotomy (salpingectomy).

3. A 15-year-old female patient was brought to the hospital by an ambulance with a diagnosis of subacute, bilateral salpingo-oophoritis and pain in the left iliac region with radiation to the rectum. The pains arose suddenly, in the morning in the left iliac region, then over the groin. There was no nausea or vomiting. On examination: the condition is satisfactory, skin and mucous membranes of normal color, blood pressure 110/70 mmHg. The abdomen is not swollen, soft, moderately painful in the left iliac region. There are no peritoneal symptoms. With two-handed recto-abdominal examination, the uterus is not enlarged, dense, painless. The adnexa on the right are not enlarged, painless. The adnexa on the left are enlarged, without clear contours, the area of their palpation is painful. Vaults are free, deep.

Establish the diagnosis. Provide differential diagnosis. Choose management tactics.

Answer:

Diagnosis: Ovarian apoplexy.

Differential diagnosis should be made with inflammatory diseases of the small pelvis, disorders of the adnexa (torsion of the leg of the voluminous formation of the ovary, with ovulatory pain, diseases of the gastrointestinal tract (appendicitis, diverticulitis).

Examination tactics:

– History of general diseases, gynecological disorders, what she thinks the cause of the onset of the disease is (menstruation, intercourse, etc., if she had anything similar before).

– General tests (blood – leukocytes, Hb, ESR; general analysis of urine, HCG in serum).

– Smear from the cervical canal (diagnosis of gonorrhea, chlamydia).

– Ultrasound of the pelvis.

– Puncture through the posterior vault under ultrasound control (if there is a significant amount of free fluid).

– Laparoscopy if the presentation is unclear.

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– preparation of patients for endoscopic intervention;

– management of patients in the postoperative period;

– methods of analgesia in gynecological endoscopy;

– methods of preventing complications during endoscopic intervention;

– laparoscopic diagnosis and treatment of ectopic pregnancy;

– laparoscopic diagnosis and treatment of ovarian apoplexy;

– the use of laparoscopy in the treatment of inflammatory diseases of the female genital organs;

– laparoscopic methods of intervention in case of disruption of the supply of the fibromatous node;

– laparoscopic operations during pregnancy;

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Tasks	Instructions	Notes
1. Examination of a gynecological patient	History taking, general examination, bimanual and speculum examination, ultrasound, preparation of medical documentation	
2. Management of a gynecological patient	During the examination, identify: 1. Presence of changes in the study. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination	
3. Determine the management tactics of a patient with an acute abdomen presentation. Peculiarities of preparation for surgery and the course of the postoperative period	Catheterization of the urinary bladder, assessment of laboratory parameters, bowel preparation, taking smears from the vagina. Conducting interviews with gynecological patients	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for independent extracurricular work.

Topics of students' educational research work and scientific research work

Topic 4. Laparoscopic operations in the treatment of benign formations of the uterine adnexa. Reconstructive operations for tubal-peritoneal infertility

1. Relevance of the topic: Benign formations of uterine adnexa are a fairly widespread problem in the practice of obstetrician-gynecology, which applies to all age groups of women. Modern endoscopic operations make it possible to minimize the impact on a woman's reproductive organs, to carry out organ-sparing surgical interventions with further preservation of the patient's reproductive function.

2. Educational goals formed at the levels of mastery:

To know, learn: the structure of external and internal genital organs, topography, blood and lymph supply of genital organs, anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle, modern research methods, semiotics, differential diagnosis and treatment tactics of benign diseases of the adnexa of the uterus, diagnosis of tubal-peritoneal infertility, tactics of insertion of patients with a cystic process in the small pelvis.

To be able to master the skills and abilities: name and identify the external and internal genitals, blood supply and innervation of the female genital organs on a phantom, perform a bimanual examination, perform an examination using a speculum, perform metrosalpingography, laparoscopy technique for ovarian tumors, reconstructive and plastic surgery on fallopian tubes, draw up medical documentation.

3. Materials for independent classroom work.

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy, physiology and topographic anatomy	Structure of external and internal genital organs, topography, blood and lymph supply of genital organs; anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle	Name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on the phantom
2. Clinical gynecology	Presentation, diagnosis, differential diagnosis and management tactics of gynecological patients with benign ovarian tumors. Diagnosis and management tactics of patients with infertility	Carry out differential diagnosis, prescribe clinical and laboratory tests, choose a method of surgical intervention
3. Endoscopic surgery	Endoscopic presentation of neoplasms of uterine adnexa (cysts, cystomas, ovarian cancer, fallopian tube tumors), sebaceous disease in the small pelvis	Laparoscopy technique for neoplasms of uterine adnexa (cysts, cystomas), reconstructive and plastic interventions for pelvic inflammatory disease

3.2. Contents of the topic:

Benign ovarian tumors

In the structure of gynecological diseases, the frequency of ovarian tumors is approximately 6–12 % and ranks second among neoplasms of the female genital organs.

Ovarian tumors are divided into two main groups: blastomatous (proliferating) ovarian tumors, or cystomas; non-blastomatous (non-proliferating) ovarian tumors or cysts.

A blastomatous tumor (cystoma) is a true tumor that has unlimited growth.

A nonblastomatous tumor (cyst) is a tumor that has limited growth and is small in size. There is a difference between a cyst and a cystoma. A cyst is a formation of a retention nature, which increases passively due to the accumulation of fluid in it, cellular elements do not proliferate. A cystoma is an active tumor that increases due to the proliferation of epithelial cells.

Most cysts and cystomas have a pedicle. There are anatomical and surgical pedicles.

Anatomical pedicle is formed by the ligaments that support the ovary in the small pelvis (ovarian ligament, infundibulo-pelvic ligament, and mesentery of the ovary), and also contains vessels and nerves that pass through the ligaments.

The surgical pedicle includes all formations of the anatomical pedicle plus the fallopian tube spread on the tumor with its vessels and nerves. The width and length of the pedicle is different – from a thin thread to the width of a palm, 2–3 to 10–15 cm long. The pedicle can have a twist (by 900 or more) and then there is a violation of blood circulation and its nutrition, which in its in turn is the cause of necrosis, hemorrhage, edema, and rupture of the cystoma capsule may occur.

The presentation with twisting of the pedicle is characterized by: sharp spasm-like pain in the lower part of the abdomen and in the lower back, symptoms of irritation of the peritoneum – a presentation of pelvioperitonitis (nausea, vomiting, Shchyotkin-Blumberg symptom); in cystoma rupture – a presentation of acute diffuse peritonitis.

Etiology and pathogenesis. At present, they have not been clearly studied. Possible causes: violation of neuroendocrine regulation in the hypothalamic-pituitary-ovarian system. Risk factors include the presence of inflammatory diseases of the genital organs, endocrinopathy, menstrual cycle disorders, abortions.

Ovarian tumors can develop from various constituent elements and differ in structural polymorphism. Epithelial, germinogenic and connective tissue tumors are most common. Epithelial, or cystomas, make up to 70–75 % of ovarian tumors.

Histological variants of ovarian neoplasms: benign, terminal and malignant. Tumor-like (non-proliferative, retention) formations called cysts can also be found in the ovary. These formations can be differentiated from true tumors only by histological examination.

Classification. The international histological classification of ovarian tumors unites all tumors and tumor-like formations.

I. Epithelial tumors.

II. Tumors of the stroma of the genital tract.

III. Lipid cell tumors.

IV. Germinogenic tumors.

V. Gonadoblastoma.

VI. Soft tissue tumors.

VII. Tumors which are not possible to classify.

VIII. Metastatic tumors.

IX. Tumor-like processes.

Presentation and diagnosis. Clinical diagnostic methods play an important role in the diagnosis of tumors and tumor-like formations, because there are no specific symptoms of ovarian tumors. The diagnosis is established by history taking, objective and gynecological examination data, mandatory ultrasound of the pelvic cavity (90–95 % reliable results). Differential diagnosis between ovarian cysts and cystomas is carried out. Cysts are characterized by the following features: small size (up to 5 cm), anechoic structure, clear contours. Cystomas have larger sizes, their increase is possible in dynamics. Dynamic observation of ovarian formations is possible only in young women (up to 25 years old). A highly informative method of diagnosis is laparoscopic, which is often a curative procedure (endoscopic removal of an ovarian tumor). X-ray tomography is also used for diagnosis.

Histological examination of tumor tissue allows to assess the degree of its potential malignancy. Most often, serous tumors are malignant. A high degree of malignancy is also found in tumors from the stroma of the genital tract, which occur less often. Whole epithelial, pseudomucinous, granular cell tumors are evaluated as malignant.

The clinical course of ovarian tumors can be accompanied by complications: rupture of the tumor and twisting of its stem. The presentation of these conditions is characterized by the presence of symptoms of acute abdomen and requires rapid diagnosis and immediate surgical intervention. It is necessary to focus on distinguishing the concept of anatomical and surgical pedicle of ovarian tumor.

Treatment. The diagnosis of an ovarian tumor is an indication for surgical intervention, given the high risk of malignancy (up to 45–50 %). The method and scope of the operation depends on the age of the patient and the nature of the tumor.

In young women with a small tumor, endoscopic surgery or laparotomy may be performed. When an ovarian cyst is detected, it can be resected within healthy tissues. When serous, hormone-producing tumors, capillary growths are detected, one ovary is removed in young women, and both in women over 45 years old.

After surgical treatment, it is advisable to prescribe hormone replacement therapy (low-dose drugs marvelon, logest), to normalize the menstrual cycle and prevent such complications as the formation of functional cysts (up to 60 % in the first year after the operation) due to the compensatory function of a single ovary (when the right one is preserved the incidence is 2 times more often than the left one).

Prevention. Regular examinations at the gynecologist with ultrasound examination. Dynamic monitoring of high-risk patients (chronic inflammatory diseases of the genital organs, menstrual dysfunction, endocrine diseases in history).

3.3. Oriented map for independent work with literature on the topic:

Laparoscopic operations in the treatment of benign formations of the uterine adnexa. Reconstructive operations for tubal-peritoneal infertility.

Main tasks	Instructions	Answers
To learn:		
1. Structure of external and internal genital organs, topography, blood and lymph supply of genital organs	Pay attention to the peculiarities of topographic anatomy, blood circulation and innervation of the female genital organs	
2. Presentation, diagnosis, differential diagnosis and management tactics of gynecological patients with benign ovarian formations, tubal-peritoneal infertility	Study semiotics and differential diagnosis of gynecological diseases (cysts, ovarian cystomas, fallopian tube neoplasms, ovarian disease)	

3.5. Materials for self-control:

A. Questions for self-control:

1. Etiology of ovarian tumors.
2. Basic mechanisms of ovarian tumor pathogenesis.
3. Classification of ovarian tumors.
4. Clinical manifestations of various types of ovarian tumors.
5. Laboratory-instrumental methods of examination of patients with ovarian tumors.
6. The role of laparoscopy in the diagnosis of ovarian tumors.
7. Endoscopic methods of interventions for ovarian tumors.
8. The role of laparoscopy in the treatment of inflammatory diseases of the female genital organs.
9. Reconstructive and plastic surgery for tubal-peritoneal infertility.
10. Prevention of complications in the postoperative period.

B. Tests for self-control:

1. Benign tumor is characterized by the following signs:

A. Excessive pathological growth of tissues.

B. Distant metastases.

C. Growth with compression of adjacent tissues.

D. A and C are correct.

2. The main reasons for the increase in the incidence of ovarian tumors are:

A. The influence of the environment. *C. Genetic predisposition.*

B. Nutrition. *D. All options are correct.*

3. The peak incidence of ovarian neoplasms occurs in the following periods of a woman's life:

A. Prepubescent period.

B. Reproductive period.

C. Age does not matter.

D. A woman's age periods are associated with an increase in gonadotropins.

4. Which of the listed tumors are serous?

A. Adenofibroma. *C. Papillary cystadenoma.*

B. Adenocarcinoma. *D. All options are correct.*

5. Which group of ovarian tumors do fibroids belong to?

A. Serous. *C. Granulosostromal-cellular.*

B. Germinogenic. *D. Malignant.*

6. Which of the listed symptoms are most characteristic of benign ovarian tumors?

A. Abdominal pains. *D. An increase in the volume of the abdomen.*

B. Ascites. *E. Correct options are A, C and D*ю

C. A neoplasm in the abdomen.

7. What methods of study are used to diagnose benign ovarian tumors?

A. Bimanual study. *D. Cytological study.*

B. Colposcopy. *E. Puncture of the posterior vault of the vagina.*

C. Ultrasound examination.

8. What does the anatomical pedicle of the ovary include?

A. Infundibulopelvic ligament of the ovary. *C. Mesovarium.*

B. Proper ligament of the ovary. *D. Wide uterine ligament.*

9. What does the surgical pedicle of an ovarian cyst include?

A. Mesovarium. *C. Proper ligament of the ovary.*

B. Fallopian tube. *D. Infundibulopelvic ligament.*

10. What symptoms are most typical for twisting the pedicle of an ovarian cyst?

A. Sudden onset. *C. Repeated vomiting.*

B. Severe paroxysmal pain. *D. All options are correct*.

C. Tasks for self-control:

1. An 18-year-old female patient was brought to the hospital's reception department with severe pain in the lower abdomen on the left side, delay of menstruation for 2 days. She became ill gradually 1 day ago, when pains appeared in the lower abdomen, at first they were moderate, then intensified. Menarche from the age of 12. The menstrual cycle was established immediately. Menstruation lasts 5 days, comes after 28 days. Moderate, painless. She is not sexually active. There is a history of infrequent colds. There were no injuries or operations. A general examination did not reveal any abnormality. The abdomen is round and

symmetrical, soft and painless on palpation. During a recto-abdominal examination, a gynecologist found an elastic, oval-shaped, mobile, painful mass measuring 4×5 cm to the left of the uterus. During an ultrasound of the pelvic organs, the size of the uterus is within the normal range, the endometrium of 12 mm corresponded to the second phase of the menstrual cycle. To the left of the uterus there is an oval-shaped, non-homogeneous structure, 44×56×38 mm liquid formation with a predominance of liquid component with suspension and partitions. The right ovary is unchanged. No changes were detected in blood and urine tests.

Establish the diagnosis? Choose treatment tactics.

Answer: *A cyst of the corpus luteum of the left ovary.*

A yellow body cyst is characterized by a slight delay in menstruation, pains in the lower abdomen of varying intensity, which occur due to hemorrhage into the cyst and stretching of its capsule. During ultrasound of the pelvic organs, an oval-shaped formation in one of the ovaries with a heterogeneous structure is revealed. The endometrium is quite thick with signs characteristic of the second phase of the menstrual cycle. In this case, conservative treatment is possible, since there is no rupture of the cyst, which is accompanied by bleeding into the abdominal cavity. The woman is young and needs to preserve her reproductive function. To prevent the occurrence of functional ovarian cysts in the future, we can recommend her to take monophasic low-dose oral contraceptives.

2. A 62-year-old woman presents with abdominal enlargement, intermittent moderate pulling pains in the lower abdomen, weakness, shortness of breath, constipation. A woman considers herself sick for about 3 months, when she began to notice an increase in her abdomen. She consulted a therapist, was treated her for a disorder of the gastrointestinal tract. Menopause from the age of 50. She has not consulted a gynecologist for the last 8–9 years. She had 8 pregnancies, 2 deliveries (on time, without complications), 6 medical abortions. The woman suffers from coronary heart disease, hypertension, and diabetes.

On gynecological examination: the external genitalia are properly developed. The genital gap is gaping. There is a slight lowering of the back wall of the vagina. Per speculum: the vagina is narrow, the mucosa is atrophic, pale. The cervix is atrophic, clean, the external orifice is punctate. Discharge is scarce. Per vaginum: The vagina is narrow, the arches are smoothed. The body of the uterus is not enlarged, dense. Behind the uterus, there is a dense-elastic formation, which occupies the entire cavity of the pelvis and reaches the upper pole to the navel. A hypoechoic multichamber formation with a thick capsule measuring 260×182×156 mm was detected in the pelvic ultrasound in the abdominal cavity and pelvic cavity. The body of the uterus is 34×22×18, the endometrium is in the form of a hyperechoic strip. No formation of blood flow in the wall and septa was detected during dopplerometry. No free fluid was detected in the pelvic cavity.

Establish the diagnosis. Choose the tactics of treating the patient.

Answer: *Most likely, the patient has a mucinous cystadenoma of the ovary. These tumors are more common in elderly women and differ in large sizes. In ultrasound, they have a multi-chamber structure and the presence of a suspension. Treatment tactics are operative. Laparotomy or laparoscopy. Taking into account the age of the patient, the presence of an ovarian tumor, the optimal tactic will be extirpation of the uterus with adnexa.*

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– preparation of patients for endoscopic intervention
– management of patients in the postoperative period
– methods of analgesia in gynecological endoscopy
– methods of preventing complications during endoscopic intervention
– laparoscopic diagnosis and treatment of benign ovarian tumors
– laparoscopic diagnosis and treatment of tubal-peritoneal infertility
– anti-recurrence tactics of managing patients after reconstructive operations on uterine adnexa

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Task	Instruction	Notes
1. Examination of a gynecological patient	History taking, general examination, bimanual and speculum examination, metrosalpingography, ultrasound, preparation of medical documentation	
2. Management of a gynecological patient	During the examination, identify: 1. Presence of changes in the study. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination	
3. Determine the management tactics of a patient with tumors of the uterine adnexa. Peculiarities of preparation for surgery and the course of the postoperative period	Catheterization of the urinary bladder, assessment of laboratory parameters, bowel preparation, taking smears from the vagina. Conducting MSG, laparoscopy technique on uterine adnexa (on a phantom). Conducting interviews with gynecological patients	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for independent extracurricular work.

Topics of students' educational research work and scientific research work.

Topic 5. Laparoscopic operations for benign uterine tumors. Indications and features of hysterectomy

1. Relevance of the topic. Myoma of the uterus is a hormone-dependent benign tumor of the myometrium. Its incidence is an important problem in modern gynecology, the solution of which is being worked on by many researchers. Recently, ideas about the etiology, pathogenesis, and diagnosis of this pathology have expanded. New conservative and operative methods of fibroid treatment have appeared, primarily organ-sparing, laparoscopic and hysteroscopic operations.

2. Educational goals formed at the levels of mastery.

To know, learn: the structure of the external and internal genital organs, topography, blood and lymph supply of the genital organs, anatomical and physiological features of the structure of the female genital organs in different age periods, neurohumoral regulation of the menstrual cycle, modern research methods, semiotics, differential diagnosis and treatment tactics (conservative and operative) of benign uterine diseases.

To be able to master the skills and abilities: name and identify the external and internal genitals, blood supply and innervation of the female genital organs on the phantom, perform a bimanual examination, perform an examination using a speculum, laparoscopy technique for uterine fibroids, stages of hysterectomy, draw up medical documentation.

3. Materials for independent classroom work.

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy, physiology and topographic anatomy	Structure of external and internal genital organs, topography, blood and lymph supply of genital organs; anatomical and physiological features of the structure of female genital organs in different age periods, neurohumoral regulation of the menstrual cycle	Name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on the phantom
2. Clinical gynecology	Presentation, diagnosis, differential diagnosis and management tactics of gynecological patients with uterine myoma	Carry out differential diagnosis, prescribe clinical and laboratory tests, choose a method of surgical intervention
3. Endoscopic surgery	Endoscopic presentation of neoplasms of the uterus. Stages of laparoscopy during organ-preserving operations on the uterus. Stages of hysterectomy.	Master the technique of laparoscopy for uterine myoma (on a phantom), organ-preserving and radical techniques

3.2. Contents of the topic:

Myoma of the uterus is a hormone-dependent benign tumor of the myometrium. According to localization, myomatous nodes are divided into intermuscular (intramural or interstitial), subperitoneal (subserous), submucosal. In addition, there are atypical forms: cervical, precervical, retroperitoneal, epiperitoneal, paracervical, interligamentous. Clinical manifestations of uterine

myoma in women are most often pain syndrome, hyperpolymenorrhea, anemia, dysfunction of adjacent organs, infertility and complicated course of pregnancy, if it has occurred. In the event of such complications as twisting of the nodule pedicle, infarction or necrosis of the nodule, symptoms of an acute abdomen may appear. Diagnosis of uterine myoma does not cause any particular difficulties. Often, a gynecological and ultrasound examination is sufficient. Some patients need to undergo hysteroscopy or laparoscopy, as well as ultrasound dopplerography of the uterine vessels. Hormonal therapy is the basis of medical treatment of uterine myoma, the ultimate goal is to reduce the size of myomatous nodes and achieve positive time course of clinical manifestations of the disease

Indications for hormone therapy:

1. Dimensions of the uterus up to 12 weeks of conditional pregnancy.
2. Myomatous nodes less than 2 cm in diameter.
3. There are no violations of the function of adjacent organs.
4. Intramural or subserous location of myomatous nodes.
5. There is no rapid growth of nodes.
6. There are no contraindications to the use of hormonal drugs.

It is advisable to prescribe *progestogens* to patients whose uterine myoma is accompanied by hyperplastic processes of the endometrium in order to reduce local hyperestrogenemia. The following drugs are most often used:

1) Norcolut (norethisterone); Primolut Nor.
2) Dufaston (dydrosterone).
3) Linestrol (orgametril).
4) 17-OPK (17-oxyprogesterone capronate).
5) Administration of intrauterine hormonal system “Mirena”.

Antiprogestins

A significant achievement of reproductive endocrinology in the 80s of the last century was the synthesis of mifepristone. This drug has anti-progesterone and anti-glucocorticoid activity and is widely used for medical termination of pregnancy. However, some authors, using mifepristone for the treatment of uterine myoma, observed a significant decrease in its volume.

Combined oral contraceptives (COCs)

Drugs of this group stabilize the growth of small myomatous nodes. Modern COCs, unlike progesterone, block the main links of the pathogenesis of myoma development, normalizing the condition of the hypothalamic-pituitary system and ovaries, improving the condition of the myometrium. Most authors believe that desogestrel-containing drugs (novinet, regulon) give good results, but with the size of myomatous nodes no more than 1.5 cm in diameter. After discontinuation of the drug, recurrence of tumor growth is often observed.

Agonists of gonadotropin-releasing hormone (aGnRH)

Treatment with agonists of gonadotropin-releasing hormones has been a significant achievement of pharmacotherapy over the past two decades. They

began to be used for the treatment of patients with uterine myoma since 1983. A lot of experience has been accumulated over time, which proves their high efficiency. Mechanism of action: synthetic agonists of gonadotropin-releasing hormones, binding to gonadoliberin receptors in the gonadotrophs of the adenohypophysis, cause pharmacological menopause, which leads to a significant decrease in the size of the uterus in patients with myoma. The most common: buserin and buser depo (buserelin), zoladex (goserelin acetate), decapeptyl depo and diferelin (triptorelin), nafarelin. There are endonasal sprays (buserin, nafarelin), long-acting drugs for intramuscular administration (buserin-depo, diferelin, triptorelin), drugs for subcutaneous administration (zoladex, decapeptil-depo, decapeptil-daily, ganirelix). The term of therapy is no more than six months

Antigonadotropic agents

Mechanism of action: agents of this group (danazol, gestrinone) are essentially synthetic androgens (derivatives of 17-ethynyltestosterone). They block the ovulatory release of gonadotropins, as well as estrogen and progesterone receptors in the endometrium, reduce the level of sexsteroid-binding globulin in the blood. This inhibits the proliferation of the endometrium and the growth of myomatous nodes.

Androgens

Mechanism of action: inhibit the gonadotropic function of the pituitary gland, suppress the functions of the follicular apparatus of the ovaries, cause endometrial atrophy, suppress the function of the mammary glands.

Antiandrogens

Mechanism of action: they are able to inhibit the physiological activity of endogenous androgens by competitively blocking androgen receptors in target tissues. As a result, hypertrophy and hyperplasia – the key mechanism of the development of uterine myoma - is inhibited.

Antiestrogens

There are reports in the literature about the use of antiestrogens in patients with uterine myoma

Hormone replacement therapy (HRT)

Such therapy with analogs of female sex hormones is the main method of prevention and correction of climacteric disorders. However, the issue of performing HRT in patients with uterine myoma requires a careful approach. Analyzing the effect of cyclic HRT on uterine myoma, the vast majority of authors conclude that the ambiguous data on the results of their use depend on the pharmacological characteristics of the progestagen included in the drug. For patients with uterine myoma in menopause, it is advisable to prescribe drugs that contain progestogens of the norsteroid series, which cause an antiproliferative effect in hormone-dependent target organs (for example, Kliogest or Trisequens).

Non-hormonal (symptomatic) methods of treatment

In the practice of every gynecologist, there are many cases when patients with uterine myoma with indications for surgical or hormonal treatment refuse it for one reason or another. In addition, some patients have strong direct contra-indications for such therapy. In such cases, the doctor is forced to administer symptomatic treatment, the methods of which will depend on the prevailing presenting symptoms of the patient

Indications for operative treatment:

1. Symptomatic myoma of the uterus (with hemorrhagic and pain syndrome, presence of secondary anemia, symptoms of compression of adjacent organs).
2. The size of the tumor, which exceeds the size of the pregnant uterus at 13–14 weeks of conventional pregnancy.
3. The dimensions of the uterus corresponding to a pregnancy of 12–13 weeks in the presence of symptoms of compression of neighboring organs (frequent urination, violation of the act of defecation, etc.) and in case of suspected violation of the node's nutrition.
4. Rapid growth (by 4–5 weeks per year or more), or tumor resistance to GnRH agonist therapy.
5. The presence of a subserous node on the pedicle due to the possibility of its twisting and subsequent necrosis.
6. The presence of submucous myomatous nodes, since nodes of such localization are often accompanied by uterine bleeding and pain.
7. Necrosis of the myomatous node, which can even lead to peritonitis.
8. Intraligamentary location of myomatous nodes, the consequence of which may be pain due to compression of nerve plexuses and impaired function of the ureters and kidneys.
9. Myoma nodes originating from the vaginal part of the cervix.
10. Combination of uterine myoma with other pathological changes of the genitals: recurrent endometrial hyperplasia or adenomatosis, ovarian tumor, uterine drooping and prolapse.
11. If uterine myoma can be a probable cause of infertility or obstetric impairment (absence of pregnancy)

Contraindications to (planned) surgery:

1. Severe forms of diseases of the cardiovascular system, lungs and upper respiratory tract (acute respiratory diseases).
2. Kidney diseases.
3. Acute and subacute inflammatory diseases of the pelvic organs.
4. Skin diseases (furuncle-type abscesses, vesicular rashes).
5. Anesthesiological contra-indications.

Laparoscopic myomectomy

The goal of the operation is to remove myomatous nodes while preserving the reproductive and menstrual function of a woman.

Operation progress

Myomectomy is performed in four stages:

1. Excision and scraping of myomatous nodes.
2. Closure of myometrial defects.
3. Removal of myomatous nodes.
4. Hemostasis and sanitation of the abdominal cavity.

Radical operations with laparoscopic access

There are following variants of laparoscopic hysterectomy:

A. Diagnostic laparoscopy followed by vaginal hysterectomy. It is performed to determine the feasibility of vaginal hysterectomy, usually in cases where indications for vaginal access are doubtful and require intraoperative clarification.

B. Laparoscopically assisted vaginal hysterectomy (LAVH) The intervention consists of two stages – laparoscopic and vaginal. During laparoscopy, adhesions are separated, foci of endometriosis, adnexa are removed, and the upper parts of the connective apparatus of the uterus are incised. All subsequent actions, including ligation of uterine vessels, are performed traditionally for vaginal hysterectomy. LAVH is indicated for endometriosis, adhesion process in the small pelvis, diseases of the uterine adnexa, large myomas, after surgical interventions on the organs of the small pelvis, with insufficient mobility of the uterus (primarily in women who have not given birth).

C. Laparoscopic hysterectomy. Hysterectomy is defined as laparoscopic if ligation and transection of the uterine vessels is performed during laparoscopy. All subsequent stages of the intervention can be performed laparoscopically or vaginally.

D. Total laparoscopic hysterectomy (TLH). All stages of TLH, including suturing of the vaginal stump after removal of the uterus, are performed laparoscopically.

E. Subtotal laparoscopic hysterectomy. This is a laparoscopic supravaginal amputation of the uterus. After cutting off the body of the uterus at the level of the internal orifice, it is removed by morcellation or by means of a posterior colpotomy.

Indications for laparoscopic hysterectomy:

1. Multiple myomas together with abnormality of the cervix (scar deformity, hypertrophy of the cervix, eroded ectropion, precancerous diseases of the cervix).
2. Stage I endometrial malignant lesions.
3. Adenomyosis.
4. Abnormalities of the endometrium: polyposis, recurrent and atypical hyperplasia.
5. Combination of endometrial abnormalities and uterine myoma with widespread external endometriosis.

Contraindications to laparoscopic hysterectomy:

1. Prolapse of the uterus. In such cases, it is better to remove the uterus through vaginal access.

2. Large size of the uterus (more than 16 weeks of pregnancy after preoperative treatment with GnRH agonists). This is a relative contraindication for endoscopic access, because experienced surgeons perform laparoscopic removal of a uterus larger than 20 weeks of pregnancy.

3. Cystic voluminous formations of the adnexa, the size of which does not allow their removal intact, that is, this formation cannot be placed in an available size bag before decompression, which is carried out externally with the help of a needle

3.4. Oriented map for independent work with literature on the topic:

Laparoscopic operations for benign uterine tumors. Indications and features of hysterectomy.

Main tasks	Instructions	Answers
To learn:		
1. Structure of external and internal genital organs, topography, blood and lymph supply of genital organs	Pay attention to the peculiarities of topographic anatomy, blood circulation and innervation of the female genital organs	
2. Presentation, classification, diagnosis, differential diagnosis and treatment of gynecological patients with uterine myoma	Study semiotics, differential diagnosis, conservative treatment, organ-preserving and radical types of surgical interventions for uterine myoma	

3.5. Materials for self-control:

A. Questions for self-control:

1. Name the indications and contra-indications for operative treatment of uterine myoma.
2. What examination should be carried out before planned surgical intervention?
3. Name the main stages of myomectomy.
4. Name the advantages of laparoscopic myomectomy.
5. What are the indications for hysteroresectoscopy?
6. How is uterine artery embolization performed and what are its contra-indications?
7. What is the essence of focused ultrasound surgery for uterine myoma?
8. What minimally invasive methods of uterine myoma treatment do you know?
9. Name the main stages of laparotomic hysterectomy.
10. What are the advantages of vaginal hysterectomy?
11. Name the contra-indications to vaginal hysterectomy.
12. What are the indications for laparoscopically assisted vaginal hysterectomy?

B. Tests for self-control:

1. What benign uterine tumors do you know?

A. Myoma, endometrial polyps.

B. Leiomyoma, lipoma.

C. Hemangioma, fibromyoma, chondroma.

D. Fibroma, myoma, adenoma.

2. A subserous fibromatous node of the uterus is located:

A. In the cervix.

B. In the thickness of the muscle layer.

C. Under the endometrium.

D. Under the serous membrane of the uterus.

3. An intramural fibromatous node of the uterus is located:

A. Under the serous membrane of the uterus.

B. In the thickness of the muscle layer.

C. Under the mucous membrane of the uterus.

D. In the uterine cavity.

4. A submucosal fibromatous node of the uterus is located:

A. Under the mucous membrane of the uterus.

B. In the thickness of the muscle layer.

C. Under the serous membrane of the uterus.

D. In the interligamentous space.

5. Clinical manifestations of uterine myoma depend on:

A. Number of births and abortions.

B. Advantages in the structure of a tumor of fibrous or muscle tissue.

C. Menstrual function.

D. Location of tumor nodes, their size, direction of growth and the presence of secondary changes in them.

6. What does the amount of surgical intervention for uterine fibroids depend on?

A. The age of the patient, anatomical location of tumor nodes, their size, total number.

B. The patient's age, clinical manifestations of the disease.

C. The size of the tumor, accompanying diseases, the number of pregnancies.

7. A 32-year-old woman presented to the women's consultation with long and heavy menstruation for six months, pulling pain in the lower abdomen, weakness. During a gynecological examination, the body of the uterus is enlarged to 11–12 weeks of pregnancy, is dense, mobile and painless. Blood test findings: Hb = 90 g/l. What abnormality can be suspected?

A. Cancer of the uterine body

B. Myoma of the uterus, posthemorrhagic anemia.

C. Pregnancy.

D. Cystoma of the ovary.

E. Dysfunctional uterine bleeding.

8. A 57-year-old female patient was hospitalized in the gynecology department for surgical treatment for submucous uterine fibroids, grade I anemia. On vaginal examination: the cervix is eroded, the body of the uterus is enlarged up to 8–9 weeks of pregnancy, dense, the adnexa on both sides are unchanged, the discharge is mucous. What optimal volume of the operation is indicated?

A. Supravaginal amputation of the uterus with adnexa.
B. Supravaginal amputation of the uterus without adnexa.
C. Conservative myomectomy.
D. Defundation of the uterus.
E. Extirpation of the uterus with adnexa.

9. A patient presents with aching pain in the lower abdomen, painful menstruation. There were 2 abortions in the history, there was no childbirth. On examination: the skin is pale, the abdomen is soft, not painful, a tumor-like formation is palpable above the pubis. On bimanual examination: the body of the uterus is enlarged up to 14 weeks of pregnancy, with an uneven surface, dense, mobile. The adnexa are not palpable. What is the most likely diagnosis?

A. Pregnancy.
B. Cystoma of the ovary.
C. Nodular fibromyoma of the uterus.
D. Endometriosis.
E. Kidney tumor.

10. A 23-year-old patient with primary infertility was admitted to the gynecology department for surgical treatment for subserous uterine myoma. What is the optimal amount of surgical intervention to be performed in this case?

A. Conservative myomectomy.
B. Hysterectomy.
C. Defundation of the uterus.
D. Supravaginal amputation of the uterus without adnexa.
E. Supravaginal amputation of the uterus with biopsy of the ovaries.

C. Tasks for self-control:

1. A 41-year-old woman was admitted to the hospital with spasm-like pains in the lower abdomen and vaginal bleeding. History: 1 hildbirth, 2 medical abortions. On examination: the skin is pale; uterine myoma was detected during vaginal examination up to 8 weeks of pregnancy. During ultrasound, deformation of the uterine cavity was detected by a submucosal node located in its bottom. What treatment should be carried out?

Answer: Operative treatment. Hysteroresectoscopy, removal of the submucosal node.

2. A 48-year-old patient presents with heavy menstruation. Menstruation until now has been without deviations from the norm. History: 2 deliveries, 2 abortions. She has not consulted a gynecologist for the last 2 years. On examination: external genital organs without abnormalities, the cervix is cylindrical, clean. The body of the uterus is enlarged up to 14–15 weeks of pregnancy, uneven surface, mobile, painless. The vaults are deep. The adnexa are not defined, their area is painless. Parametria are free. Mucous discharge. What is the most likely diagnosis and what is the treatment strategy?

Answer: Large fibromyoma of the uterus with hemorrhagic syndrome, operative treatment: laparoscopy, extirpation of the uterus with adnexa.

3. A 48-year-old patient presents with menstruation becoming abundant over the last 8–9 months, leading to anemia, impaired working capacity. For 2 years, she has been observed by a gynecologist for uterine fibromyoma. On examination: the cervix is cylindrical, clean, the orifice is closed. The body of the uterus is in a normal position, enlarged up to 9–10 weeks of pregnancy, uneven surface, mobile, painless. Adnexa on both sides are not defined. Parametria are free. The vaults are deep. Mucous discharge. What is the most likely diagnosis and what is the treatment strategy?

Answer: Uterine fibrioma. Posthemorrhagic anemia. Operative treatment: laparoscopy, total hysterectomy.

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– preparation of patients for endoscopic intervention;

– management of patients in the postoperative period;

– methods of preventing complications during endoscopic intervention;

– methods of conservative treatment of uterine fibroids;

– laparoscopic tactics of organ-sparing operations for benign tumors of the uterus;

– laparoscopic tactics of radical operations for uterine fibroids;

– anti-recurrence management tactics of patients after organ-preserving operations for uterine fibroids.

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Task	Instructions	Notes
1. Examination of a gynecological patient	History taking, general examination, bimanual and speculum examination, ultrasound, preparation of medical documentation	
2. Management of a gynecological patient	During the examination, identify: 1. Presence of changes in the study. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination	
3. Determine the tactics of surgical treatment of a patient with uterine myoma. Peculiarities of preparation for surgery and the course of the postoperative period	Catheterization of the urinary bladder, evaluation of laboratory indicators, preparation of the intestine, taking smears from the vagina. The technique of organ-preserving and radical laparoscopy (on a phantom)	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for independent extracurricular work.

Topics of students' educational research work and scientific research work.

Topic 6. Hysteroscopy. Indications and contra-indications. Manipulation technique

1. Relevance of the topic. Hysteroscopy is a minimally invasive surgical intervention used to examine the walls of the uterine cavity for the diagnosis and medical and surgical interventions, while minimizing the negative impact on the organs of the reproductive system in women. With the advent of hysteroscopic technology, the possibilities of diagnosis and treatment of gynecological diseases have expanded and the time of the patient's hospital stay has been reduced.

2. Educational goals formed at the levels of mastery:

To know, learn: the structure of the external and internal genitals, topography, blood and lymph supply of the genitals, anatomical and physiological features of the structure of the female genitals in different age periods, neurohumoral regulation of the menstrual cycle, technical equipment and tools for performing hysteroscopy, indications and contra-indications.

To be able to master the skills and abilities: name and identify the external and internal genitals, blood supply and innervation of the female genital organs on the phantom, perform a bimanual examination, perform an examination using a speculum, master the technique of hysteroscopy, draw up medical documentation.

3. Materials for independent classroom work.

3.1. Basic knowledge, abilities, skills necessary for studying the topic (interdisciplinary integration).

Subjects	To know	To be able to
1. Anatomy, physiology and topographical anatomy	Structure of external and internal genital organs, blood and lymph supply of genital organs; Topography of the pelvic organs	Name and identify the external and internal genital organs, blood supply and innervation of the female genital organs on the phantom. Determine the ratio of organs and vessels on the phantom
2. Technical equipment	Endoscopic operating room equipment. Toolkit for performing hysteroscopy. Safety rules when working in the operating room	Prepare equipment for hysteroscopy. Assemble the operating table with endoscopic instruments
3. Endoscopic surgery	Indications and contra-indications for hysteroscopic operations. Techniques of hysteroscopy and hysteroresectoscopy. Basics of safety when working with electrosurgical instruments. Types of analgesia during hysteroscopic operations	Demonstrate the technique of hysteroscopy and hysteroresectoscopy (working on a phantom). Prepare the patient for surgery and manage the postoperative period. Choose the type of analgesia during hysteroscopy

3.2. Contents of the topic:

Hysteroscopy is an examination of the walls of the uterine cavity with the help of an endoscope for the diagnosis and medical surgical interventions for various types of intrauterine disorders.

Indications for urgent hysteroscopy:

1. Meno- or metrorrhagia.
2. Metrorrhagia after pregnancy.
3. The birth of a submucosal myoma.
4. Submucosal myoma necrosis.

Indications for planned hysteroscopy:

1. Dysfunctional uterine bleeding.
2. Submucosal myoma of the uterus.
3. Endometrial polyp.
4. Endometrial hyperplasia.
5. Suspected endometrial cancer.
6. Intrauterine synechiae.
7. Adenomyosis.
8. Anomalies of uterine development.
9. Foreign bodies in the uterine cavity.
10. Infertility related to the uterine factor or proximal tube occlusion.
11. Preparation for assisted reproductive technologies.
12. Monitoring the effectiveness of treatment of hyperplastic processes endometrium.
13. Atypical hyperplasia (in specialized institutions).

Contra-indications to hysteroscopy:

1. Profuse uterine bleeding.
2. Pregnancy.
3. Acute inflammatory diseases of the female genital organs.
4. Infectious diseases (flu, sore throat, pneumonia, pyelonephritis, etc.).
5. Cervical cancer, infiltrative endometrial cancer.
6. Cervical stenosis.

Anesthetic support of hysteroscopy

In the case of hysteroscopy, intravenous anesthesia is used. The use of endotracheal anesthesia is permissible. In some cases, if there are contra-indications to anesthesia, paracervical anesthesia may be used.

Preoperative examination and preparation are carried out according to standard principles according to the order of the Ministry of Health of Ukraine No. 620 of 29.12.2003.

Standard examination of gynecological patients for planned endosurgical intervention (operative hysteroscopy):

1. General physical examination.
2. Determination of blood group and Rh factor.
3. Blood analysis for RV, HIV, Hbs -a/g.
4. General blood and urine tests.
5. Blood sugar.

6. Bacteriological study of secretions from the genital tract (urethra, cervical canal, vagina).

7. Biochemical study of blood (total protein, creatinine, bilirubin, liver tests).

8. Coagulogram.

9. Cytological examination of smears from the cervix and cervical canal or the result of a pathological examination.

10. Colposcopy.

11. Ultrasound examination of the pelvic organs.

12. Endometrial biopsy.

13. Electrocardiogram.

14. FG or X-ray of chest organs.

15. Examination by a therapist.

16. Examination by specialists according to indications.

Standard examination of gynecological patients before planned minor diagnostic and therapeutic surgical interventions:

1. General physical examination.

2. Blood group and Rh factor.

3. Oncocytological examination.

4. Bacterioscopic examination of secretions from the genital tract, diagnosis presence of human papilloma virus.

Standard examination of gynecological patients before emergency surgery:

1. General physical examination.

2. Blood group and Rh factor.

Mandatory morphological study of operative material; intraoperatively (according to indications).

Antibiotic prophylaxis is carried out during induction of anesthesia by intravenous drip administration of antibiotics. According to indications, re-introduction of antibiotics is carried out in the postoperative period after 6-12 hours.

Postoperative management of patients:

1. Care in the early postoperative period.

2. Control of secretions from the genital tract.

3. Control of hemodynamics.

4. Control of blood sugar (during long-term operations).

5. Monitoring the absence of symptoms of peritoneal irritation.

Management at the postoperative period is aimed at prevention and timely detection of possible complications.

The following groups of complications are observed during hysteroscopy:

1. Surgical complications.

2. Complications associated with means for expanding the uterine cavity.

3. Complications caused by the forced long-term position of the patient.

4. Anesthetic complications.

Surgical intraoperative complications

1. Traumatic injuries of the cervix with ball forceps during the expansion of the cervical canal. *Diagnosis.* This type of complication is diagnosed when examined using a speculum. *Treatment tactics.* Bleeding, which can accompany ruptures of the cervix, must be stopped by compression, electrocoagulation, or applying hemostatic sutures after the operation. *Prevention.* Careful handling of tissues.

2. Perforation of the uterus. *Diagnosis.* Signs of uterine perforation are:

a) penetration of instruments (probe, Hegar dilator, hysteroscope, electrocoagulator, etc.) to a depth exceeding the expected length of the uterine cavity;

b) there is no outflow of fluid from the uterine cavity and its insufficient expansion;

c) visualization of intestinal loops or a picture that is difficult to interpret.

In the case of chorionic carcinoma, infiltrative endometrial cancer, uterine rupture is possible.

Treatment tactics. Stop the operation. Evaluation of severity of perforation. In doubtful cases, when the possibility of damage to the organs of the abdominal cavity is not excluded, diagnostic laparoscopy, laparotomy is indicated. Conservative treatment (cold to the lower abdomen, uterotonic agents, antibiotics) is indicated in cases of small perforations and confidence in the absence of damage to the abdominal organs, internal bleeding or hematoma, subject to dynamic observation. Surgical treatment of severe forms of uterine perforation or uterine rupture with damage to abdominal organs requires urgent laparotomy.

Prevention:

a) careful handling of tissues;

b) visual control when introducing a hysteroscope;

c) laparoscopic control during hysteroscopies with high risk of uterine perforations;

d) improvement of the level of operational equipment.

3. Bleeding. The main cause of bleeding that occurs directly during operative hysteroscopy is damage to large vessels during resection. *Diagnosis*. Bleeding causes visualization difficulties. It is important to find out whether the perforation of the uterus did not occur along with the damage to the vessels. *Treatment tactics.* An attempt to stop the bleeding by coagulation. If there is no effect, stop the operation, insert a Foley catheter into the uterine cavity and use uterotonic agents. In case of continued bleeding, laparotomy, ligation of uterine vessels or hysterectomy are performed. *Prevention.* A rational surgical technique aimed at avoiding deep resection of the myometrium in the area of the side walls of the uterus and the isthmus.

Surgical postoperative complications.

1. Postoperative bleeding can occur after resection of the endometrium or uterine myoma with a significant interstitial component, as a result of detachment of the scab after endometrial ablation, and (rarely) as a result of cervical trauma. *Diagnosis*. To find out the source of bleeding, an examination

using a speculum is carried out. *Treatment tactics.* Uterotonic drugs, antibiotics (with the exception of cases of bleeding from the cervix). Surgical treatment (instrumental revision of the uterine cavity, repeated hysteroscopy, hysterectomy) is rarely used. *Prevention*. There is no effective prevention.

2. Infectious complications. Endometritis, exacerbation of chronic salpingo-oophoritis occur during protracted operations, frequent repeated insertions and withdrawals of the hysteroscope. *Diagnosis*. Pain in the lower abdomen, increased body temperature, purulent discharge from the genital tract, which occur most often 48–72 hours after the operation. It is important to find out whether the cause of the complication is thermal damage to the organs of the abdominal cavity. *Treatment tactics.* Antibiotic therapy, symptomatic treatment. Surgical treatment is required in rare cases, mostly in the case of the formation of tuboovarian abscesses, pelveoperitonitis.

3. Thermal damage to the intestine occurs during perforation of the uterus at the entrance of hysteroresectoscopy, and rarely, when the integrity of the uterine wall is preserved. *Diagnosis.* Abdominal pain, fever, leukocytosis, and peritonitis occur 1–5 days after surgery. *Treatment tactics.* When signs of peritonitis appear immediately or after diagnostic laparoscopy, laparotomy with the appropriate amount of surgical intervention is performed. In the absence of signs of peritonitis it is possible to administer drug treatment, dynamic observation in hospital conditions. *Prevention.* High qualification of the surgeon, implementation of expansive operative interventions in 2–3 stages.

4. Intrauterine synechiae are formed during expansive hysteroscopic operations with a large wound surface. *Diagnosis.* Clinical manifestations of intrauterine synechiae include oligomenorrhea, uterine amenorrhea, infertility. With the formation of closed spaces or stenosis of the cervical canal, hematometra occurs, which is accompanied by cyclic pains in the lower abdomen. *Treatment tactics.* In cases of infertility caused by intrauterine synechiae, hysteroscopic synechiolysis is performed. To eliminate hematometra, dilation of the cervical canal is performed, sometimes hysteroscopy. *Prevention.* Introduction of an intrauterine contraceptive into the uterine cavity as a protector and the administration of estrogens. Hysteroscopic myomectomies for myomas larger than 3 cm in two or three stages. Carrying out control hysteroscopies 1.5–2 months after expansive operations aimed at eliminating intrauterine synechiae.

Complications associated with means to expand the uterine cavity.

1. Complications associated with the use of liquid means to expand the uterine cavity. This group of complications is mainly associated with fluid overload of the vascular bed, which is accompanied by nausea, hemodynamic disturbances, the risk of pulmonary edema, heart failure, and hemolysis. Complications and features of their manifestations depend on the type and amount of liquid used. Diagnosis is based on the results of an objective examination, blood pressure measurement, blood glucose, sodium, and

coagulogram. *Treatment tactics.* Congestion of the vascular bed with liquid involves the use of diuretics and cardiac drugs, oxygen inhalation. When hemolysis is diagnosed, infusion therapy and monitoring of kidney and liver function are carried out. Hypoglycemia in patients with diabetes requires intravenous administration of glucose under the control of blood glucose. In case of pulmonary edema due to respiratory distress syndrome and anaphylactic shock, glucocorticoids are administered, oxygen is inhaled, and artificial lung ventilation is used if necessary. *Prevention.* Selection of means for expanding the uterine cavity in accordance with the planned operation. Control over the use of liquid, the duration of the operation. The use of modern fluid supply systems with the possibility of automatic pressure control in the uterine cavity at a level of no more than 75 mmHg. Use of uterotonic agents during surgery.

2. Complications associated with the use of CO2. Gas hysteroscopy can be complicated by cardiac arrhythmia due to metabolic acidosis or gas embolism. If air gets into the fluid supply system, hysteroscopy can be complicated by air embolism. *Diagnosis.* Cardiac arrhythmia is diagnosed intraoperatively based on pulsometry data. Gas embolism is accompanied by a sharp drop in blood pressure, cyanosis, and breathing disorders. *Treatment tactics.* These complications require urgent intensive therapy with the participation of an anesthesiologist. The medical facility where hysteroscopy is performed must be equipped with everything necessary for resuscitation. *Prevention*. Compliance with gas supply parameters and pressure control in the uterine cavity within 50 mmHg. Preventing air from entering the fluid supply system into the uterine cavity. Complications caused by the forced long-term position of the patient. Long-term forced position of the patient on the operating table can lead to thrombosis of the deep veins of the lower legs. Violations of safety techniques when working with monopolar electrosurgery can lead to burns of soft tissues. *Diagnosis.* Burns are diagnosed a day after surgery based on the results of an examination of the affected surface, which has the contours of the borders of the passive electrode. Thrombosis of the deep veins of the lower extremities is diagnosed on the basis of the symptoms of thrombosis (pain, swelling, hyperemia, etc.), which occur a few days after the operation. *Treatment tactics.* Thrombotic complications require immediate consultation of a vascular surgeon and appropriate therapy.

Anesthesiological complications: Complications that belong to the group of anesthesiological complications may develop during anesthesia. These are allergic reactions, including anaphylactic shock, and complications specific to each type of anesthesia used. The development of complications may force the further operation to be stopped.

Diagnosis and treatment of anesthetic complications is carried out by an anesthesiologist-reanimatologist.

3.3. **Oriented map for independent work with literature on the topic**: Hysteroscopy. Indications and contra-indications. Procedure technique.

Main tasks	Instructions	Answers
To learn:		
1. Technical equipment and tools of the endoscopic operating room	Study the equipment and tools for performing hysteroscopy. Learn safety rules when working with electrosurgical instruments	
2. Indications and contra-indications	Determine the indications for planned and urgent hysteroscopy, contra-indications for endoscopy, the tactics of preparation for surgery, the main types of clinical and laboratory study	
3. Technique of hysteroscopy	Stages of hysteroscopic surgery, possible complications during endoscopy and their prevention	

3.5. Materials for self-control:

A. Questions for self-control:

1. General principles of hysteroscopy.
2. Indications and contra-indications for hysteroscopy.
3. Features of analgesia during hysteroscopy.
4. Preparation of patients for the procedure.
5. Postoperative management of patients after hysteroscopy.
6. Diagnostic hysteroscopy technique.
7. Complications associated with hysteroscopy.
8. Hysteroscopic diagnosis of uterine cavity abnormalities.
9. Hysteroresectoscopy. Indications and contra-indications for hysteroresectoscopy.
10. Features of analgesia during hysteroresectoscopy.
11. Indications and contra-indications for hysteroscopic removal of submucous uterine myoma.
12. The role of hysteroscopy in the diagnosis and treatment of female infertility.

B. Tests for self-control:

1. Hysteroscopy is:

A. Examination of the pelvic organs using an endoscope inserted through the posterior vault of the vagina

B. Inspection of the uterine cavity using an endoscope inserted through the cervical canal

C. Examination of the organs of the abdominal cavity using an endoscope inserted through the anterior abdominal wall

D. All options are correct

2. Contra-indications for performing any hysteroscopy are:

A. Presence of large uterine fibroids.

B. Confirmed endometrial and/or cervical cancer.

C. Non-progressive pregnancy.

D. All options are correct.

3. Hysteroscope is:

A. The video signal processing unit and the camera head connected to it by a cable.

B. Device for visualization of video information.

C. An optical device inserted into the uterine cavity for its visualization.

D. A device for lighting internal cavities.

4. Electrosurgical apparatus is a device for:

A. Receiving high-frequency electrical impulses.

B. Conversion of electricity into ultrasonic vibrations.

C. Bipolar electrocoagulation, which causes denaturation of collagen and elastin in tissues with the formation of a zone of coagulation necrosis, the cut of which is not accompanied by bleeding.

D. Conversion of light energy into thermal energy upon contact with biological fluids.

5. Emergency indications for performing hysteroscopy in gynecological practice do not include:

A. Disturbed uterine pregnancy.

B. Abnormal uterine bleeding.

C. The presence of submucosal myoma of the uterus.

D. Suspected uterine perforation.

6. Routine hysteroscopic interventions include:

A. Dissection of intrauterine synechiae.

B. Removal of a submucosal myomatous node.

C. Removal of a foreign body of the uterus.

D. All options are correct.

7. Planned indications for hysteroscopy include:

A. Abnormal uterine bleeding.

B. Infertility.

C. Control after hormone therapy.

D. Options A and B are correct.

8. Hysteroscopic signs of endometrial cancer are:

A. The presence of intrauterine adhesions.

B. The presence of papillary growths.

C. Rocky pattern of the endometrium.

D. All options are correct.

9. Hysteroscopic signs of adenomyosis are:

A. The presence of intrauterine adhesions.

B. The presence of papillary growths.

C. Rocky pattern of the endometrium.

*D. All options are correct*ю

10. Hysteroscopic signs of synechiae are:

A. The presence of intrauterine adhesions.

B. The presence of papillary growths.

C. Rocky pattern of the endometrium.

D. All options are correct.

11. Hysteroscopy during the examination of patients with a violation of the menstrual cycle is carried out to:

A. Determine the time of ovulation.

B. Diagnose endometrial abnormality.

C. Diagnose external genital endometriosis.

D. Detect subserous leiomyoma of the uterus.

E. Take an aspirate from the uterine cavity.

C. Tasks for self-control:

1. A 34-year-old patient S. presents with pulling pains in the lower abdomen, pain during sexual contact, painful menstruation, absence of pregnancy in marriage.

History: She considers herself sick for 3 years. She did not seek medical help. History: Menarche since the age of 11. The menstrual cycle is regular, 4–5 days each, with smearing discharge 2–3 days before menstruation, after 28–29 days, moderate, painful. The last menstruation came on time, 8 days, painful. Pregnancy – 2: 2 – artificial abortions. Ultrasound of the genitals (on the 8th day of the MC): The body of the uterus is 68×60×66 mm, spherical in shape, myometrium with diffuse hyperechoic granularity. M-echo – 5 mm. Uterine adnexa without abnormalities.

Status genitalis: The external genitalia are developed correctly, according to the female type. The urethra and paraurethral passages are not changed. Examination using a speculum: Mucous membranes of the vulva and vagina are physiologically colored, clean. The cervix is conical in shape, clean, and the external opening is rounded. Bimanually: The body of the uterus is somewhat enlarged, spherical in shape, limited mobility, dense, painless when palpated and displaced. The adnexa on both sides are not enlarged, painless on palpation. Vaults are free, deep.

1. Establish a preliminary diagnosis.
2. Determine the patient management tactics.
3. Describe the stages of adenomyosis.

Answer

1. Adenomyosis. Infertility II, of unclear origin.

2. Diagnostic hysteroscopy is indicated. After hysteroscopy, hormone therapy with gestagens or gonadotropin-releasing hormone agonists is required for 6 months. After the control examination – the decision on the use of ART. With the nodular form, it is necessary to remove the node (laparoscopy) in combination with hormone therapy for 6 months, after which the use of assisted reproductive technologies is indicated.

3. Stage I – the pathological process is limited to the submucosa of the uterine body.

Stage II – the pathological process passes to the muscle layers.

Stage III – the spread of the pathological process to the entire thickness of the muscular membrane of the uterus to its serous covering.

Stage IV – involvement of the parietal peritoneum of the small pelvis and neighboring organs in the pathological process, in addition to the uterus.

2. A 43-year-old patient M. presents with pulling pains in the lower abdomen, heavy, painful menstruation. History: She considers herself sick for 5 years. She sought medical help: a uterine myoma was detected (2 interstitial nodes with a diameter of 2 and 3 cm), she did not receive specific treatment. History: Menarche since the age of 13. The menstrual cycle is regular, 4–5 days, after 28–29 days, abundant, with clots, painful. The last menstruation came on time, 6 days, painful, abundant. Pregnancies – 5: 1 – term delivery; 4 – artificial abortions. Ultrasound of the genitals (on the 10th day of MC): The body of the uterus is 74×63×68 mm, irregularly shaped due to an interstitial myomatous node measuring 45×56 mm, deforming the uterine cavity, myometrium with diffuse hyperechoic granularity. M-echo – 12 mm. Uterine adnexa without abnormalities.

Status genitalis: The external genitalia are developed correctly, according to the female type. The urethra and paraurethral passages are not changed. Examination using a speculum: the mucous membranes of the vulva and vagina are physiologically colored, clean. The cervix is cylindrical in shape, clean, the external opening is slit-like. Bimanually: the body of the uterus is enlarged up to 5 weeks of pregnancy, irregularly shaped due to a myomatous node on the front wall of the uterus and the left rib, limited mobility, dense, painless on palpation and displacement. The adnexa on both sides are not enlarged, painless on palpation. Vaults are free, deep.

1. Establish a preliminary diagnosis.

2. Determine the indications for surgical intervention and its scope.

Answer

1. Myoma of the uterus, interstitial with centripetal growth. Endometrial hyperplasia? Adenomyosis?

2. Diagnostic hysteroscopy is indicated. Operative treatment is shown in a planned manner – laparoscopic myomectomy. Preoperative preparation with gestagens or gonadotropin-releasing hormone agonists for 2–3 months is advisable.

4. Materials for independent classroom work:

4.1. A list of educational practical tasks that must be completed in a practical session, for example:

– position of the patient during hysteroscopy;

– operation field processing;

– diagnostic hysteroscopy technique (dilation of the cervical canal, insertion of the hysteroscope, connection of the endovideotelevision system);

– technique of performing operations: polypectomy, endometrial ablation, myomectomy, extraction of IUD fragments (on a phantom);

– preparation of patients for endoscopic intervention;

– management of patients in the postoperative period;

– methods of analgesia during hysteroscopy;

– methods of preventing complications during hysteroscopy.

4.2. Professional algorithms (instructions, oriented maps) for mastering skills and abilities.

Tasks	Instructions	Notes
1. Examination of a gynecological patient	1. History taking, general examination, bimanual and speculum examination, ultrasound, preparation of medical documentation	
2. Management of a gynecological patient	During the examination, identify: 1. Presence of changes in the study. 2. Changes during bimanual and speculum examination. 3. Changes in ultrasound. 4. Make a plan for additional examination	
3. Principles of work and regime of the gynecological department. Peculiarities of preparation for surgery and the course of the postoperative period	Catheterization of the urinary bladder, assessment of laboratory parameters, bowel preparation, taking smears from the vagina. Conducting interviews with gynecological patients	

4.3. Educational tasks, level III tests, tasks that complement independent work in a practical session, as well as additional materials.

5. Materials for extracurricular independent work.

Topics of students' educational research work and scientific research work.

Recommended literature

Basic literature

1. Daniel B. Jones Laparoscopic Surgery : Principles and Procedures. CRC Press, 2019. 616 p.

2. B.Ramesh, Pooja Sharma Dimri Textbook & Atlas of Laparoscopic Hysterectomy. Jaypee Brothers Medical Publishers, 2016. 240 p.

3. Ibrachim Alkatoutm, Liselotte Mettler Practical Manual for Laparoscopic & Hysteroscopic Gynecological Surgery. Jaypee Brothers Medical Publishers, 2019. 852 p.

4. Mishra RK Textbook of Laparoscopy for Surgeons and Gynecologists. 4th Edition. Jaypee Brothers Medical Publishers, 2022. 637 p.

5. Lozada Y. A, Bhagavath B. Review of Laparoscopic Salpingo-Oophorectomy: Technique and Perioperative Considerations // J Minim Invasive Gynecol. 2017. Vol. 24. № 3. P. 364–370.

Additional literature (considering specialization)

1. Birch DW, Dang JT, Switzer NJ, et al. Heated insufflation with or without humidification for laparoscopic abdominal surgery. Cochrane Database Syst Rev 2016; 10:CD007821.

2. Celarier S, Monziols S, Célérier B, et al. Low-pressure versus standard pressure laparoscopic colorectal surgery (PAROS trial): a phase III randomized controlled trial. Br J Surg 2021; 108:998.

3. Kim WC, Kwon YS. Laparoendoscopic single-site surgery for exteriorization and cystectomy of an ovarian tumor during pregnancy. J Minim Invasive Gynecol 2010; 17:386.

4. Mukadder S, Zekine B, Erdogan KG, et al. Comparison of the proseal, supreme, and i-gel SAD in gynecological laparoscopic surgeries. ScientificWorldJournal 2015; 2015:634320.

5. Yoon SW, Kang H, Choi GJ, et al. Comparison of supraglottic airway devices in laparoscopic surgeries: A network meta-analysis. J Clin Anesth 2019; 55:52.

6. Shono A, Katayama N, Fujihara T, et al. Positive End-expiratory Pressure and Distribution of Ventilation in Pneumoperitoneum Combined with Steep Trendelenburg Position. Anesthesiology 2020; 132:476.

Навчальне видання

ЕНДОСКОПІЯ В ГІНЕКОЛОГІЇ

Методичні вказівки
для самостійної позааудиторної роботи
здобувачів вищої медичної освіти

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