

# **ENDOSCOPY IN GYNECOLOGY**

*Methodical guidelines for practical training*

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ**  
**Харківський національний медичний університет**

# **ENDOSCOPY IN GYNECOLOGY**

*Methodical guidelines for practical training*

# **ЕНДОСКОПІЯ В ГІНЕКОЛОГІЇ**

*Методичні вказівки*  
*до практичних занять 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. Justification of the topic.**

Protection of women's reproductive health is one of the important problems of 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 and 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 genital organs in different age periods, neurohumoral regulation of the menstrual cycle, modern protocols of the Ministry of Health, learn regulatory documentation.

*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. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs.

b) to be able to: name and identify external and internal genital organs, adjacent organs of the small pelvis on the phantom.

**4. Material and methodological support of the topic:** textbooks, training manuals, methodological guidelines, clinical protocols, laparoscopic phantom, bladder phantom, medical history.

**5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases;

## **6. Practical skills on the topic:**

- endoscopic presentation of pelvic organs;
- endoscopic presentation of the blood flow of the pelvic organs;
- topography of pelvic organs;
- anatomy of adjacent organs (bladder, ureter, intestines);
- extraperitoneal space of the small pelvis;
- fixing device of pelvic organs;

## **7. Questions for knowledge 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.

## **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3;**

**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**

**1. Justification 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. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs; equipment of the laparoscopic operating room, endoscopic instruments, technique of performing laparoscopic operations, tactics of preparation and postoperative management of patients.

b) to be able to: name and identify external and internal genitals on the phantom, determine indications for endoscopic surgery, choose access, type of anesthesia.

**4. Material and methodological support of the topic:** textbooks, study guides, methodical guidelines, clinical protocols, laparoscopic phantom, bladder phantom, medical history.

**5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases;

## **6. Practical skills on the topic:**

- organization of work in the endoscopic office
- organization of work in the laparoscopic operating room
- principles of operation of endoscopic equipment
- endoscopic presentation of pelvic organs
- preparation of patients for endoscopic intervention
- laparoscopy technique
- postoperative management of gynecological patients
- prevention of complications in endoscopic surgery

## **7. Questions for knowledge 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.

## **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3**

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

#### **1. Justification of the topic.**

Protection of women's reproductive health is one of the important problems of 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 ovary and uterus, draw up medical documentation.

#### **3. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs; semiotics and diagnosis of diseases with acute abdomen presentation; tactics of laparoscopy as a method of diagnosis and treatment of emergency conditions in gynecology.

b) to be able to: name and identify external and internal genitals on the phantom, determine indications for endoscopic surgery, choose access, type of anesthesia.

**4. Material and methodological support of the topic:** textbooks, study guides, methodical guidelines, clinical protocols, laparoscopic phantom, bladder phantom, medical history

### **5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases;

### **6. Practical skills on the topic:**

- 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 fibromatous node;
  - laparoscopic operations during pregnancy;
  - laparoscopic methods of treatment of diseases of the female reproductive system;

### **7. Questions for knowledge 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. Contraindications to endoscopic interventions in the acute abdomen presentation in gynecology.
10. Prevention of complications in the postoperative period.

### **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3**

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

### **1. Justification of the topic.**

Benign tumors 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 procedures 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 adhesive 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. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs; semiotics and diagnosis of benign diseases of the uterine adnexa, differential diagnosis of cysts, cystomas and ovarian cancer; principles of treatment.

b) to be able to: name and identify external and internal genitals on the phantom, determine indications for endoscopic surgery, choose access, type of anesthesia.

**4 Material and methodological support of the topic:** textbooks, study guides, methodical guidelines, clinical protocols, laparoscopic phantom, bladder phantom, medical history.

### **5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases.

## **6. Practical skills on the topic:**

- 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.

## **7. Questions for knowledge 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.

## **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3**

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

### **1. Justification 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 abnormality 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. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs; presentation, classification, diagnosis and differential diagnosis of uterine leiomyomas; principles of treatment, indications and types of surgical interventions for uterine leiomyoma.

b) to be able to: name and identify external and internal genitals on the phantom, determine indications for endoscopic surgery, choose access, type of anesthesia.

**4. Material and methodological support of the topic:** textbooks, study guides, methodical guidelines, clinical protocols, laparoscopic phantom, bladder phantom, medical history.

### **5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases;

## **6. Practical skills on the topic:**

- 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;
- 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-sparing operations for uterine fibroids.

## **7. Questions for knowledge control:**

1. Name the indications and contra-indications for operative treatment of uterine fibroids.
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 fibroids?
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?

## **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3**

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

### **1. Justification of the topic.**

Hysteroscopy is a minimally invasive surgical intervention used to examine the walls of the uterine cavity for the purpose of diagnosis and carrying out 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 and 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 at different ages, neurohumoral regulation of the menstrual cycle, technical equipment and tools for performing hysteroscopy, indications and contraindications.

*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. Purpose of the class:**

a) to know: structure of external and internal genital organs, topography, blood and lymph supply of genital organs; equipment of the hysteroscopic operating room, endoscopic instruments, technique of performing hysteroscopic operations.

b) to be able to: name and identify the external and internal genitals on the phantom, determine the indications for hysteroscopy and hysteroresectoscopy, the technique of performing hysteroscopy on the phantom, types of anesthesia.

**4. Material and methodological support of the topic:** textbooks, study guides, methodical guidelines, clinical protocols, hysteroscopic phantom, bladder phantom, medical history.

### **5. Materials for practical training:**

- a) anatomical and physiological information on this topic;
- b) drawings, phantoms;
- c) methods of examination of gynecological patients;
- d) algorithm of actions of an obstetrician-gynecologist;
- e) differential diagnosis of gynecological diseases;

## **6. Practical skills on the topic:**

- position of the patient during hysteroscopy;
- operation field cleaning;
- 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;

## **7. Questions for knowledge 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 abnormality.
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 fibroids.
12. The role of hysteroscopy in the diagnosis and treatment of female infertility.

## **8. Test tasks for the license integrated exam Step 1, Step 2, Step 3**

## Recommended literature

### Basic literature

1. Daniel B. Jones Laparoscopic Surgery : Principles and Procedures. CRC Press, 2019. 616 p.
2. Ramesh B., 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. 4<sup>th</sup> Edition. Jaypee Brothers Medical Publishers, 2022. 637 p.
5. Lozada Y. , 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.
7. Lirk P, Thiry J, Bonnet MP, et al. Pain management after laparoscopic hysterectomy: systematic review of literature and PROSPECT recommendations. *Reg Anesth Pain Med* 2019; 44:425.

*Навчальне видання*

# ЕНДОСКОПІЯ В ГІНЕКОЛОГІЇ

**Методичні вказівки  
до практичних занять здобувачів вищої медичної освіти**

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Свідоцтво про внесення суб'єкта видавничої справи до Державного реєстру видавництв, виготівників і розповсюджувачів видавничої продукції серії ДК № 3242 від 18.07.2008 р.