

ONMedU, Department of Obstetrics and Gynecology. Practical lesson №1. Elective discipline "Obstetrics and gynecology in the practice of a family doctor"

MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

International Faculty
Department of obstetrics and gynecology

 **APPROVED**
Vice-rector for scientific
and pedagogical work
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September 1, 2023

METHODOLOGICAL DEVELOPMENT

**for the practical lessons
in elective discipline**

International Faculty, VI year

Elective discipline
"OBSTETRICS AND GYNAECOLOGY IN THE PRACTICE OF A FAMILY DOCTOR"

Practical lesson №1. Topic: "Pathology of the mammary glands"

Methodical recommendations for practical lesson, "General medicine", 6th year, Medical Faculty.
Elective discipline "Obstetrics and Gynecology in the Practice of a Family Doctor".

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Approved:

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

Protocol No. 1 of 28 August 2023.

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Methodical recommendations for practical lesson, "General medicine", 6th year, Medical Faculty.
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Practical lesson #1

Topic: "Pathology of the mammary glands".

Objective: To acquaint students with the development of scientific views on the problems of breast pathology. To study the algorithm of clinical examination of the mammary glands. To be able to draw up an algorithm for examining women in the practice of a family doctor, depending on the woman's age, complaints and anamnesis. Master practical skills of breast palpation. To be able to interpret the results of palpation, ultrasound and X-ray examination of the mammary glands and plan treatment measures for further treatment.

Basic concepts: types of clinical examination of the mammary glands, breast palpation techniques, ultrasound, mammography. Changes in the mammary gland during pregnancy and lactation. Benign and malignant tumours of the mammary glands. Indications for breast ultrasound and mammography. BI-RADS classification.

Equipment: Professional algorithms, structural and logical diagrams, tables, models, videos, results of laboratory and instrumental examinations, situational tasks, patients, clinical cases, outpatient examination cards.

Class time - 2 hours

1. Organisational activities (greetings, checking the attendance, announcing the topic, the purpose of the lesson, motivating students to learn the topic).

Breast cancer is a malignant tumor of the glandular tissue of the breast. It is the most common form of cancer in women. The number of breast cancer cases is growing every year.

About half a million women worldwide die from this disease every year. In 2020, 12,824 new cases of breast cancer were registered in Ukraine, of which 88 were men and the rest were women. Early diagnosis, i.e. at stages 1-2 of the disease, increases the chances of a full recovery with much less effort. However, when the disease is at stage 3 or 4, treatment is more aggressive and the process is much longer. One in four women is diagnosed with breast cancer at stage III-IV, when the effectiveness of treatment is significantly reduced.

It is worth noting that recent statistics show that the percentage of people cured of breast cancer is increasing. Mortality rates are decreasing due to early diagnosis and the optimal method of using complex therapy.

2. Control of the entrance level of knowledge (written work, written test, online test, interview, etc.).

Requirements for theoretical readiness of students to perform practical classes (knowledge requirements, list of didactic units).

Knowledge requirements:

- Communication skills and skills of clinical examination of patients.
- Ability to determine the list of necessary clinical, laboratory and instrumental tests and evaluate their results.
- Ability to establish a preliminary and clinical diagnosis of the disease
- Perform medical procedures
- Ability to keep medical records

List of didactic units:

- Types of clinical examination of the mammary glands
 - Breast palpation algorithm
 - Self-examination of the mammary glands
 - Benign and malignant breast tumors.
 - Ultrasound examination of the mammary glands.
 - X-ray examination of the mammary glands.
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Questions (quizzes, tasks, clinical situations) to test basic knowledge of the class topic.

Question:

1. Clinical anatomy of the breast.
2. Changes in the mammary gland during pregnancy and lactation.
3. Methods of examination and diagnosis of breast tumors.
4. Classification of benign breast tumors.
5. Classification of breast cancer.
6. Modern management of women with breast pathology.

Typical situational tasks

1. A 65-year-old woman is examined for rapidly progressive erythema, swelling, lumps and warmth in the left breast. The patient denies fever, chills, or nausea. The patient has a history of well-controlled hypertension, type 2 diabetes mellitus and hypothyroidism for which she is taking amlodipine, insulin and levothyroxine. The patient undergoes age-appropriate cancer screening under the supervision of her primary care physician. On physical examination, the left breast is larger than the right. The skin over it is thickened, and the left breast looks swollen. There is no palpable lump or regional lymphadenopathy. The patient has no family history of breast cancer. What is the best next step in the management of this patient? **Answer.**
2. Bilateral mammography. This patient is suspicious for breast cancer, which is a cause for concern. The best next step is to perform a bilateral mammogram followed by an ultrasound. If the radiological findings are consistent with breast cancer, the next step is to consult a surgeon.

Differential diagnosis is made with bacterial mastitis, which usually affects breastfeeding women. It can also develop in patients after nipple piercing. Patients usually have a fever and the skin over the breast becomes thin, swollen and erythematous.

Task 2.

On the 5th day after delivery, a woman in labour complained of pain, tension in the left breast, and an increase in body temperature to 39⁰ C. Physical examination: body temperature 38.6⁰ C, pulse 94 beats/min. The skin and visible mucous membranes are clean, pale pink in colour. Vesicular breathing is heard over the lungs, no wheezing. Heart activity is rhythmic, loud tones. The abdomen is soft, painless to palpation. The left breast in the upper outer quadrant is painful, and a breast tissue lump is detected there. Vaginal examination: no pathology was found.

Question.

1. Diagnosis.
2. State the possible causes of the pathology identified in the problem.
3. Indicate the classification of postpartum breast diseases

Answer:

1. Acute infiltrative mastitis.
 2. Infectious agent: staphylococcus, Escherichia coli, streptococcus and their combinations. Routes of infection: canalicular (through the ducts) during nipple trauma, haematogenous, and rarely lymphogenous.
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3. Classification: specific or non-specific according to the etiological factor. According to the stages of development of acute mastitis: serous, infiltrative and abscessing (abscess formation)

Task 3.

A 42-year-old woman complains of pain in the upper outer quadrants of both breasts for 2 years. The pain occurs several days before the next menstrual period.

Question.

1. Preliminary diagnosis?
2. Draw up an examination plan.

Answer.

1. Benign breast dysplasia (BDD)
2. Physical examination, breast ultrasound, mammography

KROK tests (2021, 2020)

1. On the 10th day of the postpartum period, a woman in labour complains of pain in the mammary glands. Body temperature - 38, 20C, Ps - 96/min. There is significant and uniform swelling in the mammary glands, pain during palpation. When pressed, droplets of milk are released from the nipples. What is the tactic for this patient?

- A. Empty the breast by pumping or using a breast pump**
- C. Temporary restriction of fluid intake
- C. Cessation of lactation
- D. Prescribe antibiotic therapy and diuretic therapy
- E. Compression on the mammary glands

2. A 22-year-old woman in labour on the 12th day after normal delivery notes an increase in body temperature to 390C for 3 days, pain in the right breast. The right breast is enlarged, hot, tense, hyperaemic, painful. Palpation reveals a dense infiltrate of 8×8 cm, in the centre of which there is a fluctuation. What is the most likely diagnosis?

- A. Postpartum period, day 12, right-sided phlegmonous mastitis
- C. Postpartum period, day 12, right-sided infiltrative purulent mastitis**
- C. Postpartum period, day 12, right-sided serous mastitis
- D. Postpartum period, day 12, right-sided lactostasis
- E. Postpartum period, day 12, right-sided gangrenous mastitis

3. The classification of the VLLT offers options:

- A. with a predominance of glandular component**
- B. with a predominance of fibrous component**
- C. with a predominance of cystic component**
- D. mixed form**
- E. with a predominance of fat component

3. Formation of professional skills (mastering skills, supervision, determination of treatment regimens, laboratory and instrumental studies, etc.)

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

An interactive task:

The students are divided into 3 subgroups of 4-5 people each. We work in antenatal clinics (family doctor's outpatient clinic) with gynaecological patients and give them tasks:

Subgroup I - to master the patient's complaints, medical history, gynaecological and obstetric history to make a preliminary diagnosis.

Subgroup II - to develop a management plan for a gynaecological patient.

Subgroup III - evaluates the correctness of the answers of subgroups I and II and makes its own corrections.

Atypical situational tasks and tests

Task 1.

On the 10th day after childbirth, a woman complained of severe weakness, malaise, chills, fever up to 39⁰ C during the day, pain in the left breast. Objectively: body temperature 38.3⁰ C, pulse 98 beats/min, chills. The skin and visible mucous membranes are clean, pale pink in colour. Vesicular breathing over the lungs, no wheezing. Heart activity is rhythmic, loud tones. The abdomen is soft, painless to palpation. The left breast is enlarged in size, tense, hyperemic in the upper lateral quadrant, tissue infiltration without clear boundaries is determined there. Vaginal examination: the cervix is formed, the uterine body is dense, painless on palpation, the size of the uterus corresponds to the postpartum period, the uterine appendages are not palpable, their area is painless. The vaginal vaults are free. Discharge from the genital tract is succulent, odourless.

Objectives.

1. Diagnosis.
2. What is the classification of this pathology?
3. Indicate the ways of spreading the infection in this pathology.
4. State the laboratory criteria for this pathology.
5. What is the tactic of patient management?

Task 2.

On the 5th day postpartum, the woman complained of pain, tension in the left breast, and an increase in body temperature to 39⁰ C. Objectively: body temperature 38.6⁰ C, pulse 94 beats/min. The skin and visible mucous membranes are clean, pale pink in colour. Vesicular breathing is heard over the lungs, no wheezing. Heart activity is rhythmic, loud tones. The abdomen is soft, painless to palpation. The left breast in the upper outer quadrant is painful to palpate, and a breast tissue lump is detected there. Vaginal examination: the cervix is formed, the uterine body is dense, painless on palpation, the size of the uterus corresponds to the postpartum period, the uterine appendages are not palpable, their area is painless. The vaginal vaults are free. Discharge from the genital tract is bloody, moderate, odourless.

Objectives.

1. Diagnosis.
2. Indicate the classification of postpartum breast diseases.
3. State the possible causes of the pathology identified in the problem.
4. Specify the laboratory criteria for the pathology defined in the problem.
5. What is the tactic of patient management?

- Recommendations (instructions) on how to complete tasks (professional algorithms, orientation maps for the development of practical skills, etc.)

Introduction

Breast diseases are one of the first reasons for seeking medical care among women. General practitioners - family doctors and district therapists - play a key role in organising early (timely) detection of breast and breast cancer (during preventive examinations), facilitating the implementation of specialist recommendations during anti-cancer treatment, and providing appropriate palliative care.

Prevention of breast tumours is divided into primary and secondary prevention.

- Primary prevention is the prevention of tobacco smoking, excessive alcohol consumption, overweight, physical inactivity, stressful situations, and excessive sun exposure.

- Secondary prevention consists of early detection of benign dyshormonal breast diseases and timely correction of hormonal disorders that are a prerequisite for the development of tumours. The frequency and methods of breast examinations are determined by the woman's age.

Breast cancer ranks first in terms of morbidity and mortality among all cancers. It is the most common non-skin cancer and the second most deadly cancer in women. Theoretically, diagnosing tumours at an early stage should reduce mortality; however, it is very important to take into account the time factor. The challenge is determining who should be screened. There may be slow-growing tumours that do not become clinically apparent during the patient's lifetime. Therefore, risk stratification, age at screening initiation and age at screening cessation are crucial for appropriate breast cancer screening. Recently, instead of focusing on tumour size and spread to determine therapy, the focus has been on identifying biological characteristics that can help in prognosis and treatment planning. Primary healthcare providers perform the initial diagnosis of breast pathological processes.

The main tasks of a general practitioner/family doctor:

- 1) Maintain a register of women receiving care from a general practitioner/family doctor.
 2. Filling in the "Anamnestic questionnaire" by all women receiving care from a family doctor to identify "familial" breast cancer.
 3. Explaining to the female population the feasibility of participating in breast cancer screening and involving as many women aged 50 - 69 years, without 22 complaints about health problems and without genetic risk of breast cancer in mammography as possible. Age is the most important risk factor for most women.
 4. Providing information to all women on the method of self-examination of the menstrual cycles, which is carried out monthly starting from the age of 20 (on days 7-14 of the cycle).
 5. A clinical examination of the mammary glands is carried out once a year by a general practitioner/family doctor.
 6. Arrange for a general practitioner/family doctor to refer a woman for mammography to a regional diagnostic centre or dispensary. The local protocol of medical care should specify the institution where a woman is referred for mammography.
 7. The family doctor shall enter data into the register of women's population on the mammography screening. Healthcare facilities providing secondary and tertiary care The main task of oncologists and radiologists is to ensure that high-quality mammography is performed and a written report is provided to all women who have applied for a mammography screening programme.
 8. Mammography: - women under 35 should not be prescribed mammography unless there are convincing reasons for this (use ultrasound examination); - if there is a family history of breast cancer, mammography is recommended once every 1-2 years (regular breast examination by yourself and in a doctor's office), starting from the age of 35; - in the age range of 35-40 years, all women undergo a primary mammography once to determine the structure of breast tissue;

- at the age of 40-49 years, it is suggested to undergo mammography depending on the indications (clinical examinations and self-examinations of the Ministry of Health);

- at the age of 50 - 69 years, mammography is performed once every 2 years, taking into account the results of previous examinations, self-examinations and clinical examinations of the Ministry of Health.
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9. Regularly provide information to the family doctor on the lists of women who have undergone mammography screening.

Screening of breast pathology

Type of examination	Age (years) of the survey	Frequency
Self-examination of the Ministry of Health	>20	Monthly
Clinical examination of the MH by a general practitioner	All age groups	Annually
Mammography	> 40	Annually

The screening methods are as follows:

- Breast palpation can be performed during clinical breast examination and breast self-examination.
- Breast imaging techniques such as mammography, ultrasound, magnetic resonance imaging (MRI) and digital breast tomosynthesis (DBT)

Many large randomised trials have concluded that routine screening mammography should be offered to women aged 50 to 69 years, rather than to women aged 40 to 49 years or to women over 70 years. The discovery of genetic mutations, increased risk of breast cancer and the development of breast cancer risk prediction models have stimulated a thorough effort to develop screening methods for risk stratification. For high-risk women, ultrasound and magnetic resonance imaging (MRI) of the breast are being studied as screening methods in addition to mammography. The discussion will include risk stratification and treatment options for women with a genetic predisposition to breast cancer. The follow-up of women with a personal history of breast cancer will be discussed separately.

Anatomy and physiology of the breast

The mature adult breast consists of skin, subcutaneous tissue, epithelial and stromal components. The epithelial component consists of branched ducts that connect the structural and functional units of the breast, known as lobules, to the nipple. The stromal component makes up the majority of the breast volume in non-lactating women and is composed of fibrous and adipose tissue. The breast tissue extends vertically from the 2nd and 6th ribs and horizontally from the edge of the sternum to the mid-axillary line. Part of the breast tissue protrudes into the armpit and is known as Spence's axillary tail. The skin of the breast is thin and contains sebaceous glands, exocrine sweat glands and hair follicles. The nipple is devoid of hair follicles and contains a large number of sensory nerve endings, as well as sebaceous and apocrine glands. The areola, ranging in size from 16 to 60 mm, is almost circular in shape and has increased pigmentation. There are elevations on the periphery of the areola, which are formed by the opening of the ducts of the Montgomery glands, which are large sebaceous glands and are known as Morgana tubercles. The Montgomery glands are the stage between the sweat glands and the mammary glands. The breasts are covered by the superficial pectoral fascia, which continues with the superficial abdominal fascia of Kamper. Below, the breast is covered by the deep pectoral fascia, which covers the pectoralis major muscle and the anterior dentate muscle. The two fascial layers covering the breast tissue are connected by fibrous bands known as Cooper's suspensory ligaments, which provide natural support for the breast. Most of the total blood supply to the breast comes from the internal mammary vessels. Sensory innervation comes

mainly from the anterolateral and anteromedial branches of the thoracic intercostal nerves T3 to T5. It is also supplied by the lower fibres from the supraclavicular nerves of the cervical plexus.

The mammary gland is a specific organ designed to feed the baby. From the moment the embryo attaches to the uterine wall and as the pregnancy progresses, important events take place in the breast, both for the mother and the baby. One of the manifestations of early toxicosis - swelling and pain in the breasts - is a typical sign of a successful conception. From the 4th week of pregnancy, the process of forming future milk-forming lobules begins in the structure of the glandular tissue. The first changes in the mammary glands during pregnancy are minimal, but along with the growth and development of the fetus, the breasts are gradually prepared for the upcoming delivery.

Changes in the mammary glands during pregnancy

The structural unit of the mammary gland is the alveolus (a small sac lined with milk-producing cells). A lobule is formed from several dozen alveoli. Numerous ducts from the structural units merge in the nipple area. All major events unfold in the 2-3 trimester. There are the following changes in the mammary glands during pregnancy:

- Growth of milk-forming cells;
- Thickening of the cell layer inside the alveolar sacs;
- Increase in lobule size with functional restructuring of the alveoli;
- Expansion of the milk ducts for future milk transport; -
- Improvement of blood flow in all vessels - from capillaries to large arterial trunks;
- Stimulation of smooth muscle fibre growth, which is necessary for the movement of milk towards the nipple;
- The appearance of a vascular network on the skin due to the venous network;
- Pigmentation of the nipple circle.

Mammogenesis is the proliferation of glandular structures programmed by nature, which provides a 2-fold increase in breast size (from the initial 150-250 to 400-500 grams). Changes in the mammary glands during pregnancy are controlled by specific female hormones produced by the pituitary gland, ovaries and placenta. In fact, milk production is a complex biochemical factory created in the body of a pregnant woman. The main stages of female breast milk secretion are:

1. Formation and accumulation inside the alveoli of a milk droplet rich in proteins and fats;
2. Excretion of small doses of secretion from each lobule into the common ducts;
3. Transport of milk towards the nipple due to contraction of muscle fibres;

Lactation process: At the end of the 3rd trimester, colostrum begins to be released from the nipples (in first-time mothers, most often only before childbirth, in repeated births - much earlier). This viscous and thick secretion contains little liquid, but a lot of nutrients. For a newborn baby, colostrum is an ideal food in the first days of life. From 3-4 days after delivery, liquid milk is formed in the breast, which is the best food option for the child for at least the next six months.

The undoubted advantages of breastfeeding include:

- meeting all the nutritional needs of the baby;
 - optimal absorption of nutrients;
 - formation of immunity in the child;
 - adaptation of the newborn to the environment;
 - psycho-emotional contact with the mother; -
 - reducing the risk of breast cancer;
-

- optimal reduction in the size of the uterus due to the physiological contraction of muscle tissue;
- prevention of unwanted conception;
- restoration of body weight of a postpartum woman;
- cost-effectiveness (no need to spend money on formula).

Nature has provided for everything. Lactation is the ideal feeding option in the first year of a baby's life.

Ending breastfeeding

There are no restrictions - a woman can breastfeed until the baby refuses. If nothing extraordinary happens in the woman's body, the mammary gland will produce food for the baby. Factors that inhibit lactation include:

1. Immaturity of the body and unreadiness for motherhood (rare young mothers breastfeed well);
2. Any stressful situation;
3. Pain syndrome;
4. Exacerbation of chronic diseases;
5. Malnutrition with a lack of fluid intake;
6. Incomplete emptying of milk lobules with the formation of lactostasis.

After breastfeeding is completed, the mammary glands will undergo reverse processes - the size and number of lobules will decrease, and blood flow will decrease.

Benign breast dysplasia (BBD): signs and treatment

Synonyms: Mastopathy (fibrocystic disease), fibrocystic disease MH, cystic fibroadenomatosis, mesoplasia, dyshormonal hyperplasia, sclerosing adenomatosis, Veljaminov's disease (thyrotoxic mastopathy), Mintz's disease (bleeding breast)

Benign breast dysplasia (mastopathy) is the name for benign changes in the mammary glands. This fibrocystic breast lesion can be diagnosed in women of all ages. Mastopathy includes such concepts as fibrosis, glandular enlargement, epithelial proliferation, cysts and dilatation of the excretory ducts.

Fibrocystic mastopathy: classification

There are main types of mastopathy:

- Nodular form. It exists in the form of a fibroadenoma, cyst, vascular tumour or fatty necrosis.
- Diffuse form. It is less common than the nodular form, but it is dominated by various components: cysts, fibrosis, or a combination of these two types.

Etiology of the disease

The causes of mastopathy often lie in the area of hereditary predisposition.

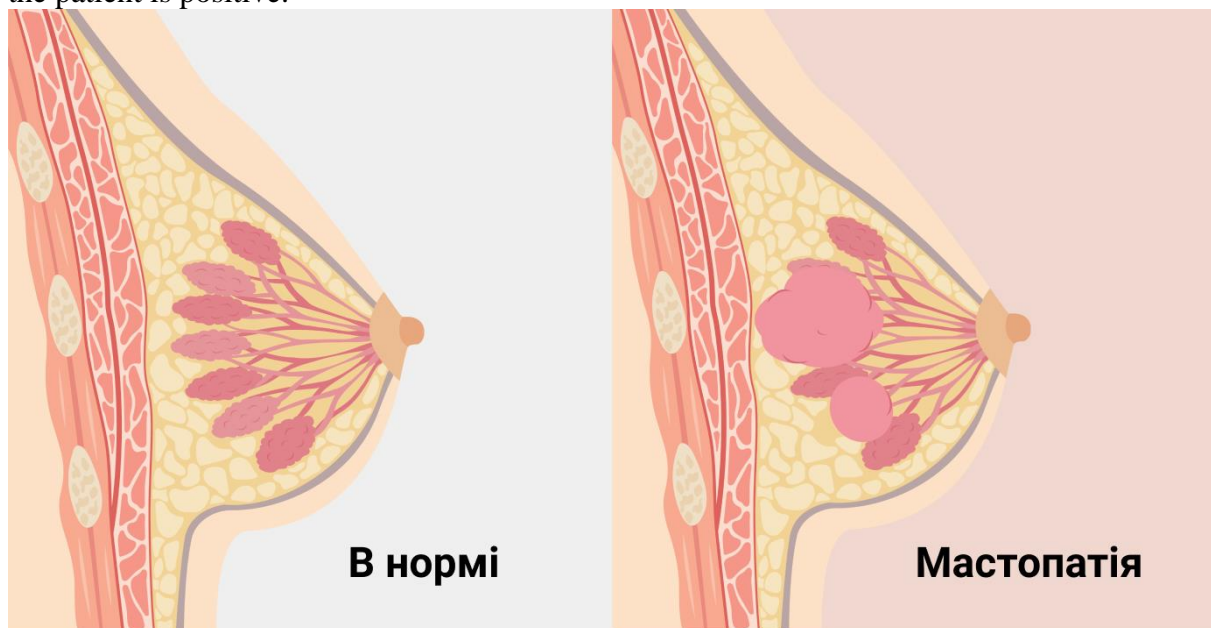
The main causes of mastopathy include:

- early menopause;
 - menstrual irregularities;
 - prolonged absence of childbirth;
 - multiple abortions;
-

- Irregular sex life (or lack thereof);
- endocrine disorders (hypo- and hyperthyroidism, hypothalamic and pituitary dysfunction, adrenal glands, liver, pancreas).

Pathogenesis

Breasts consist of two main elements - glands lined with epithelium and the stroma, which is formed of connective tissue, surrounding them. The structures that make up the breast are under hormonal and nervous control. Therefore, it is the influence of hormones that is considered the main cause of mastopathy. Estrogen and progesterone deficiency leads to stimulation of the development of the skeleton - connective tissue. Due to its excessive growth, the development of epithelial tissue elements - glands - occurs. With proper hormonal regulation, the prognosis for the patient is positive.



1- Normal 2- Mastopathy

Clinical manifestations of mastopathy

The key symptoms of mastopathy include the appearance of numerous hard lumps that can be felt with your fingers. They can vary in size, grow and shrink during the menstrual cycle.

The symptoms of mastopathy also include breast pain (or sensitivity) with swelling. It feels like the breasts have become heavy. Breast pain caused by mastopathy usually increases before menstruation and goes away with the onset of menstruation, although in some cases it can occur regardless of the phase of the cycle. Sometimes there may even be nipple discharge. Symptoms of mastopathy usually subside with the onset of menopause.

Diagnosis of mastopathy

Any changes in the breast should be examined by a specialist. The diagnosis of mastopathy begins with an examination of a woman by a gynaecologist or family therapist. The doctor should obtain information from the patient about the existence of risk factors for mastopathy (hereditary factor, prolonged exposure to estrogen) and ask her to describe the existing symptoms.

Then a physical examination is carried out.

In addition, laboratory diagnostics are carried out:

- Ultrasound of the mammary glands;
- hormonal tests;
- mammography to assess the extent of breast lesions.

In some cases, a fine-needle aspiration biopsy of the breast with cytological examination may also be required.

In rare cases, a patient with mastopathy is referred for MRI.

Treatment of mastopathy

At the preliminary stage, it is necessary to find out which doctor treats mastopathy. A family doctor refers a woman with suspected mastopathy to a mammologist for examination. The goal of mastopathy treatment is to restore hormonal levels and alleviate the symptoms of the disease. For this purpose, hormonal treatment is used. In addition, a consultation with an endocrinologist will be required.

Treatment of mastopathy includes an appointment:

- non-steroidal anti-inflammatory drugs (NSAIDs), painkillers;
- oral contraception - in some cases, its use can reduce discomfort (by adjusting the balance of sex hormones);
- androgenic drugs - used in case of very high severity of symptoms (such drugs are derivatives of the male sex hormone testosterone, it blocks the secretion of female sex hormones in the ovaries, reducing the level of estrogen and progesterone).

Patients who do not have hormonal disorders and severe symptoms do not need to take medications to treat mastopathy.

Control of the cure

After treatment and the introduction of the principles of proper nutrition, benign changes disappear, but may return over time. Patients after surgery remain in the group with an increased risk of recurrence. Therefore, an examination by a mammologist and laboratory diagnostics should be carried out at least once a year.

Prevention of mastopathy

Prevention of fibrocystic mastopathy includes mandatory examinations, which reduce the risk of "missing" life-threatening breast diseases.

It is recommended for prevention:

- conducting an independent breast examination on a monthly basis;
 - visit a doctor for a breast examination once a year;
 - periodically undergo mammography - every 2 years for women aged 45-50 years and annually for women over 50 years;
-

- Increase the frequency of breast examinations, and perform mammography after the age of 40 for women at increased risk of mastopathy.
- In younger women, mammography is performed only in case of suspicious changes in the mammary glands

Breast cancer (breast cancer): signs and treatment

A clinical breast examination, in addition to palpation, includes a thorough medical history taking into account risk factors for breast cancer (BC).

Risk factors for breast cancer (B):

- age over 35 (B);
- family history: in the presence of cancer in relatives (B);
- age of menarche up to 12 years (C);
- first birth after 30 years (C);
- menopause after the age of 55 (C);
- atypia in the results of previous biopsy materials (B);
- Alcohol abuse (drinking more than 100 ml of spirits or 200 ml of wine per day)(B);
- Use of exogenous hormones: for continuous use of OCS or HRT for more than 10 years (C).

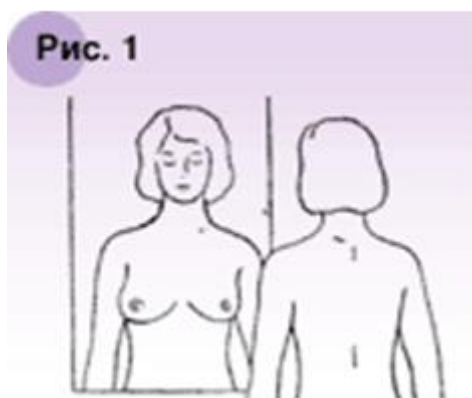
Algorithm of breast examination

Examination and palpation:

Stage 1:

The patient stands with her arms loosely lowered. Examine each breast carefully. Check for changes in size, shape, contours of the breast (one breast may be slightly larger, this is normal). Pay attention to the symmetry of both glands, whether the glands are located at the same level, whether they move evenly when lifting and putting your hands behind your head, bending over, turning to the right and left. Is there any fixation or displacement of one of the glands to the side?

A woman should do the same self-analysis every month, looking in the mirror (Fig. 1).



Stage 2:

The patient raises her hands up - and once again examine the mammary glands in turn, paying attention to their displacement up, to the sides or down; change in shape with the formation of enlargement, retraction, retraction of the skin or nipple; appearance of drops of fluid from the nipple during these movements (Fig. 2)

Рис. 2



Stage 3:

In the "standing" position, the so-called superficial palpation is performed when the fingertips do not penetrate the thickness of the gland, which makes it possible to detect small formations located directly under the skin. Then, deep palpation is performed when the fingertips consistently reach the ribs. Palpation should be performed from the clavicle to the lower edge of the ribs and from the sternum to the axillary line, including the axillary area, where enlarged lymph nodes can be found (Fig. 3)

Рис. 3



Stage 4:

Perform "circular" palpation of the mammary glands in a standing position. It is recommended to start palpation from the outer upper quadrant, then in a circular clockwise motion.

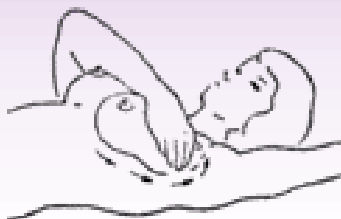
Stage 5:

Feel the breasts in the supine position.

This is the most important part of the examination, as it is the only way to properly examine all the tissues. At the same time, pay attention to which breasts can be felt under your fingers.

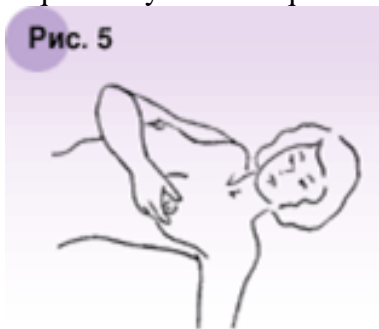
Palpation is performed lying down on a relatively hard, flat surface; you can place a roller or a hard pillow under the gland under examination, stretch your arm along the body or put it behind your head.

Рис. 4

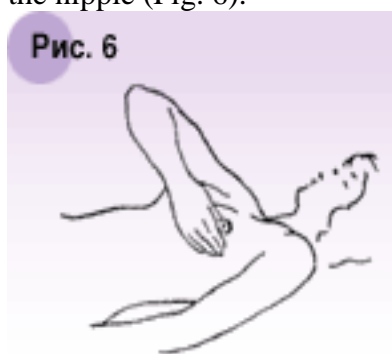


There are two methods of palpation:

1. The square method, when the entire surface of the anterior chest wall from the clavicle to the rib margin and the breast is divided into small squares. The examination is carried out sequentially in each square from top to bottom, like a ladder.



2. Spiral method, when the breast is examined in a spiral in the form of concentric circles, starting from the armpit to the nipple. The fingertips make circular movements, moving in the direction of the nipple (Fig. 6).

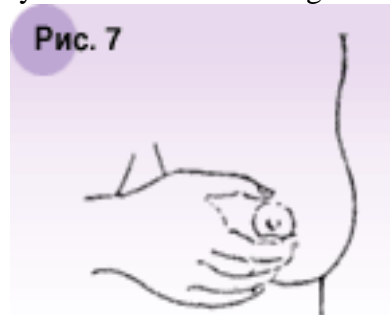


Feel the inguinal lymph nodes.

Step 6: Inspect the nipple

When examining the nipples, it is necessary to determine whether there are changes in their shape and colour, whether they are retracted. Check for wetness, sores or cracks. It is necessary to feel the nipple and the inframammary area. This area is quite sensitive in women and in some women is accompanied by erotic or unpleasant sensations.

Finally, you need to gently take the nipple with your thumb and forefinger and press on it, noting



the nature of the discharge from it or its absence.

Teach a woman how to conduct a monthly breast self-examination:

Out of 10 detected changes in the breast, 9 are detected by women themselves, because no one knows the condition of their mammary glands better than they do. Most of the changes detected in the breast are benign.

It is better to perform the examination on the same day as the menstrual cycle, as changes in the size and structure of the mammary glands occur during the month.

The best time is a week after the onset of menstruation, when the mammary gland is in a relaxed state, and at the onset of menopause - on the same day of each calendar month.

The principle of cancer prevention is crucial in **clinical breast examination**.

The clinical signs of malignancy are as follows:

- a tumour that is detected by palpation;
- retraction of the nipple or nipple skin;
- asymmetry of the nipple;
- erosion of the nipple;
- pain in the joints;
- axillary lymphadenopathy;
- swelling of the upper limb;
- swelling of the skin of the MZ - "lemon peel";
- pain in the axillary region.

If pathology is detected during the screening, further examination of the breast is carried out using the "**triple test**", which includes

- clinical examination of the mammary glands;
- bilateral mammography;
- in the presence of voluminous lesions - fine needle aspiration biopsy under ultrasound control with subsequent cytology (manipulation is performed by a trained ultrasound doctor). The results of fine needle aspiration biopsy are interpreted by a pathologist.

Instrumental methods of examination.

Bilateral mammography is the "Gold Standard" of breast examination due to:

radioresistance of detailed visualisation of the breast and mature breast tissue, low radiation dose of modern devices, high diagnostic efficiency of asymptomatic malignant tumours: 85-90% (B). It is the best population-based method for screening. It can demonstrate microcalcifications less than 100 micrometres in size, making it capable of detecting lesions before they become palpable. Mammography can be performed in two forms: screening and diagnostic. Patients who have a family or personal history of breast cancer require additional screening with a diagnostic/screening mammogram. The informative and diagnostic value of mammography is determined by mammographic density.

Mammographic density is the degree of radiological density of breast tissue. **High** mammographic density is noted with a predominance of fibrous tissue. **Low** - in case of fatty involution of the breast. **Intermediate** - with varying degrees of visualisation of ductal structures. Assessment of mammographic density in the interpretation of mammograms is performed by a radiologist in accordance with the following classification.

Classification of mammographic density of the breast (Wolfe J.N., 1987; Byrne C., Schairer C., 1995), according to which four types of mammograms are defined:

N1 - the parenchyma is represented entirely or almost entirely by adipose tissue, there may be single fibrous connective tissue strands.

P1 - ductal structures are visualized, which occupy no more than 25% of the breast volume.

P2 - ductal structures occupy more than 25% of the breast volume.

DY - extremely dense (opaque) parenchyma ("dysplasia"), which usually indicates connective tissue hyperplasia.

Establishing mammographic density is important for diagnostic and prognostic purposes: the risk of developing breast cancer in women with increased mammographic density is 3 times higher than in women with normal mammographic density (B).

Exogenous estrogens and gestagens increase the density of breast tissue on a mammogram (A), which reduces the diagnostic capabilities of mammography in detecting early breast cancer. This calls for a more careful approach to the evaluation of mammograms when examining patients taking hormonal drugs.

Indications for mammography:

In 2015, the American Cancer Society (ACS) recommended

- Women at average risk should have regular screening mammography starting at age 45 (strong recommendation).
- Women aged 45 to 54 years should be screened annually, and women 55 years and older can be screened every two years or annually.
- Routine screening strategies are not recommended for women aged 40 to 49 years or women over 70 years. However, in conjunction with mammography, breast MRI has been studied as an important screening method for high-risk women and women with dense breasts. It is recommended to continue screening mammography for women who have a life expectancy of up to ten years and are in good overall health.

Contraindications to mammography.

Certain precautions should be taken when screening for breast cancer, taking into account a woman's age. New guidelines from the American College of Physicians warn that starting at age 40, women at average risk without symptoms should discuss the benefits, personal preferences and potential harms of breast cancer screening with their doctor before reaching age 50.

Clinical breast screening is not recommended regardless of age for women at average risk. Screening for women aged 75 years and older or with a life expectancy of 10 years or less should be discontinued.

Diagnostic criteria

Calculation of BI-RADS scores:

0-Additional information is required. Another mammogram may be required.

1 - no abnormalities. Continue with the routine screening.

2 - Benign breast diseases such as cysts. Continue regular screening.

3 - Something is found that is probably not cancer. A repeat mammogram within the next six months.

4 - suspected cancer. A biopsy may be required.

5 - High probability of cancer. A biopsy is required.

Digital mammography is best used to diagnose breast cancer in dense breasts. Tomosynthesis or 3D mammography can also be used, which improves the ability to detect the smallest cancers and reduces the likelihood of false positives.

The cost of magnetic resonance imaging (MRI) is higher than the cost of mammography worldwide

Thermography is a method based on the fact that the temperature of the breast skin over breast cancer is elevated.

Ultrasound diagnostics is typically used to learn more about a positive clinical examination or screening mammography result on the diagnostic front. It has limited use as a screening method due to various factors, including the inability to detect microcalcifications and low specificity. In women younger than 35 years of age, in order to reduce radiation exposure to the body of a woman in case of palpable detection of a mass in the breast, it is advisable to use breast ultrasound instead of mammography for diagnosis.

Indications for ultrasonography:

- Breast screening in young women (under 40);
 - monitoring the condition of the mammary glands in women taking hormonal drugs (gestagens, COCs, HRT);
 - interpretation of mammographic data to determine the structure of volumetric formations;
 - Dynamic observation of the size of bulky neoplasms in young women;
 - control examination after puncture biopsy and breast surgery.
-

The examination can be performed at any stage of the menstrual cycle. However, it should be borne in mind that *ultrasound is not sufficient to visualise early preclinical forms of breast cancer, small in size.*

Screening MRI is considered to be less specific but more sensitive than mammography for detecting invasive cancer in high-risk women.

Annual mammography and MRI, and sometimes every 6 months, are necessary for women with *BRCA* gene mutations, a family history of breast cancer and previous radiotherapy to the chest. Screening methods, such as mammography, are most effective when targeted screening strategies are used that take into account age and other criteria such as hormonal exposure, family history and risk factors such as radiation, obesity and genetics.

Improving the performance of the medical team

Tests

1. A 35-year-old patient complains of pain and swelling in the right breast. She has been suffering from infertility for 15 years. The right breast is enlarged in size, its skin is pasty, hyperemic, a dough-like infiltrate without clear contours is palpated, and the symptom of "lemon peel" is observed. Make a diagnosis:
 - A. Breast cancer
 - B. Mastitis
 - C. Nodular mastopathy
 - D. Breast abscess
 - E. Fibroadenoma of the breast
 2. A 52-year-old patient has been experiencing right breast enlargement for 2 years. Over the past 3 months, redness of the skin of this breast has appeared. In the right axillary region, a lymph node of tight-elastic consistency up to 1.5 cm in size is palpated. The right breast is enlarged in size, its skin is hyperaemic, lemon peel symptom, nipple is retracted. Which disease is most likely in this case?
 - A. Breast cancer
 - B. Mastitis
 - C. Fibroadenoma of the breast
 - D. Axillary lymphadenitis
 - E. Mastopathy
 3. A 34-year-old woman with previously normal menstrual function has developed irregular cycles, and according to functional diagnostic tests, anovulatory cycles. The mammary glands are palpably painful, milk is discharged (galactorrhoea). What examination is indicated for the patient in the first place?
 - A. Determination of gonadotropin levels
 - B. Ultrasound examination of the pelvic organs
 - C. Determination of prolactin levels
 - D. Progesterone test
 - E. CT scan of the brain
 3. A 54-year-old woman visited her family doctor for a routine examination. Height - 164 cm, weight - 84 kg. Blood pressure - 130/80 mm Hg. 5 years of menopause. The patient's mother died of breast cancer, her younger sister suffers from mastopathy. During the examination, no lumps were found in the mammary glands, pelvic organs were within the age-related norm. Cervical cytology is unremarkable. What should I recommend to the woman?
 - A. Come for the next medical examination in 2 years
 - C. Perform regular breast self-examination
-

- C. Come for a check-up every 3 months
- D. Undergo MRI of the mammary glands
- E. Have a mammogram once a year

Situational tasks

Task 1.

Patient M., (29 years old) consulted a doctor with complaints of pain and a feeling of lumping in the mammary glands, which increased 10 days before the expected menstruation.

Objective examination: the general condition of the patient is satisfactory. The skin and visible mucous membranes are pink. The mammary glands are of the same size. There is a slight increase in the mammary glands and tenderness on palpation. Pulse - 74 beats/min, rhythmic, blood pressure - 110/65 mm Hg. The abdomen is not distended, participates in the act of breathing; during superficial and deep palpation - soft and painless throughout. Symptoms of peritoneal irritation are negative.

Gynaecological examination: the external genitalia are properly developed. Examination in mirrors: vagina of a woman who has not given birth. The cervix is conical, the epithelium is intact. The uterine body in the anteflexio position is not enlarged, dense, mobile, painless to palpation. The uterine appendages on both sides are not enlarged, painless.

Ultrasonography of the mammary glands: increase in the volume of the connective tissue component.

Question:

1. Preliminary diagnosis.
2. Diagnosis.
3. Differential diagnosis.
4. Classification of dyshormonal breast diseases.
5. Treatment tactics.

Answer:

1. Diffuse mastopathy.
 2. Diagnosis:
 - A general blood and urine test,
 - Biochemical blood tests, blood glucose content.
 - Testing of blood hormones (FSH, LH, TSH, T3, T4, prolactin, estradiol, progesterone).
 - Bacterioscopic examination of discharge and cytomorphological examination of the cervix.
 - Clinical examination of the mammary glands.
 - Ultrasound examination of the pelvic organs (ultrasound).
 - Special examination methods: ultrasound examination of the mammary glands (up to 40 years), mammography, pneumocystography (in the presence of large cystic formations), dukography with the use of water-soluble contrast
 - puncture biopsy, CT, MRI.
 - Examination by specialised specialists according to indications (mammologist, gastroenterologist, endocrinologist).
 3. Mastodynia, premenstrual syndrome, hyperprolactinemia.
 4. Classification of dyshormonal breast diseases.
 - A. Diffuse:
 - fibro-cystic form;
 - adenoid form;
 - fibrous form;
 - epitheliosis.
 - B. Localised:
 - nodal form;
 - solitary cyst;
-

- intraductal papilloma;
 - fibroadenoma.
5. Treatment tactics.

In the diffuse form of mastopathy, preference is given to conservative methods aimed at treating endocrine gland dysfunctions related to the pathogenesis of the disease; and diseases of the female genital organs. In cases of significant pain in the premenstrual period, a course of retromammary blockades or electrophoresis with a solution of novocaine or trimecaine, and acupuncture can be used.

Task 2.

Patient R., 32 years old, consulted a doctor with complaints of discharge from the breast nipples when pressed for the last two months and complaints of irregular menstrual cycle.

Anamnesis data: Sexual activity since the age of 19. Two pregnancies (the first ended in a medical abortion). The second pregnancy ended with a caesarean section. She breastfed her child for 6 months.

Objective examination: the patient's general condition is satisfactory. The skin is pink. Examination of the mammary glands: they are of the same size. Soft, painless during palpation. When pressing on the nipple area, a milky fluid is released. Pulse 70 bpm, blood pressure - 115/75 mmHg. The abdomen is soft and painless on palpation throughout.

Gynaecological examination: the external genitalia are properly developed. Examination in mirrors: vagina of a woman who has given birth. The cervix is cylindrical, the epithelium is intact. The uterine body in the anteflexio position is not enlarged, dense, mobile, painless to palpation. The uterine appendages on both sides are not enlarged, painless.

Question:

1. Preliminary diagnosis.
2. Diagnosis.
3. Etiological factors in the development of this pathology.
4. 4. Treatment tactics.
5. Differential diagnosis.

Answer:

1. Galactorrhoea. Hyperprolactinaemia?

2. Diagnostics:

- A general blood and urine test,
- Biochemical blood tests, blood glucose content.
- Testing of blood hormones (FSH, LH, TSH, T3, T4, prolactin, estradiol, progesterone).
- Bacterioscopic examination of discharge and cytomorphological examination of the cervix.
- Clinical examination of the mammary glands.
- Ultrasound examination of the pelvic organs (ultrasound).
- Special examination methods: ultrasound examination of the mammary glands (up to 40 years), mammography, puncture biopsy, CT, MRI.
- Examination by specialised specialists according to indications (mammologist, gastroenterologist, endocrinologist).

3. Etiological factors of galactorrhoea development:

- Impaired function of the hypothalamus and pituitary gland.
 - Certain medicines (antihypertensives and antiemetics, antidepressants, tranquillisers), including hormonal contraceptives.
 - Diseases of the thyroid gland
 - Diseases of the adrenal glands
 - Mastitis (especially its severe forms)
 - Ovarian diseases, PCOS.
 - Stressful situations.
-

4. *Drug therapy* is aimed at restoring the functions of the reproductive system, stabilising prolactin levels and normalising the menstrual cycle. *Surgical treatment* is appropriate when there is an urgent need for immediate removal of a progressive pituitary tumour. Currently, the following drugs are used to treat hyperprolactinemia: parlodol (bromocriptine), cabergoline (alactin), dopamine agonists, which are used to treat galactorrhoea syndrome of non-tumoural genesis and in prolactin-secreting pituitary adenomas. If galactorrhoea is accompanied by primary hypothyroidism, thyroid hormone preparations are prescribed.

5. Differential diagnosis

- Pituitary adenoma;
- physiological hyperprolactinemia;
- PCOS;
- primary hypothyroidism.

Task 3 .

Patient M., 24 years old, consulted a gynaecologist 6 months after childbirth with complaints of lumps in the right breast, unpleasant sensations before menstruation. The woman does not breastfeed and has a history of fibrocystic mastopathy.

Examination of the mammary glands: palpation in the lower outer quadrant of the right breast revealed a mobile mass filled with fluid up to 3 cm, with clear contours, peripheral lymph nodes were not changed. Ultrasound examination of the mammary glands: an increase in the volume of the connective tissue component is determined, in the lower outer quadrant of the right breast a volumetric mass of reduced echogenicity, 31×29 mm in size.

Question:

1. Preliminary diagnosis?
2. Make a plan for the patient's examination.
3. Differential diagnosis.
4. Pathogenesis of fibrocystic mastopathy.
5. Methods of prevention of dyshormonal diseases of the mammary glands.

Answer:

1.Cyst of the right breast. Fibrocystic mastopathy.

2.Diagnostics:

- A general blood and urine test,
- Biochemical blood tests, blood glucose content.
- Testing of blood hormones (FSH, LH, TSH, T3, T4, prolactin, estradiol, progesterone).
- Bacterioscopic examination of discharge and cytomorphological examination of the cervix.
- Clinical examination of the mammary glands.
- Ultrasound examination of the pelvic organs (ultrasound).
- Special examination methods: ultrasound examination of the mammary glands (up to 40 years), mammography, puncture biopsy, CT, MRI.
- Examination by specialised specialists according to indications (mammologist, gastroenterologist, endocrinologist).

3. Differential diagnosis:

- Fibroadenomas,
- Fibrous mastopathy,
- Mastalgia.

4. The pathogenesis of mastopathy is mainly determined by the persistent action of prolactin, disturbance of the ratio of estrogen and progesterone, and increased levels of follicle-stimulating hormone and estrogen. Disruption of neurohumoral regulation in the mammary

gland creates conditions for proliferation or promotes stromal overgrowth, resulting in impaired drainage of the glandular duct system.

5. Methods of prevention:

- Pregnancies in the reproductive age that resulted in childbirth.
- Full breastfeeding.
- Use of contraception.
- Timely diagnosis and treatment of concomitant diseases of the female genital organs.
- Treatment of extragenital diseases.
- Quitting bad habits.

4. Summarise the results:

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

Structure of the current assessment in the practical class:

1. Assessment of theoretical knowledge on the topic of the lesson:

- Methods: questionnaire, solving a situational clinical problem;
- maximum score - 5, minimum score - 3, unsatisfactory grade - 2.

2. Assessment of practical skills and manipulations on the topic of the lesson:

- Methods: assessment of the correctness of practical skills;
- maximum score - 5, minimum score - 3, unsatisfactory grade - 2.

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

- Methods: assessment of: a) communication skills with the patient, b) correctness of prescription and evaluation of laboratory and instrumental studies, c) compliance with the algorithm of differential diagnosis, d) justification of the clinical diagnosis, e) preparation of a treatment plan;
- maximum score - 5, minimum score - 3, unsatisfactory grade - 2.

Criteria for the current assessment in the practical class:

"5"	the applicant is fluent in the material, actively participates in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant woman and interpretation of the results of clinical, laboratory and instrumental studies, expresses his/her own opinion on the topic, demonstrates clinical thinking.
"4"	the applicant has a good knowledge of the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant woman and interpretation of the results of clinical, laboratory and instrumental studies with some errors, expresses his/her own opinion on the topic, demonstrates clinical thinking.
"3"	the applicant has insufficient knowledge of the material, is not confident in discussing and solving a situational clinical problem, demonstrates practical skills in examining a pregnant woman and interpreting the results of clinical, laboratory and instrumental studies with significant errors.
"2"	the applicant has no knowledge of the material, does not participate in the discussion and solution of a situational clinical problem, does not demonstrate practical skills during the examination of a pregnant woman and interpretation of the results of clinical, laboratory and instrumental studies.

5 RECOMMENDED LITERATURE

Basic:

1. Obstetrics and gynaecology: in 2 books. - Book 1: Obstetrics: a textbook (universities III-IV: year of study) / V.I. Hryshchenko, M.O. Shcherbyna et al. - K.: Medicine, 2020. - 424 c.
2. Obstetrics and Gynaecology: in 2 books. - Book 2. Gynaecology: textbook (universities III-IV: year of completion) / V.I. Hryshchenko, M.O. Shcherbyna et al. - K.: Medicine, 2020. -

- 376 c.
3. Obstetrics and gynaecology: national textbook for medical universities of IV accreditation levels in 4 volumes // National textbook in 4 volumes / Zaporozhan V.M., Tatarchuk T.F., Gladchuk I.Z., Podolsky V.V., Rozhkovska N.M., Marichereda V.G., Volyanska A.G. - K.: VSV "Medicine", 2017. 696 p.
 4. Textbook of Obstetrics (ed. I.B. Ventskivska, V.P. Lakatosh, V.M. Kushch) - K., 2018 - RA-Harmony - 210 p.
 5. Emergency conditions in obstetric practice: a practical guide / A.Y. Senchuk, V.G. Ginzburg, I.I. Chermak et al.
 6. Clinical Obstetrics and Gynaecology: 4th edition / Brian A. Magowan, Philip Owen, Andrew Thomson. 2021. 454 p.
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 9. Obstetrics by Ten Teachers (20th ed) Louise C. Kenny, Jenny E. Myers. - CRC Press. - 2017. - 342 pp.
 10. Diagnosis of obstetric and gynaecological endocrine pathology: [textbook for doctors-interns and doctors-students of postgraduate institutions. Education of the Ministry of Health of Ukraine] / edited by V.K. Likhachev; V.K. Likhachev, L.M. Dobrovolska, O.O. Taranovska and others; UMSA (Poltava) - Vinnytsia: Maksymenko E.V. Publisher, 2019. 174 p.
 11. 13.Leveno, S. L. Bloom, C. Y. Spong, J. S. Dashe, B. L. Hoffman, B. M. Casey, J. S. Sheffield, McGraw-Hill Education/Medical. - 2014. - 1377 pp.
 12. Textbook of Gynaecology (6th edition) Dutta DS, Hiralal Konar (eds). - JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD, 2013. - 702 c.
 13. Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th edition). Jeremy Oates, Suzanne Abraham. Elsevier. 2016. - 384 c.
 14. Simulation medicine. Experience. Achievements. Prospects: practical guide / V.M. Zaporozhan, O.O. Tarabrin - Sumy: University. Book, 2018. 240 p.
 15. The current "Clinical Protocols" are approved by the order of the Ministry of Health of Ukraine for Obstetrics and Gynaecology.

Additionally:

1. Obstetrics: Normal and Problematic Pregnancy, 7th edition, S. Gabbe, J. R. Nihil, J. L. Simpson, M. B. Landon, H. L. Galan, E. R. M. Jongeau, D. A. Driscoll, V. Bergella, and W. A. Grobman, Elsevier. - 2017. - 1320 c.
2. Infertility and benign breast diseases / NAMS of Ukraine, Ministry of Health of Ukraine, Institute of Paediatrics, Obstetrics and Gynaecology, UMSA; edited by A.G. Kornatska, T.F. Tatarchuk, O.D. Dubenko - K.; Poltava, 2017. - 271 p.
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