«APPROVING»

on the sitting of chair of obstetrics and gynecology № 1 of UMSA

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METHODOLOGICAL POINTING
for the independent work of students for preparation to practical lesson

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<td>faculty</td>
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Poltava – 2020
Nonspecific inflammatory diseases of women’s reproductive organs.

Inflammatory diseases of the female genitals make 50–70% gynecological disorders.

The etiology of inflammatory gynecological diseases is mainly infectious. Most often the causative agents of gynecological infections are aerobic and anaerobic representatives of the vaginal autoflora (Staphylococcus spp., Streptococcus spp., Clostridium spp., Listeria spp., Bacteroides spp., Corynebacterium spp., Enterococcus spp., Gardnerella vaginalis, Pseudomonas spp., etc.). Such inflammations are called nonspecific. However, inflammations may also be caused by sexually transmitted agents. Not infrequently there are observed mixed infections brought on by associations of causative agents.

In the clinical practice, when inflammatory diseases of the female genitals are diagnosed and treated, the genital organs are usually divided into two sections – lower and upper. The internal orifice of the uterine neck is the border between the two sections. The lower section includes the external genital organs, vagina, uterine neck, and cervical canal. The upper section includes the uterus, uterine tubes, ovaries, pelvic peritoneum, and parametral fat.

Nonspecific Inflammations of the Lower Female Genitals.

Vulvitis

Vulvitis is inflammation of the external genital organs (vulva). More often it develops secondarily in inflammation of the vagina, cervical canal, and endometrium. Primary vulvitis is observed in diabetes, not following the rules of personal hygiene, thermal, mechanical, or chemical action on the genital skin. There are differentiated acute and chronic vulvitis.

Clinical presentation. In acute vulvitis patients complain of itch, burning on the region of external genitals, sometimes common ailment. Examination may show hyperemia, swollen vulva, purulent or seropurulent discharge, enlarged inguinal lymph nodes. At the chronic stage the clinical signs decline, itch and burning appear from time to time.
Diagnostics. One assess the clinical presentation, conducts bacterioscopic and bacteriological examinations.

Treatment. Irrigation of the vulva with herbal tinctures (camomile, marigold, sage), antiseptic solutions (dioxydin, myramistin, chlorhexidine, potassium permanganate). Complex antibacterial preparations (see colpitis). When inflammatory manifestations decline, patients are to use ointments with vitamins A and E, solcoseryl, actovegin, sea-buckthorn oil, rosehip oil – to accelerate the reparative processes. If itch is evident, the doctor administers antihistamines (suprastin, benadryl), local anesthetics (anesthesin ointment).

Bartholinitis

Bartholinitis is inflammation of the greater vestibular (Bartholin’s) gland. It is frequently unilateral. Bartholinitis arises if genital organs hygiene is not followed, in case of low immunity, vaginal dysbacteriosis, venereal diseases. Infection gets through the excretory duct of the gland occluding it; there forms a false abscess (a cyst). In some cases inflammation spreads onto the parenchyma, purulent effluent fills the gland lobules, and a true abscess arises. If the abscess opens without assistance and purulent contents flow out, acute symptoms of the inflammation decline and the patient’s condition improves considerably. Still, it is not a sign of recovery – after abscess opening there usually ensues a relapse and bartholinitis may become chronic.

Classification. According to the clinical course there are differentiated: acute and chronic bartholinitis, false and true abscess. According to the etiology: primary and secondary bartholinitis.

Clinical presentation. The main clinical signs of acute bartholinitis are painfullness in the region of the middle third of the large lip of pudendum and body temperature rise. Examination shows hyperemia, swollen large lips of pudendum in the region of the gland.

In chronic bartholinitis clinical manifestations are often absent. During exacerbation there is often observed enlargement, edema, induration of the large lip
of pudendum on the affected side; painfulness in the state of rest and during palpation.

**Complications:** true abscess (acute period) is characterized by inflammation of the Bartholin’s gland tissue. The course is acute, with fever and body temperature rise, painfulness in the region of the large and small lips of pudendum, and also in the region of the inguinal lymph nodes, which increases during walking. Examination shows intumescence of the large and small lips of pudendum, their reddening.

**Diagnostics:** anamnesis, speculum examination, colposcopy, bimanual gynecological investigation, rectal examination, profound palpation of the abdomen, bacteriological examination.

**Treatment.** Conservative treatment is administered at the initial stages of the disease. There is recommended bed rest, anesthetizing, anti-inflammatory, and antibacterial therapy (tetracycline 0.25 g 4 times a day, doxycycline 0.1 g 2 times a day, erythromycin 0.5 g 4 times a day) during 7 days. Locally – application of anti-inflammatory ointments (levomecol), an ice pack to reduce inflammation acuteness. In the acute phase of the inflammatory process physiotherapy is resorted to – UHF onto the affected area.

If the patient’s condition worsens (abscess appears), surgical treatment is indicated. There is conducted obligatory dissection of the abscess followed by draining for the edges not to stick together and for repeated gland abscess not to take place, or marsupialization is carried out (anchoring of the edges of the gland cavity walls to the edges of the operative wound). After the operation the sutures are processed with antiseptic solutions during a couple of days.

Bartholin’s gland cyst: the treatment is aimed at gland function recovery. At first one conducts preliminary preparation: antibacterial, general health-improving, immunomodulating therapy, local treatment. Later the cyst is excised (in the period of remission).

**Colpitis**

Colpitis is inflammation of the vaginal mucosa. There are singled out acute, subacute, and chronic forms of the disease, which are usually accompanied by vulvitis and exo-/endocervicitis.
Clinical presentation. In acute colpitis patients complain of profuse discharge, which may be liquid, watery, purulent, and sometimes foamy; itch in the region of the vagina caused by the irritant action of leukorrhea; sensation of burning, pressure, heat in the genital organs and small pelvis, pains in the vagina during coitus (dyspareunia). In case of ascending infection of the urinary system dysuric disorders are observed. There are no signs of intoxication.

In the chronic form there are no painful sensations. The main complaints concerns seropurulent discharge from the genital tracts. Itch and burning become less intensive.

Diagnostics. Speculum examination shows purulent deposition on the surface of the vagina, thickening, swelling, hyperemia of the mucous tunic, which bleeds easily when touched.

If the disease course is severe, there takes place desquamation of the vaginal epithelium with the formation of erosions and ulcerations.

In the chronic form hyperemia and swelling of the mucous tunic decrease, in erosion sites there may be found infiltrates of the papillary layer of the vagina, which look like point formations on the surface (granular colpitis).

An additional technique of colpitis diagnostics – colposcopy – allows finding even feebly marked signs of the inflammatory process.

In order to detect the causative agent of the disease one resorts to bacteriological and bacterioscopic examination of discharge from the vagina, urethra, and cervical canal. Microscopy of the vaginal contents in colpitis is characterized by an increased number of leucocytes – more than 10 in the field of vision, many cells of the cast-off epithelium. Bacteriological diagnostics is of little informative value due to a great variety of microorganisms in the vagina both in the normal and pathological states. Quantitative methods of vaginal microflora investigation have more advantages. There is observed a decrease in the quantity of lactobacilli (less than 104 CCFAS (compact-colony-forming active substance)/ml), an increase in the quantity of facultatively anaerobic opportunistic pathogenic microorganisms.
The treatment is complex, aimed at the treatment for both underlying disease and associated illness – elimination of the factors supporting disease relapses (treatment for neuroendocrine, metabolic, immune disorders, and hypovitaminosis).

The causal treatment consists in the administration of antibacterial preparations, which act on the causative agent. For this purpose local treatment is used more often. There is administered irrigation of the vagina with solutions of dioxidine, chlorhexidine, myramistin, chlorophyllipt 2–3 times a day (not longer than 3–4 days); antibiotics and antibacterial preparations in the form of suppositories, vaginal tablets, ointments, and gels. Most frequently there are used complex preparations of antimicrobial, antiprotozoal, and antifungal action – tergynan, polygynax, macmiror, gynalgin, betadine, klion, etc.

After antibacterial therapy there are administered eubiotics for the normalization of the vaginal microflora and acidity by means of using acylact, bifidumbacterin, lactobacterin suppositories.

If colpitis takes place in the period of menopause, the doctor administers estrogens locally, since they promote the increase of the local biological shield of the epithelium (ovestine in the form of suppositories, ointments).

Cervicitis

There are differentiated exocervicitis, inflammation of the vaginal part of the uterine neck, and endocervicitis – inflammation of the mucous tunic of cervical canal. Their development is promoted by neck injuries sustained during delivery, abortions, diagnostic curettage of the uterine neck, age-related changes connected with estrogen deficiency, etc.

Classification. Depending on the stage there are singled out acute and chronic forms of cervicitis.

Clinical presentation. In acute cervicitis patients complain of mucous or purulent vaginal discharge, sometimes they note dull pains in the lower abdomen. Other complaints are usually connected with concomitant diseases (urethritis, endometritis, salpingo-oophoritis, etc.).
Speculum examination shows hyperemia, edema, and sometimes small hemorrhages of the vaginal and cervical mucosa. If the course is severe, due to epithelium dystrophy there may appear areas of ulcerations up to stroma or desquamation of the surface layers of epithelium to the basal layer. At that, the mucous tunic of the vaginal part of the uterine neck has a spotted, bright red appearance.

At the chronic stage discharge is moderate or minor, the uterine neck is swollen, hyperemic, the epithelial cover is changed just a little, still, if the course is protracted, there is observed a decrease or local disappearance of glycogen. In case of protracted course the uterine neck is dense and thickened, there appear small cysts in the neck thickness (nabothian cysts – *ovulae Nabothii*).

**Diagnostics:** clinical signs, microscopy of the cervical discharge, bacteriological and cytological methods of examination (detecting cells of the columnar and laminated pavement epithelium without atypia signs, inflammatory leucocytic reaction), broadened colposcopy.

**Treatment.** At the acute stage – causal (antibacterial) treatment in accordance with the sensitivity of causative agents to them. Local treatment is contraindicated because of the risk of ascending infection. At the chronic stage physiotherapeutic procedures are administered. If the process is long-term and the treatment is ineffective, electrocoagulation, cryotherapy, and laser therapy are administered.

**Nonspecific Inflammatory Diseases of the Upper Female Genital Organs.**

**Endometritis**

Endometritis is inflammation of the endometrium; in this case the pathological process is localized only in the surface layer of the endometrium. If it spreads to deeper layers (basal layer of the endometrium, myometrium), there arises endomyometritis.

Endometritis development is promoted by abortions, therapeutic and diagnostic curettage of the uterus, complications of delivery, eradication of submucosal uterine tumors, polyps, etc.

There are differentiated acute, subacute, and chronic types of endometritis.
Acute Endometritis

Clinical presentation of acute endometritis usually develops on the 3rd–5th day after infection is brought. Body temperature rises, pulse becomes rapid, painful sensation appears in the lower abdomen and inguinal region, mucopurulent and sanious-purulent discharge is observed. In the peripheral blood: leukocytosis, right leukogram shift, increased ESR. Vaginal examination somewhat enlarged uterus, painful when palpated, especially on the sides (along the great lymphatic vessels). The acute phase of inflammation lasts for 5–10 days and stops in case of timely correct treatment or passes into subacute or chronic form.

Diagnostics is based on anamnestic data, clinical presentation, bacteriological study of uterine cavity aspirate, US (uterus enlargement, blurred borders between the endometrium and myometrium, uterine echogenicity change – areas of increased and decreased echodensity, dilatation of the uterine cavity with hypoechoic contents), hysteroscopy (in the uterine cavity against the background of hyperemic edematous mucosa one finds remains of the fetal egg, placental tissue, foreign inclusions).

Treatment. Broad-spectrum antibacterial preparations (Table 1). The main course of treatment with large doses of antibiotics i.v. or i.m. (the multiplicity and type of parenteral introduction depend on the clinical presentation) lasts for 3–5–7 days (until clinical symptoms disappear and during one more day after clinical improvement with the following move to peroral regimens or (if it is needed) to another antibiotic).

<table>
<thead>
<tr>
<th>Group of the preparation</th>
<th>International name of the preparation</th>
<th>Dose, multiplicity, route of introduction</th>
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</thead>
<tbody>
<tr>
<td>second-generation cephalosporins</td>
<td>cefoxitin</td>
<td>1.0–2.0 g every 6–8 h i.v. (i.m.)</td>
</tr>
<tr>
<td>third-generation cephalosporins</td>
<td>cefotaxime</td>
<td>1.0 g 3–4 times a day i.v.</td>
</tr>
<tr>
<td>Cephalosporins</td>
<td>Ceftriaxone</td>
<td>1.0–2.0 g a day i.v.</td>
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</tr>
<tr>
<td>Carboxypenicillins</td>
<td>Sodium Ticarcillin</td>
<td>150–300 mg/kg/day, every 6 h. The maximum daily dose – 24 g</td>
</tr>
<tr>
<td>Tetracyclines</td>
<td>Doxycycline</td>
<td>100 mg i.v. 2 times a day or 100 mg per os 2 times a day</td>
</tr>
<tr>
<td>Lincosamides</td>
<td>Clindamycin</td>
<td>900 mg i.v. 3 times a day, then 450 mg per os 4 times a day</td>
</tr>
<tr>
<td>Aminoglycosides</td>
<td>Gentamicin</td>
<td>1.0 mg/kg i.v. (i.m.) 3 times a day or 2.0 mg/kg i.v. (i.m.) once a day</td>
</tr>
<tr>
<td>Fluoroquinolones</td>
<td>Ofloxacin</td>
<td>200–400 mg i.v. 2 times a day, then 200–400 mg per os 2 times a day</td>
</tr>
<tr>
<td>Fluoroquinolones</td>
<td>Ciprofloxacin</td>
<td>200 mg i.v. 2 times a day, then 250–500 mg per os 2 times a day</td>
</tr>
<tr>
<td>Antianaerobic Antibiotics</td>
<td>Metronidazole</td>
<td>500 mg i.v. every 8 h or 400 mg per os 2 times a day</td>
</tr>
<tr>
<td>Anticandidal Antibiotics</td>
<td>Fluconazole</td>
<td>150 mg once a week per os</td>
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Besides, there is provided desensitizing, immunostimulating, anti-inflammatory therapy, vaginal biocenose restoration.

Local treatment is obligatory: irrigation of the uterus with antiseptic solutions, introduction of medicinal preparations into the cavity (ointments, hydrophilic gel sorbents).

**Chronic Endometritis**

Chronic endometritis (CE) is a clinicoanatomical notion. It has such morphological varieties: a) atrophic – there is noted atrophy of the glands, stromal fibrosis, infiltration with stromal lymphoid elements; b) cystic – if the fibrous tissue squeezes the their contents thicken and cysts form; c) hypertrophic – the mucosa undergoes hyperplasia as a result of chronic inflammation.

Usually CE arises in consequence of acute puerperal or postabortive endometritis, which was not completely treated; often its development is promoted by
recurrent intrauterine interventions in connection with uterine bleedings. Most cases of CE have a latent course and have no clinical signs of the infection.

**Clinical presentation.** CE symptoms are usually indistinct: there is noted mucopurulent leukorrhea, dull pain in the lower abdomen, sacrum, and loin, menorrhagia. Bimanual examination shows slight enlargement and hardening of the uterus. Often CE and concomitant changes of the ovarian function are the reason for sterility and miscarriage.

**Diagnostics** is based on anamnestic data, clinical presentation, histological examination of the endometrium obtained after separate diagnostic curettage (on the 5th–8th day of the menstrual cycle), hysteroscopy, US.

**Treatment.** Physiotherapy subject to the patient’s age, disease duration, concomitant pathologies. In case of ovarian dysfunction and short-term disease (less than 2 years) – centimeter waves or magnetic field microwaves, UHF. If the process has been lasting longer than 2 years – pulse mode ultrasound or zinc electrophoresis. On case of ovarian hypofunction and duration exceeding 2 years – centimetre waves, UHF. If CE is combined with salpingo-oophoritis in a young woman – pulse mode US, in a woman older than 35 years of age – a combination of iodine and zinc electrophoresis.

General health-improving preparations, if indicated – sedative, desensitizing preparations, and vitamins. Antibacterial therapy is provided only if the inflammatory process worsens.

**Parametritis**

Parametritis is parametrium inflammation usually arising in the puerperal period, sometimes after gynecological surgeries, and very rarely – in uterine diseases.

The infection gets into the parametrium by different routes: along the lymphatic vessels, in case of spread (in metroendometritis, pelvic osteomyelitis, appendicitis), through the venous system (in the flu, angina).

There are differentiated 3 stages: infiltration, exudation, exudate hardening (the process may stop at any stage). If there is no treatment, infiltrate suppuration is possible.
Clinical presentation. The first and early parametritis symptom is pain in the lower abdomen. In parametritis pain is persistent, often stabbing, lancinating, irradiating into the sacrum and loin. If infiltrate passes into the urinary bladder or rectum, there develops cystitis or proctitis with tenesmus. One notes temperature rise, appearance of general intoxication symptoms: feeling unwell, weakness, headache, rapid pulse. Common blood analysis shows increased ESR, leukocytosis, C-reactive protein increase.

Diagnostics. Bimanual examination shows shortening and asymmetry of the lateral vaginal vaults, evident infiltration of the parametrium on one or both sides. The uterus moves to the unaffected side or upwards. It is impossible to separate it from the infiltrate. The sacrouterine ligaments are indistinct in parametritis.

In case of percussion in the region of the anterosuperior parts of the hip bones dullness of percussion sound is detected on the side of the infiltrate (Genter’s sign).

Treatment – see endometritis. In case of infiltrate suppuration surgical treatment is indicated.

Salpingo-Oophoritis

Salpingo-oophoritis is inflammation of the uterine appendages.

The inflammatory process begins from the mucous tunic of the uterine tube (endosalpingitis), where hyperemia, microcirculation disorders, exudation, and infiltrations develop; later the process spreads onto the muscular tunic, as a result the uterine tube thickens, becomes edematous, sharply painful when palpated. In the tube lumen there accumulates serous inflammatory exudate, which may later become purulent. In case of adhesion of the uterine and ampullary parts of the tubes there forms a sacciform mass (hydrosalpinx or pyosalpinx). The ovaries are involved in the process less frequently. If ovaritis does develop, it is secondary.

Depending on the clinical presentation there are differentiated acute, subacute, and chronic types of salpingo-oophoritis.

Acute Salpingo-Oophoritis

The clinical presentation of acute salpingo-oophoritis is characterized by pelvic pains of different intensity, mainly in the hypogastric region, with a broad zone
of irradiation, febrile or subfebrile temperature, leukorrhea (more frequently purulent), aggravation of general condition, dyspepsia, dysuria.

Diagnostics is based on anamnestic data, physical and gynecological examination. During the first day of the disease the abdomen is tense, painful when palpated, muscular defense phenomena may appear. Gynecological examination increases pain, the outline of the uterine appendages is blurred (swelling, perifocal processes), the appendages are enlarged, pastose, their mobility is limited. In the peripheral blood: left leukogram shift, increased ESR; in the proteinogram: predominance of globulin fractions, C-reactive protein increase. Bacteriological examination of the microflora of the cervical canal, abdominal exudate obtained by means of laparoscopy or puncture of the abdominal cavity through the posterior vault shows causative agents. In order to diagnose the disease one also uses US, laparoscopy, and hysterosalpingography.

Treatment – see endometritis. If there forms pyosalpinx, surgical treatment is indicated (laparotomy).

Chronic Salpingo-Oophoritis

Chronic salpingo-oophoritis is also characterized by pains in the lower abdomen of different intensity, which increase before or during menstruation, irradiate into the vagina, rectum, and internal surface of the hips. In many women painful sensations are accompanied by complaints connected with functional disorders of the endocrine, urogenital, cardiovascular systems, and the gastrointestinal tract. There are observed disorders of the secretory function (leukorrhea), which may be caused by concomitant colpitis or endocervicitis.

The long-term course and frequent relapses lead to dysfunctioning of the hypothalamic-pituitary system, ovaries, adrenal glands, which declares itself by changes of the menstrual function, premenstrual tension, etc.

The course of chronic salpingo-oophoritis may be without clinical manifestations and declares itself if there appear delayed complications: sterility or pathological results of pregnancy if the woman becomes pregnant (spontaneous abortions, extrauterine pregnancy).
Diagnoses is based on anamnestic data, physical and gynecological examination, results of laboratory and additional methods of investigation: microbiological and bacteriological examination of the cervical canal microflora, US, laparoscopy, and hysterosalpingography.

The treatment of chronic salpingo-oophoritis has the following purposes: achieving the anesthetic, anti-inflammatory, and resorptive effects, increasing the functional activity of body defenses, repairing disturbed functions of different organs and systems, which accompany the process of chronic inflammation.

The main role in the treatment belongs to physical factors: ultrasound therapy and phonophoresis; copper, zinc, magnesium, enzyme electrophoresis; electrical treatment with centimeter and decimeter microwaves; magnetotherapy. Exercise therapy, hydrotherapeutics, and climatic treatment are auxiliary. One also provides immunomodulating therapy taking into account the immune status.

Pelviperitonitis. Peritonitis

Inflammation of the pelvic peritoneum (pelviperitonitis) or abdominal cavity (peritonitis) is accompanied by local and general symptoms with dysfunction of the vital organs. Most often this inflammation is secondary and completes such destructive processes in the internal genitals:

- dissolution of a wall of pyosalpinx, pyo-ovarium or purulent tuboovarian mass;
- various gynecological surgeries;
- illegal abortions, including the ones complicated with uterine wall perforation;
- ovarian tumor necrosis due to tumor pedicle torsion or tumor capsular breaking.

Depending on the spread of the inflammatory process such forms of the process are differentiated:

1. Local.
   1.1. Limited – inflammatory infiltrate or abscess in an abdominal organ.
   1.2. Unlimited – the process is localized in a peritoneal recess.
2. Wide-spread.
2.1. Diffuse – the process covers 2–5 anatomical regions of the abdominal cavity.

2.2. Generalized – from 5 to 9 regions.

2.3. General – overall affection of the serous coat of the abdominal organs and.

The clinical presentation of pelviperitonitis is peculiar to the inflammatory process: high body temperature (especially in the purulent process), rapid pulse, feeling unwell, severe pain in the lower abdomen, fever, abdominal swelling, tension of the anterior abdominal wall muscles, positive Shchotkin – Blumberg symptom in the lower abdomen, sharp ESR increase, leukocytosis, left leukogram shift. During the first days of the disease gynecological examination shows only rigidity and painfulness of the posterior vaginal vault, later on there is detected exudate, protrusion of the cupola of the posterior vault.

The clinical presentation of peritonitis in gynecological patients differs from the same complication in patients with surgical pathology. One should bear in mind possible absence of peritonitis manifestations, both general and local. Local manifestations include such symptoms: abdominal pain, protective tension of the abdominal wall muscles and other signs of peritoneum irritation, enteroparesis. The most essential sign of the gynecological forms of peritonitis is evident enteroparesis despite the application of peridural block or peripheral ganglionic block.

The most characteristic general symptoms: high fever, shallow breathing, vomiting, restlessness or euphoria, tachycardia, cold sweat, leukocytosis in the peripheral blood with a sharp left leukogram shift, toxic neutrophils, thrombocyte count reduction.

Diagnostics is based on the anamnestic data, clinical presentation, bacteriological examination of the punctate obtained by means of exudate aspiration (if it is possible), laboratory blood analyses, US, laparoscopy.

The treatment for pelviperitonitis is based on the principles of complex therapy for acute endometritis.

In case of peritonitis the treatment is provided in three stages: preoperative preparation, operative intervention, intensive therapy in the postoperative period.
Preoperative preparation takes 1–2 hours. During this time one conducts decompression of the stomach through the nasogastric probe, subclavian vein catheterization, infusion and antibacterial therapy.

The extent of operative intervention depends on the woman’s age, peritonitis foci, the degree of pelvic organs destruction, surgeon experience. During the operation one carefully inspects the abdominal and pelvic organs, conducts sanation and draining. Systemic treatment is provided parallel to local treatment. Antibacterial antibiotics are of big importance. Preference is given to monotherapy with ultra-broad spectrum antibiotics (carbapenems, fourth-generation cephalosporins) or combined use of broad-spectrum preparations.

Detoxication therapy: infusion of colloid and crystalloid media in the ratio 2:1, the total volume of infusion makes 3–5 L/day.

Microcirculation normalization: heparin, fraxiparin, nicotinic acid, aminophylline, contrical.

Stimulating therapy: \( \gamma \)-globulin, serum immunoglobulin, immune-active plasma.

Fight against enteroparesis – proserin, umbretid.

Sexually Transmitted Diseases

Sexually transmitted diseases (STD) play an important role in the inflammation of the female genital organs.

Presently there are more than 20 STDs. The following ones are the most significant in the gynecological practice.

**Gonorrhea**

The causative agent of gonorrhea is Gram-negative diplococcus located intracellularly – in the segmental leukocytes and cylindrical epithelium cells.

Classification.

1. According to the localization:
   - gonorrhea of the lower urogenital tract without complications;
   - gonorrhea of the lower urogenital tract with complications;
- gonorrhea of the upper urogenital tract and pelvic organs.

Then the complete topical diagnosis is given (cervicitis, urethritis, cystitis, bartholinitis, adnexitis, pelviperitonitis).

2. According to the clinical course:

   - recent gonorrhea (of up to 2-month prescription) – acute, subacute, torpid;
   - chronic gonorrhea (of more than 2-month prescription).

Clinical presentation. The symptoms depend on the site of affection and coincide with the clinical presentation of endocervicitis, urethritis, endometritis, adnexitis, and pelviperitonitis. Women do not have appreciable painful sensations even in acute course. A characteristic sign is many inflammation foci in the sites of cylindrical epithelium localization – urethra, cervical canal, Bartholin’s glands. The external genitals and vagina are usually not affected in women of the childbearing age.

The diagnosis of gonorrhea is given only if laboratory examination finds gonococci by such techniques: discharge microscopy, cultural examination, molecular-biological investigation – polymerase chain reaction (PCR) and ligase chain reaction (LCR). The material should be taken right after menstruation (obligatorily from the cervical canal, urethra, vagina).

Treatment. The drugs of choice are cephalosporins, Aminoglycosides, and fluoroquinolones. Sometimes there is used penicillin and its derivatives, but more often penicillin-resistant gonococcus strains are applied.

Clamidiosis

The causative agent is Chlamydia trachomatis, obligate intracellular bacteria. The main forms of clamydia are elementary and reticular (initial) bodies. Elementary bodies are mature forms of bacteria, which penetrate into target cells (the cylindrical epithelium of the urogenital tract, phagocytes). Reticular bodies are an intracellular form with active metabolism, which is characterized by binary division and forms in cells microcolonies known as chlamydial inclusions. After their development reticular bodies again turn into the form of infectious elementary bodies. The duration
of complete development cycle makes 48–72 hours. There may possibly develop intracellular persistence in the course of many years in the form of reticular bodies.

**Classification** of urogenital clamidiosis:

- uncomplicated clamidiosis of the lower urogenital tract;
- clamidiosis of the upper urogenital tract and pelvic organs.

Later the complete topical diagnosis is given (cervicitis, urethritis, cystitis, Bartholinitis, adnexitis, pelviperitonitis).

**Clinical presentation.** A peculiarity of the clinical course of clamidiosis is the absence of specific clinical manifestations and pathognomonic symptoms.

In most cases this disease has a torpid course, with few or no symptoms, usually takes on a chronic or persistent form. Clamidiosis is characterized by mucous or mucopurulent discharge from the urethra and cervical canal, and also follicular formations on the uterine neck (follicular cervicitis). The ascending forms of clamidiosis have few or no symptoms. If there are symptoms, they correspond to the clinical presentation of endometritis, adnexitis, or pelviperitonitis.

In the clamydiosis **diagnostics** different methods are used: detection of chlamydial antigens in the investigated material by the method of immunofluorescence, enzyme immunodetection; detection of chlamydiae in cell cultures by the method of PCR; detection of chlamydial antibodies by immunotechniques.

**Treatment.** The drugs of choice are tetracycline, macrolide, and fluoroquinolone antibiotics.

The therapy also includes preparation of the immune system, physiotherapeutic and local treatment, fight against concomitant diseases. In case of persistent infection there may be administered pulse therapy (a couple of cycles with an interval) with obligatory individual immunotherapy (depending on the condition of the immune system).

**Posttreatment control** is recommended not earlier than in three weeks after the treatment is over (after menstruation) using methods aimed to detect antibodies and antigens.
**Mycoplasmosis, Ureaplasmosis**

According to the modern classification the family *Mycoplasmataceae* is divided into two genera: the genus *Mycoplasma* including 100 species and the genus *Ureaplasma* including 3 species. Until this time there have been established 4 types of pathogenic germs of this family, and 3 of them are causative agents of urogenital infections: *M. hominis, M. genitalium,* and *U. urealiticum.*

Wide spread occurrence of urogenital mycoplasms and their frequent detection in apparently healthy women complicates solution of the question concerning the role of these microorganisms in the etiology of inflammatory diseases of the urogenital tract. Presently there has been proved the role of mycoplasms in the development of inflammatory urogenital diseases of polymicrobial etiology. The question about the meaning of mycoplasms as solitary causative agents of such pathological processes has not been completely solved yet. Most scholars consider mycoplasms to be opportunistic pathogenic microbes.

*Clinical presentation.* The inflammatory disease of the urogenital tract, in which mycoplasms and ureaplasms are detected, does not have pathognomonomic symptoms. The disease has the clinical presentation of vaginitis, endocervicitis, urethritis, and endometritis. Mycoplasms are often detected in spontaneous abortions, preterm deliveries, intrauterine fetal infection.

*Diagnistics.* Most often there are used cultural investigations, detection of mycoplasms in liquid and solid nutrient media; less frequently – methods of immunofluorescence, enzyme immunodetection, PCR.

*Treatment.* If there are detected mycoplasms/ureaplasms, the criteria for etiological therapy administration are: clinical presentations of the inflammatory diseases of the urogenital tract; the degree of risk of invasive interventions (before abortions, IUD introduction, etc.); burdened obstetrical anamnesis (habitual abortion, threatened abortion, puerperal endometritis); sterility, when no other reasons except for mycoplasmal infection have been found. The antibiotics effective in mycoplasms and ureaplasms treatment belong to the same groups as in clamidiosis: tetracyclines, macrolides, fluoroquinolones.
Control examination is conducted in 2–3 weeks after a course of antimicrobial therapy.

**Trichomoniasis**

*The causative agent is Trichomonas vaginalis*, a representative of flagellate protozoans.

*Classification.* Clinically, there are differentiated such forms of trichomoniasis: recent (less than 2 months old) – acute, subacute, torpid; chronic (older than 2 months).

*Clinical presentation.* The site of primary infection in trichomoniasis is the vagina. Still, these microbes may get into the upper female genital tract and urinary organs. The clinical presentation of acute trichomoniasis in women is characterized by symptoms of vaginitis, which may be accompanied by vestibulitis, urethritis, and endometritis. In the acute form women complain of considerable foamy vaginal discharge; vulva itch and irritation; frequently – burning, painful urination. In the torpid form these complaints are absent. Chronic trichomoniasis is characterized by periodical exacerbations, which may be conditioned by sexual arousal, alcohol consumption, immunity impairment, ovarian dysfunction, etc.

*Diagnostics:* vaginal trichomonad detection by means of discharge microscopy, cultural examinations (material is to be taken from different foci – the vagina, urethra, urinary bladder, Bartholin’s gland ducts).

*Treatment.* Trichomoniasis patients are treated no matter if they have any complications. The treatment for carriers of the causative agents is obligatory, because the carriers may be sources of infection. The effective means of trichomoniasis treatment are nitroimidazole preparations: metronidazole, tinidazole, and ornidazole.

The local therapy for trichomoniasis may be an additional, but not an independent method of treatment (taking into account the considerable spread of trichomonads into different parts of the urogenital tract). For the local treatment one uses: Klion-D – vaginal tablets (once a day, during 10 days); metronidazole – vaginal 0.5 g globules (once a day, during 6–10 days); macmirror – vaginal suppositories (once a day, during 10 days), etc.
Treatment control is carried out in women in 7–10 days after the termination of the course of treatment. Later on investigation is conducted 3 times after each menstruation meeting all the above-mentioned requirements of diagnostics.

Genital Candidiasis

Most frequently the causative agents of mycoses are yeast fungi of the genus Candida (C. albicans, C. tropicalis).

Classification. There are singled out three clinical forms of urogenital candidiasis:
- uncomplicated candidiasis without pathological background (arises under the influence of exogenous factors);
- uncomplicated candidiasis conditioned by endogenous factors;
- complicated ascending urogenital candidiasis against the background of considerable decrease in body defenses.

Clinical presentation. Uncomplicated candidiasis without pathological background is characterized by a mild course with a low intensity of clinical manifestations (vulvovaginitis), arises because of exogenous factors influence. The disease may be treated with drugs of local action. The treatment of the sexual partner is advisable.

Uncomplicated candidiasis conditioned by endogenous factors is often accompanied by urogenital infections (clamidiosis, gonorrhea), endocrine pathology (diabetes mellitus), or immunodeficiency. The disease may have a persistent, chronic course with relapses accompanied by evident clinical manifestations (vulvovaginitis, urethritis). Local therapy produces temporary improvement; treatment is impossible without elimination of the pathological background. The treatment of the sexual partner is obligatory.

Complicated ascending urogenital candidiasis against the background of considerable immunodeficiency is characterized by persistence and chronic course with temporary improvement. Systemic antimycotic agents and immunomodulator must be used. The treatment of the sexual partner is obligatory.
Diagnostics. Yeast fungi detection in the investigated material by means of microscopy, bacteriological examination, and native specimen study.

Treatment. In order to choose the method of treatment one should take into account the clinical form of urogenital candidiasis. Systemic action drugs: ketoconazole, fluconazol,itraconazole, anticandidal antibiotics (nystatin, pimafucin). For the local treatment one uses various preparations in the form of vaginal tablets, globules, suppositories, sometimes creams, which are introduced into the vagina for a night (clotrimazole, miconazole, econazole). The fight against mycotic infections includes following the rules of personal hygiene, effective treatment of sexual partners, and appropriate immunotherapy.

Recovery control is carried out by means of triple examination of patients in the course of 3 months.

Bacterial Vaginosis

Bacterial vaginosis is characterized by vaginal ecosystem changes, which consist in the replacement of the dominating in the vaginal microflora microorganisms of the genus Lactobacillus with associations of different bacteria, including Gardnerella vaginalis, anaerobes (Bacteroides, Prevotella, Porphyromonas, Peptostreptococcus, Mobiluncus), Mycoplasma homini, etc. All the enumerated microbes are representatives of the normal vaginal flora, but in bacterial vaginosis their quantity sharply increases, the aerobes/anaerobes ratio violates (normally it makes 1:5, in bacterial vaginosis 1:100). A consequence of a sharp decrease or absence of lactobacilli is an increase of vaginal medium pH, which also promotes the development of different opportunistic pathogenic microbes.

Clinical presentation. The clinical manifestations of bacterial vaginosis do not have typical signs, women usually complain of considerable vaginal discharge with an objectionable odor of rotten fish. There are no signs of vagina inflammation, which allows differentiating bacterial vaginosis from vaginitis. The clinical value of bacterial vaginosis consists in the fact that a large amount of opportunistic pathogenic microbes in the vagina is a factor of the risk of ascending infection onset, and also inflammation development in the sexual partner. Bacterial vaginosis may result in
chronic inflammation of the upper female genital tract; infectious complications after gynecological surgeries, abortions; obstetric complications (spontaneous abortions, preterm deliveries, chorioamnionitis, puerperal endometritis, intrauterine fetal infection).

**Diagnostics.** Estimation of pH in the vaginal secretion (> 4.5), detection of amine smell in the vaginal secretion (1 drop of 10 % potassium hydroxide solution is added to the vaginal discharge applied onto a microscope slide), microscopy of the vaginal discharge (detection of “key cells”, which are a consequence of a large amount of microbes accumulating on the vaginal wall epitheliocytes; the leukocyte count is normal).

**Treatment.** For the treatment to be effective it is to be provided in two stages: at the first stage one conducts the antibacterial treatment of sexual partners (with metronidazole or clindamycin), at the second stage one provides the recovery of vaginal biocenosis in women (with vagilac, acilac).

**Recovery control** is exercised after the termination of the second stage. The patient may be considered cured after vaginal biocenosis restoration.

**Genital Herpes**

The causative agents of genital herpes are 2 species of the herpes virus family: herpes simplex virus 1 and 2 (HSV-1 and HSV-2). In 90 % cases the disease is caused by HSV-2, and only in 10 % cases – by HSV-1. The infection is usually transmitted during sexual intercourse from an affected person or an HSV carrier, who has no clinical symptoms.

There are differentiated three forms of herpetic infection:
- primary infection, when a person encounters HSV for the first time and does not have antibodies to it;
- nonprimary infection is observed in the patients, who already have antibodies to one of the HSV types. The most frequently observed is the variant when a person already has antibodies to HSV-1 and is infected with HSV-2 for the first time;
- recurrent infection is diagnosed in the patients, who have antibodies to reactivated HSV. The factors, which promote relapses, are: immunoresponsiveness reduction,
supercooling, intercurrent diseases, invasive manipulations (abortion, IUD introduction, diagnostic curettage), etc.

Depending on the localization and degree of affection there are differentiated three stages:

- 1\textsuperscript{st} stage – affection of the external genitals;
- 2\textsuperscript{nd} stage – affection of the vagina, cervical canal, urethra;
- 3\textsuperscript{rd} stage – affection of the endometrium, uterine tubes, urinary bladder.

Clinical presentation. The typical localization of genital herpes is the small and large lips of pudendum, vulva, clitoris, vagina, uterine neck. In case of relapses the infection may get in the ascending way into the endometrium, uterine appendages, urinary bladder, and causes their specific affection.

Genital herpes is characterized by periodical appearance on the skin and mucous tunics of the genital organs of lesion foci with active HSV release. The following clinical forms are singled out:

- the clinical form is characterized by pain in the region of vulva, irritation, and itch. Later there appear vesicular elements, which may be accompanied by pain, signs of common ailment, high or subfebrile temperature. Then in the site of vesicles there appear erosions, which epithelize gradually, afterwards there is observed asymptomatic desquamation of epithelium, which lasts for 2 weeks. The total duration of clinical manifestations makes up to 5–6 weeks;
- the atypical form is characterized by the fact that the lesion foci look like fissures of the vulvar mucosa, sometimes like vulva edema. The fissures epithelize independently during 5–7 days;
- the abortive form is observed in the patients, who used to receive antiviral treatment. The lesion focus undergoes the stages characteristic of the clinical form and looks like an itching macula or a papule;
- the subclinical form is characterized by microsymptomatology: short-term manifestations on the external genitals, which pass quickly.

Diagnostics. Herpesvirus isolation and identification by means of viral antigen estimation methods using the immunoenzyme method, serological examination (antibodies detection).
Treatment. Taking into account the fact that herpetic lesions have a tendency to relapses and chronic course, there should be a comprehensive approach to the treatment with the use of etiotropic antiviral preparations (aciclovir 200 mg 5 times a day, valaciclovir 500 mg 2 times a day), immunostimulants (cycloferon), and physiotherapeutic agents.

TESTS

1. Which localization of pain is typical for the inflammatory diseases of adnexa?
   A. in lateral quadrants of lower part of abdomen
   B. in lower part of abdomen above a pubis
   C. in a right hypogastric area
   D. in epigastrium
   E. in sacrum and lumbal region

2. Excretions from a vagina “cheese-like” arise up at:
   A. vaginal candidosis
   B. genital trichomoniasis
   C. malignant tumors
   D. erosions of uterine cervix
   E. non-specific colpitis

3. Which disease does permanent dull pain have?
   A. at chronic inflammatory processes
   B. at the diseases of vagina
   C. at the rupture of uterine tube
   D. at a tubal abortion
   E. at algomenorrhea

4. Excretions from a vagina "foamy" character arise up at:
   A. genital trichomoniasis
   B. vaginal candidosis
   C. malignant tumors
   D. erosions of uterine cervix
   E. non-specific colpitis

5. Aim of bacterioscopic examination?
   A. for the analysis the microbial flora
   B. for the revealing atypical cells
   C. for determination of correlation of cells with a different stage of development
   D. for determination of correlation of cells on different types of ripening
   E. for determination of vaginal pH
6. Which microorganism cause non-specific inflammatory diseases of the female genitalia?
   A. staphylococcus
   B. Mycoplasma
   C. Gonococcus
   D. Chlamydia
   E. Trichomonads

7. What process underlies the development of bacterial vaginosis?
   A. violation of vaginal flora
   B. excessive development of the lactobacilli
   C. Vaginal candidiasis
   D. Trichomonas colpitis
   E. Gonorrhea

8. Which form of Chlamydia provides transmission?
   A. elementary bodies
   B. reticular calf
   C. vegetative calf
   D. L-form
   E. key cell

9. The patient complains of feeling itchy, burning, pain in the vagina, and large amount of discharges. On examination: vaginal mucous membrane swelling flushed accumulation of white layers, similar to the cheese. Select drugs for patients.
   A. Diflucan
   B. Cifran
   C. Doxycycline
   D. Ceftriaxone
   E. levamisole

10. The causative genital warts are:
    A. papilomavirus
    B. adenovirus
    C. herpes virus
    D. cytomegalovirus
    E. kondilovirus

**SITUATIONAL TASKS**

1. A 28-year-old patient has been admitted to the gynecological department three days after a casual coitus. She complains about pain in her lower abdomen and during urination, profuse purulent discharges from the vagina, body temperature rise up to 37.8°C. The patient was diagnosed with acute bilateral adnexitis. Supplemental examination revealed: the 4th degree of purity of the vaginal secretion, leukocytes within the whole visual field, diplococcal bacteria located both intra- and
extracellularly. What is the etiology of acute adnexitis in this patient?

2. A 25 y.o. patient complains of body temperature rise up to $37^0\text{C}$, pain at the bottom of her abdomen and vaginal discharges. Three days ago, when she was in her 11th week of pregnancy, she had an artificial abortion. Objectively: cervix of uterus is clean, uterus is a little bit enlarged in size, painful. Appendages cannot be determined. Fornixes are deep, painless. Vaginal discharges are sanguinopurulent. What is the most probable diagnosis?

3. A 42-year-old woman has had hyperpolymenorrhea and progressing algodismenorrhea for the last 10 years. Gynaecological examination revealed no changes of uterine cervix; discharges are moderate, of chocolate colour, uterus is slightly enlarged and painful, appendages are not palpable, the fornices are deep and painless. What is the most likely diagnosis?

4. A 14-year-old adolescent, gravida 0, presents to your office with 1 year of debilitating, cramping with her menses, predominantly on the left side. She was taking NSAIDs which initially did help, but now her pain is no longer well controlled. Her past medical history is significant for IBS, congenital left renal agenesis, and a ruptured appendix at 8 years of age. She denies any sexual activity. The next step would be:

5. A 28-year-old female, gravida 0, presents to your office for 18 months of progressively worsening pelvic pain. Her pain is 8/10 in severity, deep in the midline in lower abdomen. She reports that her pain begins 3 days before her period and worsens with the onset of menses. She has started to miss work on the first day of her menses. She treats her symptoms with NSAIDs with some relief, and has tried several different ones. She reports deep dyspareunia. Her pelvic examination is normal. The next best step is: