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## DIAGNOSIS AND TREATMENT OF GONORRHEA

**Annotation:** Gonorrhea is a venereal infection that causes damage to the mucous membranes of organs lined with cylindrical epithelium: the urethra, uterus, rectum, pharynx, conjunctiva of the eyes. It belongs to the group of sexually transmitted infections( STIs), the causative agent is Gonococcus. It is characterized by mucous and purulent discharge from the urethra or vagina, pain and discomfort during urination, itching and discharge from the anal opening. If the pharynx is affected-inflammation of the throat and tonsils. Untreated gonorrhea in women and men causes pelvic inflammatory processes that lead to infertility; gonorrhea during pregnancy leads to infection of the child during childbirth.

**Key words:** gonorrhea, inflammation, rectum, pharynx.

Gonorrhea (gonorrhea) is a specific infectious and inflammatory process that mainly affects the genitourinary system, the causative agent of which is gonococci (*Neisseria gonorrhoeae*). Gonorrhea is a sexually transmitted disease, as it is transmitted mainly through sexual contact. Gonococci quickly die in the external environment (when heated, dried, treated with antiseptics, in direct sunlight). Gonococci mainly affect the mucous membranes of organs with cylindrical and glandular epithelium. They can be located on the surface of cells and intracellularly (in white blood cells, trichomonas, epithelial cells), can form L-forms (not sensitive to the effects of drugs and antibodies). At the site of the lesion, several types of gonococcal infection are distinguished:

- gonorrhea of the genitourinary organs;
- gonorrhea of the anorectal region (gonococcal proctitis);
- musculoskeletal gonorrhea (gonarthrit);
- gonococcal infection of the conjunctiva of the eyes (blennorrhea);
- gonococcal pharyngitis.

Gonorrhea can spread from the lower parts of the genitourinary system (urethra, periurethral glands, cervical canal) to the upper parts (uterus and appendages, peritoneum). Gonorrheal vaginitis almost does not occur, since the flat epithelium of the vaginal mucosa is resistant to the effects of gonococci. But with some changes in the mucosa (in girls, in women during pregnancy, in menopause) its development is possible.

Gonorrhea is more common among young people in their 20s and 30s, but can occur at any age. There is a very high risk of complications of gonorrhea – various genitourinary disorders (including sexual ones), infertility in men and women. Gonococci can enter the bloodstream and, circulating throughout the body, cause joint damage, sometimes gonorrheal endocarditis and meningitis, bacteremia, and severe septic conditions. There is an infection of the fetus from a gonorrhea-infected mother during childbirth.

When the symptoms of gonorrhea are erased, patients worsen the course of their disease and spread the infection further, without knowing it.

Infection with gonorrhea

Gonorrhea is a highly contagious infection, 99% of which is sexually transmitted. Infection with gonorrhea occurs in different forms of sexual contact: vaginal (normal and "incomplete"), anal, oral.

In women, after sexual intercourse with a sick man, the probability of contracting gonorrhoea is 50-80%. Men who have sexual contact with a woman with gonorrhoea are not always infected - in 30-40% of cases. This is due to some anatomical and functional features of the genitourinary system in men (narrow urethral canal, gonococci can be washed away by urine). A man is more likely to get gonorrhoea if a woman has menstruation, sexual intercourse is prolonged and has a rapid end. Sometimes there may be a contact route of infection of a child from a mother with gonorrhoea during childbirth and household, indirect-through personal hygiene items (bed linen, washcloth, towel), usually in girls. The incubation (latent) period for gonorrhoea can last from 1 day to 2 weeks, less often up to 1 month.

Gonorrhoea infection in a newborn baby

Gonococci cannot penetrate intact fetal membranes during pregnancy, but premature rupture of these membranes leads to infection of the amniotic fluid and fetus. Infection with gonorrhoea of a newborn can occur when it passes through the birth canal of a sick mother. The conjunctiva of the eyes is affected, and the genitals of girls are also affected. Blindness in newborns in half of cases is caused by infection with gonorrhoea.

Symptoms of gonorrhoea

Based on the duration of the disease, a distinction is made between fresh gonorrhoea (from the moment of infection < 2 months) and chronic gonorrhoea (from the moment of infection > 2 months).

Fresh gonorrhoea can occur in acute, subacute, low-symptom (torpid) forms. There is a gonococcal carrier, which is not subjectively manifested, although the causative agent of gonorrhoea is present in the body.

Currently, gonorrhoea does not always have typical clinical symptoms, as a mixed infection (with trichomonas, chlamydia) is often detected, which can change the symptoms, extend the incubation period, and complicate the diagnosis and treatment of the disease. There are many low- and asymptomatic cases of gonorrhoea.

Classic manifestations of acute gonorrhoea in women:

- purulent and serous-purulent vaginal discharge;
- hyperemia, edema and ulceration of the mucous membranes;
- frequent and painful urination, burning, itching;
- intermenstrual bleeding;
- pain in the lower abdomen.

In more than half of cases, gonorrhoea in women occurs either sluggishly, with few symptoms, or does not appear at all. In this case, a late visit to the doctor is dangerous for the development of an ascending inflammatory process: gonorrhoea affects the uterus, fallopian tubes, ovaries, and peritoneum. The general condition may worsen, the temperature may rise (up to 39° C), there is a violation of the menstrual cycle, diarrhea, nausea, vomiting.

Gonorrhoea in girls has an acute course, manifested by edema and hyperemia of the vulvar mucosa and the vestibule of the vagina, burning and itching of the genitals, the appearance of purulent discharge, pain when urinating.

Gonorrhoea in men occurs mainly in the form of acute urethritis:

- itching, burning, and swelling of the urethra;
- profuse purulent, serous-purulent discharge;
- frequent painful, sometimes difficult urination.

With the ascending type of gonorrhoea, the testicles, prostate, seminal vesicles are affected, the temperature rises, chills occur, and painful defecation occurs.

Gonococcal pharyngitis can be manifested by redness and sore throat, fever, but more often it is asymptomatic. With gonococcal proctitis, there may be discharge from the rectum, soreness in the anal area, especially when defecating; although usually the symptoms are not very pronounced.

Chronic gonorrhea has a prolonged course with periodic exacerbations, is manifested by adhesions in the small pelvis, a decrease in sexual desire in men, menstrual disorders and reproductive function in women.

#### Complications of gonorrhea

Asymptomatic cases of gonorrhea are rarely detected at an early stage, which contributes to the further spread of the disease and gives a high percentage of complications.

The ascending type of infection in women with gonorrhea is promoted by menstruation, surgical termination of pregnancy, diagnostic procedures (curettage, biopsy, probing), and the introduction of intrauterine devices. Gonorrhea affects the uterus, fallopian tubes, and ovarian tissues up to the occurrence of abscesses. This leads to a violation of the menstrual cycle, the appearance of adhesions in the tubes, the development of infertility, ectopic pregnancy. If a woman with gonorrhea is pregnant, there is a high probability of spontaneous miscarriage, premature birth, infection of the newborn and the development of septic conditions after childbirth. When newborns become infected with gonorrhea, they develop inflammation of the conjunctiva of the eyes, which can lead to blindness. A serious complication of gonorrhea in men is gonococcal epididymitis, a violation of spermatogenesis, a decrease in the ability of spermatozoa to fertilize.

Gonorrhea can spread to the bladder, ureters and kidneys, pharynx and rectum, affect the lymph glands, joints, and other internal organs.

You can avoid undesirable complications of gonorrhea if you start treatment in a timely manner, strictly follow the appointment of a venereologist, and lead a healthy lifestyle.

#### Diagnosis of gonorrhea

To diagnose gonorrhea, it is not enough to have clinical symptoms in the patient, it is necessary to identify the causative agent of the disease using laboratory methods:

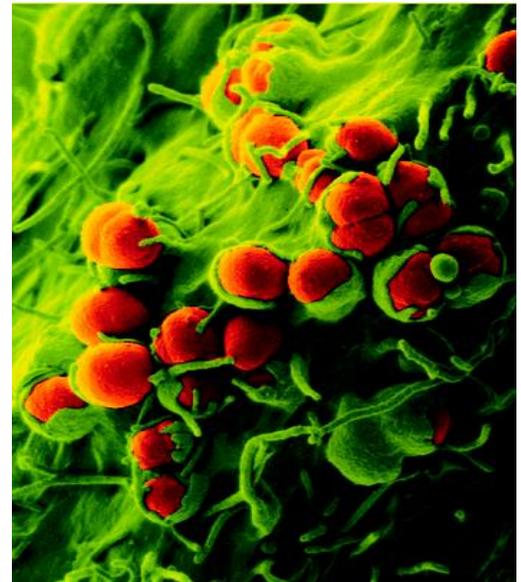
- examination of smears with material under a microscope;
- backsplanting material on specific culture media to isolate pure culture;
- ELISA and PCR diagnostics.

In microscopy of smears stained with Gram and methylene blue, gonococci are determined by their typical bean-like shape and pairing, gram-negative and intracellular position. The causative agent of gonorrhea can not always be detected by this method due to its variability.

When diagnosing asymptomatic forms of gonorrhea, as well as in children and pregnant women, a culture method is more suitable (its accuracy is 90-100%). The use of selective media (blood agar) with the addition of antibiotics makes it possible to accurately detect even a small number of gonococci and their sensitivity to drugs.

The material for testing for gonorrhea is purulent discharge from the cervical canal (in women), urethra, lower rectum, oropharynx, conjunctiva of the eyes. In girls and women over 60 years of age, only the culture method is used.

Gonorrhea often occurs as a mixed infection. Therefore, a patient with suspected gonorrhea is additionally examined for other STIs. Determination of antibodies to hepatitis B and C, to HIV, serological reactions to syphilis, general and biochemical analysis of



blood and urine, ultrasound of the pelvic organs, urethroscopy, in women - colposcopy, cytology of the cervical canal mucosa is carried out.

Examinations are performed before the start of treatment for gonorrhea, again 7-10 days after treatment, serological-after 3-6-9 months.

The need to use "provocations" for the diagnosis of gonorrhea, the doctor decides in each case individually.

#### Treatment of gonorrhea

Self-treatment of gonorrhea is unacceptable, it is dangerous with the transition of the disease to a chronic form, and the development of irreversible lesions of the body. All sexual partners of patients with gonorrhea symptoms who have had sexual contact with them in the last 14 days, or the last sexual partner, if the contact occurred earlier than this period, are subject to examination and treatment. In the absence of clinical symptoms in a patient with gonorrhea, all sexual partners are examined and treated for the last 2 months. For the period of treatment of gonorrhea, alcohol, sexual relations are excluded, and during the dispensary observation, sexual contacts with the use of a condom are allowed.

Modern venereology is armed with effective antibacterial drugs that can successfully fight gonorrhea. When treating gonorrhea, the duration of the disease, symptoms, location of the lesion, the absence or presence of complications, and concomitant infection are taken into account. Acute ascending gonorrhea requires hospitalization, bed rest, and treatment measures. In case of purulent abscesses (salpingitis, pelvioperitonitis), emergency surgery is performed-laparoscopy or laparotomy. The main place in the treatment of gonorrhea is given to antibiotic therapy, while taking into account the resistance of some strains of gonococci to antibiotics (for example, penicillins). If the antibiotic used is ineffective, another drug is prescribed, taking into account the sensitivity of the gonorrhea pathogen to it.

Gonorrhea of the genitourinary system is treated with the following antibiotics: ceftriaxone, azithromycin, cefixime, ciprofloxacin, spectinomycin. Alternative treatment regimens for gonorrhea include ofloxacin, cefosidime, kanamycin (in the absence of hearing disorders), amoxicillin, trimethoprim.

Fluoroquinolones are contraindicated in the treatment of gonorrhea for children under 14 years of age, tetracyclines, fluoroquinolones, and aminoglycosides are contraindicated for pregnant women and nursing mothers. Antibiotics that do not affect the fetus are prescribed (ceftriaxone, spectinomycin, erythromycin), preventive treatment of newborns in mothers with gonorrhea is carried out (ceftriaxone – intramuscularly, eye washing with silver nitrate solution or laying erythromycin eye ointment).

Treatment of gonorrhea can be adjusted if there is a mixed infection. In torpid, chronic and asymptomatic forms of gonorrhea, it is important to combine the main treatment with immunotherapy, local treatment and physiotherapy.

Local treatment of gonorrhea includes the introduction into the vagina, urethra of 1-2% solution of protorgol, 0.5% solution of silver nitrate, microclysters with chamomile infusion. Physiotherapy (electrophoresis, UVB, UHF currents, magnetic therapy, laser therapy) is used in the absence of an acute inflammatory process. Immunotherapy for gonorrhea is prescribed outside of exacerbation to increase the level of immune responses and is divided into specific (gonovacin) and non-specific (pyrogenal, autohemotherapy, prodigiosan, levamisol, methyluracil, glyceram, etc.). Children under 3 years of age do not receive immunotherapy. After treatment with antibiotics, lacto - and bifid preparations are prescribed (orally and intravaginally).

A successful result of treatment of gonorrhea is the disappearance of symptoms of the disease and the absence of the pathogen according to the results of laboratory tests (7-10 days after the end of treatment).

Currently, the need for various types of provocations and numerous follow-up examinations after the end of treatment for gonorrhea, conducted with modern highly effective antibacterial drugs, is disputed. One follow-up examination of the patient is recommended to determine the adequacy of this gonorrhea treatment. Laboratory monitoring is prescribed if clinical symptoms remain, there are relapses of the disease, and repeated infection with gonorrhea is possible.

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