

Diagnosis and treatment of vaginal infections

Diagnostyka i leczenie stanów zapalnych pochwy

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Streszczenie

Stany zapalne kobiet stanowią częstą przyczynę zgłaszania się kobiet do lekarza ginekologa. Występowanie stanów zapalnych jest ważnym problemem ginekologicznym z powodu niekorzystnych następstw, jakie wywołują. Znajomość mechanizmów odpowiedzialnych za zaburzenia prawidłowej biocenozy pochwy jest ważnym elementem postępowania medycznego i może doprowadzić do stosowania takich schematów medycznych, które pozwolą na wczesną diagnostykę, podjęcie właściwego postępowania leczniczego w celu zachowania fizjologicznego składu pochwy.

Słowa kluczowe:

stany zapalne pochwy, diagnostyka, leczenie

Abstract

Women suffering from inflammation often visit a woman doctor – a gynecologist. The presence of inflammation is a major gynecological problem because of the adverse consequences that are caused by it. Knowledge of the mechanisms responsible for the correct abnormal vaginal biocenosis is an important part of medical practice and may lead to the use of such medical schemes that allow for early diagnosis, initiation of appropriate therapeutic measures to maintain the physiological composition of the vagina.

Key words:

vaginitis, diagnosis, treatment

Admission

Inflammation of women are often the cause for a woman doctor – a gynecologist. The presence of inflammation is a major gynecological problem because of their impact on the development of ascending genital infections, infertility, urinary tract infections and increased risk of miscarriage and premature births. Incorrect biocenosis and inflammation of the vagina can also cause the development of inflammatory postoperative complications, especially gynecological, obstetric and urologic. Therefore, it is important to proper diagnosis of disorders of the vagina and the introduction of biota adequate therapeutic in the treatment process [1].

The aim of the following thesis is to present methods of diagnosis and treatment of vaginal infections.

Diagnosis of vaginal infections

Infectious diseases of the vagina is an important health problem among mature women and represents a large proportion of outpatient consultations in gynecological and obstetric clinics [2]. In order to identify patients who need vaginal inflammation, careful inquiry, which should be considered:

- the duration of symptoms;
- sexual activity (last intercourse, number of partners, forms of behavior);
- general health;
- medications;
- used contraception;
- previous history of complaints of a similar nature;
- the presence of pregnancy;
- hormonal state of the body;
- allergic disorders and skin;

- participation of external factors such as clothing, trauma, foreign body, sexual harassment [2,3].

In addition, the symptoms must be ruled out a general infection or pelvic inflammatory and dysurii or fever. It is necessary to gather information on the menstrual cycle (cycle length, felt symptoms of ovulation). It should also take into account the circumstances of the intensification of vaginal discharge, ie after sexual intercourse, intimate surroundings toilet, antibiotics, starting hormone replacement therapy [3]. Obtaining basic information while gathering intelligence significantly narrows the area sought the causes of disease, reduces the diagnostic process and reduce costs [4].

The gynecological examination in the sight glasses evaluate the nature of vaginal discharge: homogeneity, odor, density and color. Before the test is to assess subjective vaginal pH. The correct result is 3,8-4,5. A value below 4.5 with common clinical symptoms Indicate small fungal vaginal pH above 4.5 indicates vaginal trichomoniasis or bacterial vaginosis, and in inflammation Caused by aerobic bacteria titre pH 5.2-5.5 [5,6].

The next step in diagnosis is correct download material for microbiological examination. Vaginal discharge for microscopic evaluation and culture are taken once the sight of the rear arches and walls. Prior to smear can not be used vaginal medicines and disinfectants, and perform personal hygiene [61]. Vaginal secretions are placed on glass slides and, if necessary, fixed cytofixu mist or 70% alcohol. On one of the slides spotted with 10% potassium hydroxide (KOH) to the test amine. This is the olfactory test aimed at detecting the “fishy smell” characteristic of bacterial vaginosis.

KOH dissolved epithelial cells and inflammatory cells, leaving visible on microscopic examination the mycelium elements [7]. On the second slide is applied up to 0.9% NaCl, which allows the microscope set at 100 times magnification, the statement moving trichomonads vaginal or mycelial elements (pseudozrępkęki or budding yeast) [5]. Magnification of 400 times makes it possible to detect jeżowych cells and white blood cells, in order to exclude the presence of pathogens should be assessed at least 10 fields of view [8].

Gram Staining allows to determine the degree of purity with regard to the presence of vaginal lactobacilli and other flora in quantity [9]. The stained preparation can observe the shape and arrangement of cells. This method allows the differentiation of gram positive and gram negative bacteria. It also allows for an initial interpretation of the clinical, etiological factors indicating infection. Staining evaluated using the number of leukocytes in the field of view. More than 5 in an average reading of 3 fields of view, indicating the presence of inflammation [10].

Recent data indicate greater credibility assessment of wet preparations than Gram stained. During staining part some damage of lactobacilli may occur which later indicate false evaluation as abnormal bacterial flora in the vagina [11].

Farming methods are rarely used in inflammation of the vagina. They are made into the wanted pathogens. Secretion culture swab collected from the ground transportation of coal, and as soon as you send to the laboratory [11,12]. Confirmation of infection culture method is performed in cases of doubt, when it is concluded clinical signs of infection, and the result is inconclusive microscopic examination, and in the case where the identification belonging pathogen species is important in the selection of appropriate therapy [4,13,14]. Execution culture is justified in the case of recurrent symptoms with negative results of microscopic examination [13]. Setting is not recommended at the beginning of the culture diagnosis, because the micro-organisms detected are often components of physiological flora of the vagina. The final stage of the diagnosis is made on the sensitivity to chemotherapy isolates [9].

In the assessment of vaginal flora are used:

- degree of purity of the vagina by Kuczyńska;
- Amsel scale;
- Nugt scale;
- Hay and Ison scale;
- Donders criteria [11].

Degrees of purity of the vagina by Kuczyńska are to illustrate the current state of the vaginal flora, determination of the ratio between the groups of microorganisms. The basic criterion for this scale is the presence or absence of vaginal fluid in strains of the genus *Lactobacillus*. Taken into account is the ratio of other microorganisms and leukocytes. The scale consists of five basic steps and an equal number of intermediate steps. The normal state is assumed by Grades: I, I/II, II. Grades II/III, III, III/IV, IV, 0/IV classified as inflammation [15]. Stage 0 is recognized in girls during peace hormone in women during senium, during childbirth and immediately after treatment of vaginal inflammation [16] (Table 1).

Amsel criteria, the scale and the scale of Haya Nugt and Isona are used in the diagnosis of bacterial vaginosis. Recognize it after finding three of four Amsel criteria scale:

- the presence of a homogeneous, whitish discharge;
- pH>4.5;
- positive amine test;
- spike cells in the presence of microscopic examination [4].

Nugt scale is based on the estimation of the proportional share and numerical assessment of individual types of bacteria (Table 2).

Normal state can be found in the range of 0-3 points and intermediate flora between 4-6 points. Bacterial vaginosis is diagnosed in the range 7-10 points [11].

The scale of Hay and Ison includes three steps:

- Stage 1 – normal state, dominated by *Lactobacillus*;
- Stage 2 – intermediate state, mixed flora, *Lactobacillus* present with a touch of *Gardnerella vaginalis* or *Mobiluncus*;
- Stage 3 – bacterial vaginosis, the smear is dominated by *Gardnerella vaginalis* and *Mobiluncus*, *Lactobacillus* are scarce or absent [11].

The most reliable for the diagnosis of vaginitis caused by bacteria are aerobic Donders criteria. Used

Table 1.

Grades of the purity of vagina by Kuczyńska [4]

Grade of purity	Lactobacillus	Other bacterial flora	Leukocytes
I	Many correct	Lack of	Lack of
I/II	Correct and pleomorphic	Lack of	Single
II	Numerous	Gram(+) and Gram(-) bacteria	Single
II/III	Numerous	Mixed bacterial flora in the degree 1:1 with Lactobacillus	numerous
III	Single	A lot of mixed abundant bacterial flora	Numerous/ not many
III/IV	Seldom	Abundant mixed flora	Numerous/not many
IV	Lack of	Abundant mixed flora	Numerous/not many
0/IV	Lack of	Small number of bacteria	Lack of
0	Microbiological lack o bacteria		Lack of
0/I	present	Lack of	Lack of

Table 2.

Nugent scale [11]

Number of BV points	Present morphotypes		
	Lactobacillus	Gardnerella vaginalis	Mobiluncus
0	>30 morphotypes	Lack of morphotypes	Lack of morphotypes
1	5-30 morphotypes	<1 mophotype	1-4 morphotypes
2	1-4 morphotypes	1-4 morphotypes	>4 morphotypes
3	<1 morphotype	5-30 morphotypes	
4	Lack of morphotypes	>30 morphotypes	

Table 3.

Donders criteria [11]

Number of AV points	Morphotypes Lactobacillus	Number of leucocytes in the range of sight	Leucocytes with toxic granes	Accompanying bacterial flora	Prabazal cells
0	Only <i>Lactobacillus</i> sticks or mixed flora with advantage of <i>Lactobacillus</i>	<10	Not present or single	Not present or cytolyse	No present or <1% of cells
1	Mixed flora, <i>Lactobacillus</i> bacteria dominate	>10 and <10/ per cells of epithelium	<50% of leucocytes	Present small Gram(-) sticks	<10% of cells
2	Small amount of <i>Lactobacillus</i> , advantage of other bacteria	>10/per cells of epithelium	>50% of leucocytes	Granulomas or chain granulomas	>10% of cells

for the evaluation of vaginal secretions collected from the vault and rear walls at a phase contrast microscope at 400-fold magnification [11] (Table 3).

After counting all the points of assessment and diagnosis is as follows:

- <3 points-no symptoms AV;
- 3-4 points-slightly severe symptoms AV;
- 5-6 points-moderate symptoms AV;
- > 6 points-clearly severe symptoms AV;
- 8-10 points-ex-foliate dermatitis of vagina.

The diagnosis of candidiasis should be based on gathering intelligence, the clinical condition and the pH of the vaginal secretions and laboratory tests. In the laboratory microbial growth on surfaces and smear microscopy is conducted. It is a Gram-stained specimen preparation directly or suspended in 0.9% NaCl or 10% KOH [11].

Trichomoniasis is diagnosed when it detects motion in the preparation experiential *Trichomonas vaginalis* in 0.9% NaCl solution or a cytological preparation of the cervix. Stud *Trichomonas vaginalis* is carried out at 37°C in liquid medium for 48 hours. The culture is set up in the case of clinically suspected trichomoniasis conditioned by the negative result of the microscopic study [11].

Treatment of vaginal infections

Correct diagnosis determines the effectiveness of the treatment, which consists primarily of the normalization condition of the vagina and cervix. You should also rule out other conditions such as diabetes or immune-mediated diseases. Best when therapy is short-lived and do not pose a threat to women [17,18]. A broad-band of antibiotics has a huge impact on the physiological micro flora imbalance, which may result in increased susceptibility to infection [19].

Drugs for vaginal inflammation caused by anaerobic bacteria mainly metronidazole and clindamycin [20]. Metronidazole is a synthetic chemotherapeutic drug, nitroimidazole derivatives. It shows activity against *Gardnerella vaginalis* and *Bacteroides*, *Clostridium*, *Veilonella*, *Fusobacterium*. Following oral administration, it is rapidly absorbed and evenly distributes

body fluids. May cause nausea and diarrhea and cause a metallic taste in the mouth. It is used at a dose of 500 mg 2 times a day for 7 days [21,22]. Clindamycin is a lincosamide, are antibiotics which inhibit bacterial protein biosynthesis. Well absorbed from the gastrointestinal tract and excreted in body fluids. After the administration may experienced allergic skin reactions or pseudomembranous colitis [23]. Clindamycin is administered in a dose of 300 mg two times a day for a week, or as a 2% vaginal cream overnight used [22]. In the fight against bacterial vaginosis is not advisable to aminoglycoside therapy [20].

In the case of vaginitis caused by aerobic bacteria most commonly used antibiotics are amoxicillin, ampicillin, ciprofloxacin, and [20]. Ampicillin and amoxicillin are semisynthetic penicillins broad spectrum against gram-positive and gram-negative bacteria. They are used against *Enterococcus faecalis*, *Escherichia coli*, and beta-hemolytic streptococci groups B [20,23]. Ampicillin is poorly absorbed from the gastrointestinal tract, it should be administered intravenously. Amoxicillin has a very rapid absorption from the gastrointestinal tract [23]. Ciprofloxacin includes a quinolone antibacterial and used in inflammatory, wherein the pathogen is *Escherichia coli*. The use of metronidazole and clindamycin is not recommended [20,24].

In the therapy of candidiasis are used azoles and polyene antibiotics [48]. Nystatin and Natamycin is used only locally [25]. They can cause gastro-intestinal irritation and allergic reactions. Natamycin can be used in pregnant women because of their low toxicity [26,27]. Clotrimazole, econazole, ketoconazole and miconazole antifungal agents are synthetic. They work fungicidal against yeasts, dermatophytes and dimorphic fungi. Triazole derivatives taken orally, such as fluconazole and itraconazole, are effective in acute forms of vaginal yeast infections as well as in the prevention of recurrence [4]. Antifungal therapy can proceed according to one of the three variants. The first of these involves only local, intravaginal application of antimycotics. It is used in women with first-episode or fungal infection in pregnant women. The second option assumes the parallel treatment of oral and topical. Most often this applies to patients with 2-3 recurrences in an interview with suspected

reinfections of the mouth or gastrointestinal tract. The third option is to elongate systemic therapy. It is recommended for women with predisposing factors for the development of candidiasis: diabetes, hormonal disorders [22,28]. Prophylactic therapy anti-yeast should be considered in women taking antibiotics and corticosteroids, in whom a history of recurrent form of candidiasis [15].

In the treatment of trichomoniasis use of metronidazole and the other was a nitroimidazole derivative, or tinidazole. These preparations are also used orally and topically in the form of vaginal tablets or pessaries [22]. Metronidazole is the drug of choice. It is given as a single dose 2 g or 2 times a day, 250 mg a week. Both treatments have similar efficacy. Eradication of *Trichomonas vaginalis* applies both sexual partners [22,29].

More and more talk about the use of probiotics in the treatment of vaginal infections, are preparations containing live microorganisms that beneficially affect the human body. The adoption affects the synthesis of vitamins B1, B2, B12, K, cholesterol metabolism, and maintain the proper pH [30,31]. The use of probiotic strains accelerate healing and reduce the risk of recurrence of inflammation [31].

Summation

It is important to expand the knowledge in the field of vaginal infections, diagnosis and treatment in order to prevent adverse health consequences that cause among women.

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