



Review Article

Review on: Vaginitis. A problem to be solved!!

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ABSTRACT

Candida is the scientific name for yeast. It is a fungus that lives almost everywhere, including in human body. Usually, the immune system keeps yeast under control. If the individual is sick or taking antibiotics, it can multiply and cause an infection. Yeast infections affect different parts of the body in different ways including thrush is a yeast infection that causes white patches in oral cavity, Candida esophagitis is thrush that spreads to esophagus, women can get vaginal yeast infections, (vaginitis) causing itchiness, pain and discharge, yeast infections of the skin cause itching and rashes, yeast infections in bloodstream can be life-threatening. The current review article will concentrate on vaginal infection (vaginitis), projecting the causes and treatment of such problem. Antifungal medicines get rid of yeast infections in most people, but if the immune system is weak, treatment might be more difficult.

Keyword: Vaginitis; vaginal discharge; vulvovaginal discomfort; bacterial vaginosis; sexually transmitted diseases

INTRODUCTION

Vaginitis (inflammation of the vagina) is the most common gynecologic condition encountered in the clinic. It's diagnosis based on the presence of symptoms of abnormal discharge, vulvovaginal discomfort, or both. Cervicitis may also cause a discharge and sometimes occurs with vaginitis. Discharge flows from the vagina daily as the body's way of maintaining a normal healthy environment. Normal discharge is usually clear

or milky with no malodor [1]. A change in the amount, color, or smell; irritation; or itching or burning could be due to an imbalance of healthy bacteria in the vagina, leading to Bacterial Vaginosis (BV) which is a very common condition characterized by alterations of the vaginal flora with acquisition of diverse communities of anaerobic and facultative bacteria and depletion of the usually dominant lactobacillus flora [2-4]. BV is a cause of malodorous vaginal discharge

and is linked to several adverse health outcomes in women, including premature labor, pelvic inflammatory disease, and human immunodeficiency virus acquisition [5-7]. The most common causes of vaginitis in symptomatic women are bacterial vaginosis (40-50%), vaginal candidiasis (20-25%), and trichomoniasis (15-20%); yet 7-72% of women with vaginitis may remain undiagnosed [1]. Accurate diagnosis may be elusive, and care must be taken to distinguish these conditions from other infectious and noninfectious causes [1].

A complex and intricate balance of microorganisms maintains the normal vaginal flora. Important organisms include lactobacilli, Corynebacteria, and yeast. Aerobic and anaerobic bacteria can be cultured from the vagina of prepubertal girls, pubertal adolescents, and adult women. A number of factors can change the composition of the vaginal flora, including the following: Age, Sexual activity (or abuse), Hormonal status, Hygiene, Immunologic status and Underlying skin diseases [8]. About eighty-five percent of those with bacterial vaginosis are asymptomatic conditions. The normal postmenarchal and premenopausal vaginal pH is 3.8-4.2. At this pH, growth of pathogenic organisms usually is inhibited. Disturbance of the normal vaginal pH can alter the vaginal flora, leading to overgrowth of pathogens. Factors that alter the vaginal environment include feminine hygiene products, douching, contraceptives, vaginal medications, antibiotics, sexually transmitted diseases (STDs), sexual intercourse, and stress [1, 8].

The overgrowth of normally present bacteria, infecting bacteria, or viruses can cause symptoms of vaginitis. Chemical irritation also can be a significant factor. Atrophic vaginitis is associated with hypoestrogenism, and symptoms include dyspareunia, dryness, pruritus, and abnormal bleeding. A state of decreased estrogen can result in an altered risk of infection. The age of the patient affects the

anatomy and physiology of the vagina. Prepubertal children have a more alkaline vaginal pH than do pubertal and postpubertal adolescents and women. The vaginal mucosa is columnar epithelium, vaginal mucous glands are absent, and the normal vaginal flora is similar to that of postmenopausal women (eg, gram-positive cocci and anaerobic gram-negatives are more common), while pubertal and postpubertal adolescents and women have a more acidic vaginal pH, a stratified squamous vaginal mucosa, vaginal mucous glands, a normal vaginal flora dominated by lactobacilli, and hypertrophied hymens and vaginal walls. Loss of vaginal lactobacilli appears to be the primary factor in the changes leading to bacterial vaginosis. Recurrences of vaginitis are associated with a failure to establish a healthy vaginal microflora dominated by lactobacilli [9-10]. Vaginal candidiasis is the second most common cause of vaginitis.

In 85-90% of cases, it is caused by *C. albicans* [11], and in 5-10%, it is caused by *C. glabrata* or *C. parapsilosis*. Risk factors include oral contraceptive use, IUD use, young age at first intercourse, increased frequency of intercourse, receptive cunnilingus, diabetes, HIV or other immunocompromised states, long-term antibiotic use, and pregnancy [1, 12].

On the other hand; *T. vaginalis* infection, the third most common cause of vaginitis, is caused by *trichomonads*. *T. vaginalis* is an oval-shaped or fusiform-shaped flagellated protozoan that is 15 μm long (the size of a leukocyte). These organisms primarily infect vaginal epithelium; less commonly, they infect the endocervix, urethra, Bartholin and Skene glands. *Trichomonads* are transmitted sexually and can be identified in as many as 80% of male partners of infected women. Risk factors include tobacco use, unprotected intercourse, and the use of an IUD [13]. An estimated 3 million cases of trichomoniasis occur each year in the United States [14]. The worldwide prevalence of trichomoniasis is 174 million; these cases

account for 10-25% of all vaginal infections [14]. All age groups of women are affected. The highest incidence is noted among young, sexually active women [1].

All the above three types of vaginitis are infectious, as for the non-infectious vaginitis, is usually occurs due to allergic reaction or irritation. Another common cause is atrophic vaginitis due to estrogen deficiency. Common preventable causes of candidal vaginitis or bacterial vaginosis include damp or tight-fitting clothing, scented detergents and soaps, feminine sprays, and poor hygiene [1].

In Untied States women of childbearing age, bacterial vaginosis is the most common vaginal infection. Several studies estimated that about 7.4 million new cases of bacterial vaginosis occur each year [14] and as many as 16% of pregnant women have bacterial vaginosis [14].

COMMON FACTS ABOUT YEAST VAGINITIS

Vaginal yeast infection is caused by fungal organism; the major causative agent is *Candida albicans*, while the less frequent yeast species is *Candida glabrata (Tropicales)* which may cause infection that cannot treated with usual treatments. The severity of infection may be more common in women, who are pregnant, since during pregnancy, female become more likely to develop yeast infections than when not pregnant. This may result from increased levels of estrogen circulating in here body leading to have hormonal contraception. This produces an environment much more suitable to yeast growth in the reproductive tract [16]. Symptoms of a yeast infection can include, Itching or burning, soreness, thick, white, vaginal discharge that looks like cottage cheese and may smell like yeast/bread, though usually odorless, burning during urination and intercourse, and swelling, soreness, or rash on the outer lips of the vagina [17]. Furthermore such infection may have no Symptoms at all [16]. Vaginitis due to infections cannot be cured by home remedies. However, many women find that home care

strategies can help control unpleasant symptoms. These include allowing air to circulate around the vagina when possible by wearing loose, cotton undergarments and clothing. Removing undergarments at night may also be helpful [18].

Woman may has the ability to transmit a yeast infection to a male sex partner, even though yeast infection is not considered to be a true sexually-transmitted disease (STD) because it can occur in women who are not sexually active. Treatment of yeast infection in men, like in women, involves antifungal medications [18].

As was mentioned earlier; the scientific name for the yeast that causes vaginitis is *Candida*. Over 90% of vaginal yeast infections are caused by the species known as *Candida albicans*. Other *Candida* species make up the remainder of yeast infections [18].

Candida species can be present in the vagina of healthy women without causing any symptoms or problems. In fact, about 20% to 50% of women have *Candida* already present in their vagina.

So when an infection occurs? Bacterial vaginoses or yeast vaginitis usually occurs when the normal balance of yeast or bacteria are disturbed, allowing overgrowth of an organism, one of the major causes for the normal organism disturbance is the frequent use of Douching which affect the normal environment of the vagina, leading to inflammation and further imbalance of the organisms normally present in the vaginal canal. This can result in symptoms such as chronic vaginal discharge and discomfort [18].

Non-infectious causes of vaginitis include physical or chemical irritation, such as: Douches, soaps, or fragrances, Spermicides, Reduced estrogen levels around the time of menopause [18].

The risk factors for vaginitis depend upon the type of vaginitis; as for yeast infection are varied. They can include suppression of the immune system either due to cancer or other conditions,

or by taking immune-suppressing medications. Antibiotic use is another known risk factor. Pregnancy, diabetes, taking oral contraceptives, and douching can all increase a woman's likelihood of developing yeast vaginitis [18].

Although yeast can be spread by sexual contact, vaginal yeast infection is not considered to be a sexually-transmitted disease because it can also occur in women who are not sexually active, due to the fact that yeast can be present in the vagina of healthy women [16, 18].

WHAT ARE THE STEPS FOR VAGINITIS DIAGNOSES?

There are different methods or steps for the diagnoses of vaginitis, according of the severity of infection.

For instance , the symptoms of thick, cruddy discharge, itch and irritation are classic for yeast infection. The health care provider will perform a vaginal exam and observe the genital skin. The acid / base level of vagina is usually normal. Samples of vaginal discharge should be taken by a swab, and then the samples will be examined under light microscope for the presence of yeast, seeing yeast under microscope confirm the diagnoses, but if the yeast is not seen, treatment of the infection may be based on the symptoms. In some cases culture is necessary, especially when a woman have a complicated and repeated infection, in this case a swab need to be sent to laboratory by placing the sample in a culture media. This method is more accurate than the examination under light microscope, and it takes a few more days to show the results [16, 18-19].

Identifying yeasts to the species level in the clinical microbiology laboratory rely on criteria such as morphology, growth characteristics and carbon source assimilation or fermentation, as well as appearance on differential isolation media [20- 21].

For example Isolates of *C. albicans* are typically identified by their ability to form germ tubes (GT) or chlamydospores under the appropriate

conditions [22]. To identify other species of *Candida*, commercial carbohydrate assimilation systems, such as the ID 32C system and API 20C test kit, are widely available [23].

WHAT IS THE TREATMENT FOR VAGINITIS?

The treatment for vaginitis depends upon its cause. Infectious vaginitis is treated with antibiotic medications. Bacterial vaginitis is treated either with oral antibiotics, intra-vaginal antibiotic creams, or injections (shots) of antibiotics [24]. Treatment guidelines are always updated to reflect the patterns of resistance to antibiotics of circulating bacterial strains. Antibiotics that may be used in the management of bacterial vaginosis include ceftriaxone (Rocephin), erythromycin, metronidazole (Flagyl), clindamycin (Cleocin), cefixime (Suprax), doxycycline (Doryx), and azithromycin (Zithramax) [18].

Antifungal medications are used to treat yeast infections, and antifungal preparations are also available over-the-counter for yeast vaginitis. Examples of antifungal medications include fluconazole, terconazole (Terazol), clotrimazole (Gyne-Lotrimin), miconazole (Monistat), butoconazole (Gynazole), and Nystatin.

Mild or moderate infections can sometimes be treated with a single dose of oral antifungal medication. These types of medications usually work to cure the infection (80% to 90% success rate), but some people may have recurrent or resistant infections [24].

Metronidazole (Flagyl) is the drug of choice for treating Trichomonas infections [18]. Over-the-counter treatments for VVC are available. As a result, more women are diagnosing and treating themselves. However, it is important to be sure of the diagnosis before treating a genital / vulvovaginal candidiasis infection with over-the-counter or other antifungal medications. Overuse of these medications can increase the chance that they will eventually not work because the yeast can become resistant to treatment. Therefore, it is important to be sure

of the diagnosis before treating a genital / vulvovaginal candidiasis infection with over-the-counter medications [24]. Furthermore treatment of vaginitis may include sitz baths and instruction regarding proper toilet and hygiene techniques [1].

The most common oral agents used are: Fluconazole (Diflucan), ketoconazole (Nizoral), itraconazole (Sporanox).

While The most common Vaginal agents are: Butoconazole (Femstat), clotrimazole (Mycelex, Gyne-Lotrimin, FemCare), miconazole (Monistat-7, Femizol-M), nystatin (Mycostatin), terconazole (Terazol), tioconazole (Vagistat-1).

The mode of action of such drugs is to inhibit the ability of fungus to multiply and form new cell membranes [25].

A study by the American Social Health Association found that most women self-treated vaginal infections before calling a healthcare provider. Most often, they mistook a bacterial infection (bacterial vaginosis) for a yeast infection [25].

As for Vaginal anti-itch creams, they may only provide symptomatic relief. Homeopathic treatments for vaginitis (boric acid, tea tree oil, live acidophilus, garlic) have not been well studied but may have some efficacy [26].

CAN VAGINITIS BE PREVENTED?

Vaginitis due to STDs can be prevented by practicing safe sex or abstinence. It is not possible to prevent all cases of yeast infection or bacterial vaginosis. Attention to hygiene practices and avoiding spread of fecal material to the vagina may help prevent vaginitis in young girls.

Avoiding skin tight clothing, wearing breathable fabrics including cotton underwear, Avoiding wearing wet swimsuits for extended periods of time, Avoiding harsh or perfumed vaginal or soap products which can contribute to irritation, Regularly consuming foods high in acidophilus like yogurt, which can help restore the natural

flora of the vagina and help treat and prevent yeast infections [16].

WHAT IS THE PROGNOSIS FOR VAGINITIS?

Overall, the prognosis is very good: most of infections are cured. However, recurrent vaginal infections can lead to chronic irritation, excoriation, and scarring [1]. Most cases of vaginitis do not cause long-term problems when properly treated. If untreated, vaginal infections may spread to other pelvic organs, a condition known as pelvic inflammatory disease (PID). PID can be serious and result in impaired fertility. Sometimes, vaginitis recurs even after successful treatment, and another course of treatment is necessary [18]. In pregnancy, *Trichomonas* infection and bacterial vaginosis are associated with an increased risk of adverse pregnancy outcomes, including preterm labor, premature rupture of membranes, preterm delivery, low birth weight, and postpartum endometritis [8]. Finally, discuss further preventive efforts, including proper hygiene and toilet techniques, when it is appropriate to do so. Patients should be reminded that douching can spread a vaginal or cervical infection into the uterus, increasing the likelihood of PID; douching can also be associated with endometritis. Educate patients regarding use of topical creams for treatment of vaginitis (eg, candidal vaginitis, bacterial vaginosis) as necessary [1]. Although vaginal infections may cause unpleasant itching, they should not cause pain. If pain is felt in this area, a healthcare provider should be seen [25]. Women who experience recurrent vaginal yeast infections, or yeast infections that do not clear up with treatment, should immediately contact a healthcare provider for professional diagnosis and management. If a woman has more than four episodes of vulvovaginal candidiasis (VVC) in a year, she is deemed to have recurrent vulvovaginal candidiasis [25- 28].

CONCLUSION

1. Bacterial Vaginosis is the most common condition of vaginitis (40-50%), then followed by vaginal candidiasis (20-25%), and trichomoniasis (15-20%).
2. A number of factors can change the composition of the vaginal flora, includes, Age, Sexual activity, Hormonal status, Hygiene, Immunologic status and underlying skin diseases.
3. The normal postmenarchal and premenopausal vaginal pH is 3.8-4.2. At this pH, growth of pathogenic organisms usually is inhibited.
4. The causative agent in 85-90% of cases is *C. albicans*, and in 5-10%, is caused by *C. glabrata* or *C. parapsilosis*.
5. Antibiotics that may be used in the management of bacterial vaginosis include ceftriaxone (Rocephin), erythromycin, metronidazole (Flagyl), clindamycin (Cleocin), cefixime (Suprax), doxycycline (Doryx), and azithromycin (Zithramax). Mild or moderate infections can sometimes be treated with a single dose of oral antifungal medication.
6. Vaginitis due to STDs can be prevented by practicing safe sex, and complete internal hygiene.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

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