

Vaginitis Protocol

Introduction

Vaginitis, defined as inflammation of the vagina, results in symptoms such as pain, itching, abnormal discharge, or foul odor and can be very distressing. The vast majority of women experience vaginitis at some point in their lifetime, making effective support a vital part of any healthcare practice.

Conventional treatments involving antibiotic and antifungal pharmaceuticals can result in a vacillation between bacterial and fungal pathogens. A perpetual cycle of dysbiosis and symptoms often results, making full resolution difficult.

Botanicals offer broad-spectrum, selective antimicrobial activity to actively suppress pathogenic overgrowth while sparing and even restoring beneficial species. Botanicals can be used both locally in the vagina and systemically if the gut and oral microbiomes are playing a role in reseeding vaginal dysbiosis.

When discussing vaginitis, it is useful to think of infection as microbial dysbiosis.

The Vaginal Microbiome

The vaginal microbiome is made up of bacteria, fungi, viruses, archaea, and some protozoa. This diverse microbial ecosystem contains more than 500 different bacterial species (by comparison, more than 800 species live in the gut) and is critical for supporting vaginal health by protecting against pathogenic and opportunistic infections.^{1,2}

An intricate relationship exists between the host's health and the balance of microbes that reside within all microbiome niches – including the vagina. Factors that affect the vaginal microbiome include:

- Hormonal changes (as seen in menstruation and the different stages of a woman's life)
- Gut microbiome balance
- Genetics
- Diet
- Environmental exposures (including antibiotics, hormonal birth control, pesticides, etc.)
- Lifestyle (sexual activity, use of hygiene products, lubricants, etc.)
- Stress



¹ <https://doi.org/10.1016/j.humic.2018.11.002>

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9800796/>

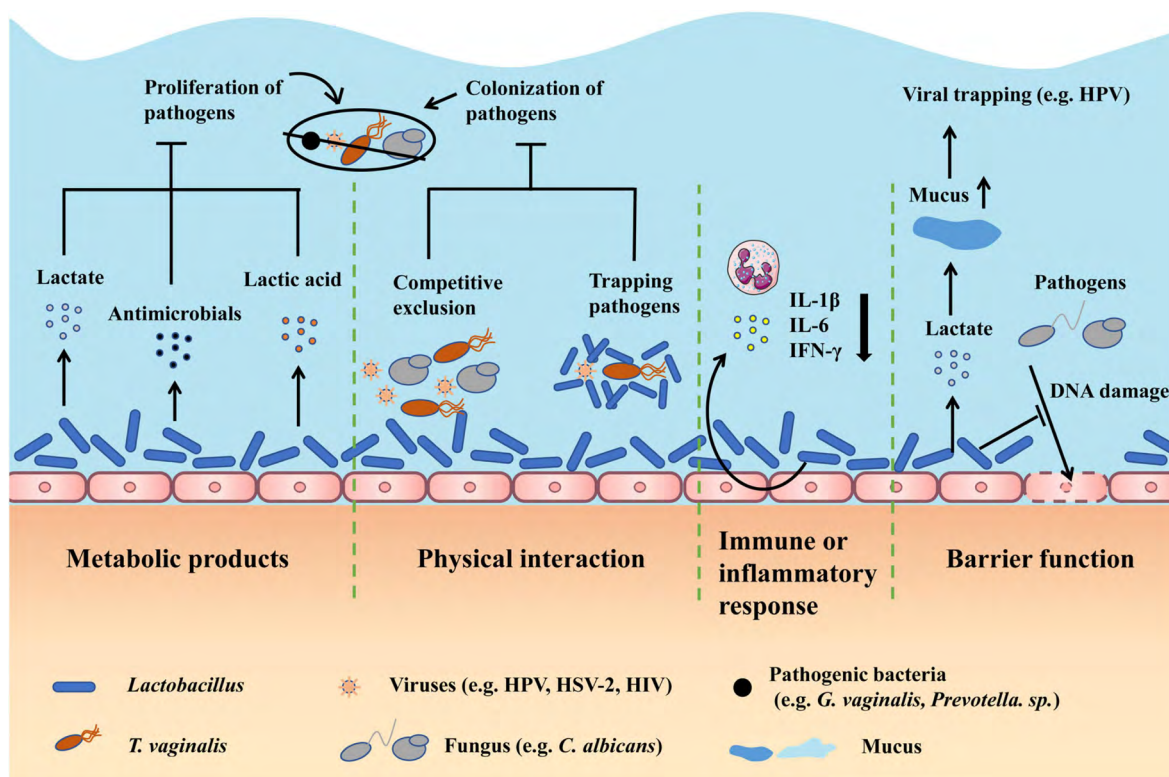


Figure 1: <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2021.643422/full>³

There are many forms of vaginitis, with many possible causes and symptoms. Most forms relate to dysbiosis in the vaginal, gut, and/or oral microbiomes.

Different Forms of Vaginitis ⁴	
CAUSES	DESCRIPTION & HALLMARK SYMPTOMS
Bacterial vaginosis	Bacterial dysbiosis, often with discharge and accompanying fishy odor.
Vaginal candidiasis	Fungal dysbiosis with cottage cheese-like discharge and itching.
Trichomoniasis	STI with frothy, greenish-yellow discharge and a foul smell.
Chlamydia	STI that is often asymptomatic; may cause pain in the lower abdomen or pelvis and light bleeding after intercourse.
Gonorrhea	STI that is often asymptomatic; may cause painful urination, discharge, and pain in lower abdomen or pelvis.
Herpes vaginitis (HSV)	Virus that accompanies pain with lesions or sores.
Human papillomavirus (HPV)	Virus that may lead to warts on the genitals but often has no symptoms. Identified by pap smear.
Atrophic vaginitis	Irritation, itching, and pain due to thinning and dryness of vaginal walls; often seen with menopause.
Non-infectious vaginitis	Itching, burning, irritation, and/or discharge; not due to an infectious agent.

³ <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2021.643422/full>

⁴ <https://my.clevelandclinic.org/health/diseases/9131-vaginitis>

Epidemiology

Bacterial vaginosis accounts for 40-50% of vaginitis cases, and vulvovaginal candidiasis accounts for 20-25% of cases. This protocol focuses specifically on these two most common forms of vaginitis.⁵

Bacterial Vaginosis (BV)

Bacterial Vaginosis (BV) is a polymicrobial disorder and is the most common cause of vaginal discharge, affecting millions of reproductive-aged women worldwide.⁶ A study from 2001-2004 showed its prevalence in the US to be 29.2%, or 21 million women.⁷ Interestingly, only 15.7% of the women in the study with BV reported vaginal symptoms. The study also found that non-Hispanic black women showed the highest prevalence of BV at 51.4% compared to Mexican Americans at 31.9% and non-Hispanic white women at 23.2%.⁷

Independent of ethnicity, BV is also associated with:⁷

- Poverty levels
- Smoking
- Increased body mass index
- Numerous lifetime sex partners
- Douching
- Inversely associated with current use of oral contraceptive pills

About 70% of women with BV experience a recurrence within 6 to 9 months after treatment due to antibiotic resistance and the presence of biofilms.⁸

Vulvovaginal Candidiasis (VVC)

Vulvovaginal Candidiasis (VVC) accounts for almost one-third of all vaginitis cases, with *Candida albicans* being the cause 90% of the time. Between 70-75% of women experience VVC at least once in their lifetime, with 9% reporting a recurrence of more than three episodes in one year.⁹ Recurrent infection increases with age.

Risk factors for VVC include:^{9, 10}

- Diabetes, particularly type I diabetes
- Pregnancy
- Use of hormonal contraceptive or hormonal replacement therapy
- Antibiotic or steroid use
- Immunosuppressive diseases (e.g., HIV, HSV 1 and 2)
- Poor hygienic habits
- New sexual partner(s)
- Gastrointestinal dysbiosis
- Douching



⁵ <https://emedicine.medscape.com/article/257141-overview?form=fpf>

⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8719518/>

⁷ <https://pubmed.ncbi.nlm.nih.gov/17621244/>

⁸ <https://pubmed.ncbi.nlm.nih.gov/30502515/>

⁹ <https://www.ijogr.org/article-details/17093>

¹⁰ <https://link.springer.com/article/10.1007/s12281-021-00415-9>

Physiology/Diagnosis/Clinical Relevance

Bacterial Vaginosis – Previously thought to be the result of only one microbe, *Gardnerella*, BV is now understood to be a disruption in the vaginal ecosystem. It is characterized by lower levels of lactic acid producers (lactobacilli) and overgrowth in the diversity and numbers of strictly anaerobic microbes such as *Gardnerella*, *Atopobium*, *Mobiluncus*, *Prevotella*, *Bacteroides*, *Anaerococcus*, *Peptostreptococcus*, *Sneathia*, *Leptotrichia*, and members of the class *Clostridia*, among others.¹¹

Symptomatic BV is characterized by vaginal discharge, malodor, increased vaginal pH, and vaginal itching.¹² The term “vaginosis” is used rather than “vaginitis” because of the absence of polymorphonuclear cells in vaginal swabs (which indicate inflammation) when viewed under a microscope.

Despite the frequent lack of symptoms, it is imperative to address BV as it carries risk for several more serious conditions, including:¹³

- Sexually transmitted infections
- Urinary tract infections
- Endometriosis
- Pelvic inflammatory disease
- Post-surgical complications
- Infertility, pregnancy losses, pre-term birth
- Intrauterine and intraamniotic infections, cervical infections
- Dysplasia and cancer

Vulvovaginal Candidiasis – VVC is an inflammatory vaginitis caused by yeast overgrowth. Its most prominent symptom is vulvar itching, often accompanied by a cottage cheese-like or watery discharge.¹ There may also be vulvar erythema (redness), edema (swelling), burning, irritation, and possibly dysuria (pain with urination) or dyspareunia (pain with intercourse) that can fluctuate around menses.

Although *C. albicans* accounts for most VVC cases, other species can also cause VVC. At least 50% of women with positive culture for non-*albicans* VVC may be minimally symptomatic or asymptomatic.⁹ Typical treatment for VVC due to *Candida albicans*, which consists of short-term oral or topical azole therapy, may not be effective for non-*albicans* or complicated VVC.

VVC may be uncomplicated or complicated:⁹

Uncomplicated VVC	Complicated VVC
Sporadic or infrequent	Recurrent
Mild to moderate symptoms	Severe symptoms
Likely to be <i>Candida albicans</i>	Non- <i>albicans</i> candidiasis (<i>C. glabrata</i> , <i>C. tropicalis</i> , <i>C. krusei</i> , <i>C. parapsilosis</i>)
Non-immunocompromised women	Diabetes, pregnancy, or immunocompromised conditions, immunosuppressive therapy (corticosteroids)
Treated with a short course (single dose or 1-3 day regimen) of oral or topical azole therapy	Often need a longer duration of treatment using a non-fluconazole azole regimen and maintenance with an antifungal regimen
80-90% have negative cultures after completing azole therapy	30-50% of women will have recurrent infection after maintenance therapy is discontinued

Presentation and examination alone are not enough to identify VVC, as other vaginal infections may present with similar symptoms, and many women are asymptomatic.

¹¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780402/>

¹² <https://pubmed.ncbi.nlm.nih.gov/31901667/>

¹³ <https://www.ncbi.nlm.nih.gov/books/NBK470302/>

Vaginal Dysbiosis Differential Diagnosis⁹

Condition	BV	Candidiasis
Discharge	Thin, watery, gray or white	Thick, whitish
Odor	Malodorous, often fishy	Non-offensive
Pruritus	Sometimes	Yes
Other symptoms		Soreness, pain in vulva and/or vagina
Signs	Discharge "coat" in the vagina and vestibule, no inflammation, presence of "clue cells" with wet prep	None or local erythema, swelling, fissuring, satellite lesions, budding yeast, and/or hyphae with wet prep or gram stain
pH	Above 4.5	4.5 or lower

Clinical Pearl #1 – Treat Oral and GI Dysbiosis!

Candida is a typical yet opportunistic flora found in the mouth and gut – and its presence in both microbiomes is connected. One study showed that brushing the teeth more frequently *reduced levels of Candida in the stool*, thus illustrating the mouth-gut axis.¹⁴

Dysbiosis in the gut can contribute to vaginal dysbiosis. In addition to their anatomical proximity, inflammation from dysbiotic microbes and their metabolites can result in permeability of the intestinal lining, resulting in translocation to the urogenital tract.

Dysbiosis in the mouth or GI tract can lead to alterations in the *estrobolome* – the specific gut microbiota and the genes responsible for metabolizing estrogens. Lower levels of estrogen have been associated with a higher risk of developing BV. Additionally, higher levels of estrogen, such as those seen in pregnancy, have been associated with incidences of VVC.^{3,9}

For a deeper understanding of the estrobolome, please see our [Estrogen Metabolism Protocol](#).

Addressing the gut and oral microbiomes can help stop the cycle of recurrent flares. All microbiomes must be addressed concurrently when treating vaginal infections.

Clinical Pearl #2 – Estrogen and Vaginal pH are Important

Estrogen helps maintain an acidic pH in the vagina, which supports the growth and adherence of beneficial bacteria like *Lactobacillus*.³ *Lactobacillus* then produces lactic acid, which helps to lower the vaginal pH further while also producing antimicrobial molecules called bacteriocins, and hydrogen peroxide. These activities are vital in preventing the overgrowth of BV-associated bacteria.



¹⁴ <https://pubmed.ncbi.nlm.nih.gov/29600282/>

Decreased estrogen is associated with vaginal dysbiosis, involving the replacement of *Lactobacillus* in the vagina with a high abundance of anaerobic bacteria such as *Gardnerella*, *Mycoplasma*, and *Prevotella*, and a resulting increase in the vaginal pH to >4.5.³ Thus, women are more susceptible to vaginal dysbiosis when there are hormonal changes where estrogen drops (as seen with menstruation), contraceptive use, hysterectomy, and menopause.³

In pregnancy, a time when high levels of estrogen are expected, there is increased colonization of *Candida* from 20-30%.⁹ Immunologic changes, increases in estrogen, and increased vaginal glycogen production may all predispose pregnant women to developing VVC.

Women who are not pregnant and who have estrogen dominance should consider balancing hormones to reduce the risk of yeast overgrowth. In menstruating women, balancing hormones – especially estrogen – can dramatically help stabilize the vaginal microbiome and vaginal pH.

Clinical Pearl #3 – Biofilms Play a Significant Role in Vaginal Health

Biofilms are communities of bacteria embedded in an extracellular matrix, making them resistant to eradication. They are responsible for most chronic and recurrent infections and contribute to toxin load and inflammatory burden. In bacterial vaginosis, biofilms stick to vaginal epithelial cells and are seen as the diagnostic “clue cells” under the microscope. The presence of biofilms indicates the possibility of more than one causative organism for symptoms and the need for broad-spectrum antimicrobial agents that can disrupt the biofilms. There is increasing evidence of polymicrobial biofilms in male urogenital tracts, which may be the source of the establishment of BV.

Clinical Pearl #4 – Treat Partners Simultaneously!

If a patient with a stable sexual partner has been diagnosed with BV, it is recommended that the patient's partner be tested as well. If the partner tests positive, treat the patient and partner simultaneously to avoid passing the infection back and forth!

Lifestyle Recommendations

- Adopt some simple, practical lifestyle modifications. See our recommendations in the Bioclear® Microbiome Detox Program [Lifestyle Guide](#).
- Test new sexual partners for sexually transmitted diseases.
- Avoid sexual activity during treatment to avoid recurrent infections.
- Avoid aggressive douching and strong cleansers that dry out the vaginal tract and increase vaginal pH.
- Use feminine hygiene products made from cotton and without added fragrances or chemicals.
- Use cotton underwear and avoid wearing thongs to prevent the transmission of bacteria from the rectum to the vagina.
- Use natural products to support healthy pH after sex and during menstruation: probiotics, boric acid, yogurt, gentle antimicrobials, and lubricants to restore balance.
- Eat foods that serve as prebiotics (root vegetables, apples, oatmeal, etc.) and probiotics (fermented foods).

Therapeutic Plan Suggestions



Vaginal Dysbiosis Support		
OPTION 1		
CORE PROTOCOL		
VAGINAL DOUCHE	Biocidin® LSF or Biocidin® Liquid	1 tsp apple cider vinegar with 1 cup water and 2 pumps Biocidin® LSF or 10 drops of Biocidin® Liquid. Apply 2x/day.
ADDITIONAL SUPPORT		
	G.I. Detox®	2 capsules at bedtime. 1 hour away from food, supplements, and medications. Temporarily increase dose to 2 capsules 2-3x/day if Herxheimer reaction observed/worsens.
	Proflora® 4R	1 capsule any time
OPTION 2		
CORE PROTOCOL		
VAGINAL SUPPOSITORY	Biocidin® Capsules	1 capsule as vaginal suppository. Apply 1-2x/day
ADDITIONAL SUPPORT		
	G.I. Detox®	2 capsules at bedtime. 1 hour away from food, supplements, and medications. Temporarily increase dose to 2 capsules 2-3x/day if Herxheimer reaction observed/worsens.
	Proflora® 4R	1 capsule any time
<p>For external itching, mix one pump of Biocidin® LSF in 1/8 cup of water. Use a cotton ball to apply the solution to the affected area as needed.</p> <p>With antimicrobial use, consider repopulating the vaginal tract with <i>Lactobacillus rhamnosus</i> and <i>Lactobacillus reuteri</i>. For additional information, see Candida Support.</p>		

If also addressing the gut microbiome, it is important to include Biocidin® Liquid or Biocidin® LSF for systemic support in addition to the use of a vaginal suppository or douche.

Additional Therapeutics/Supplements

- Boric acid suppositories
- Vaginal homeopathic suppositories
- *Saccharomyces boulardii*
- Caprylic acid, undecylenic acid
- pH-balancing salve
- *Lactobacillus* probiotics (orally and or vaginally)

Links to other useful info sheets:

[Candida Protocol](#)

[Functional Gastrointestinal Protocol](#)

[Estrogen Metabolism Protocol](#)