



# Vulvovaginal Disorders: An algorithm for basic adult diagnosis and treatment

## **CANDIDIASIS (*yeast infection, monilia, thrush*)**

### **What is vulvovaginal candidiasis?**

Commonly known as “yeast infection” in the United States, and as vulvovaginal thrush in other English-speaking countries, vulvovaginal candidiasis (VVC) is an uncomfortable condition in which normally occurring yeast organisms in the vagina transform and over-grow, causing vulvar irritation, itching, burning, and (sometimes) changes in vaginal discharge. The type of yeast most commonly found on culture is *Candida albicans*.

### **What causes it?**

Yeast organisms that live quietly in the vagina, causing no harm, are known as “colonizers.” For unknown reasons, these organisms can transform from benign forms into those that overgrow and cause symptoms. For the most part, our immune systems protect against *candida* overgrowth, but sometimes that immunity is decreased and this may contribute to the problem.

VVC is not a sexually transmitted infection, but VVC may occur following sexual activity, in some women more than in others. Other conditions that are associated with an increased frequency of VVC are:

- Antibiotic use
- Uncontrolled diabetes
- Increased levels of estrogen: from high dose oral contraceptive pills (OCP's), pregnancy, or estrogen therapy
- Immunosuppression (in people taking corticosteroids or anti-cancer drugs, or in people with HIV)
- Contraceptive devices. (IUD's, vaginal diaphragms and sponges have been associated with increased levels of VVC, but not consistently.)
- We believe that some hygienic habits (tight clothing, daily panty liners or pad or otherwise occlusive clothing) may contribute to development of VVC, but this has not been proven consistently.

### **How common is vulvovaginal candidiasis?**

One recent survey of 6,000 women from five European countries and the United States found that between 29 to 49% of women had had a health care provider-diagnosed yeast infection at least once during their lifetime. More than one fifth of women with one yeast infection also reported a 12 month period with 4 or more infections (9%). Because of both non-reported self-diagnosis and incorrect (missed) diagnosis, the numbers may be higher than this.

Because yeast flourishes in an estrogen-rich environment, VVC is much more common in women of reproductive age than in pre-pubertal girls or in post-menopausal women who are not using estrogen.

### **What tests are used to prove vulvovaginal candidiasis?**

Your clinician may be able to identify yeast organisms under the microscope in the office within minutes. A DNA probe test (Affirm) will identify yeast within a couple of days, but will not identify the species. A culture, which takes as long as a week, will identify yeast and identify the species.



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### What are the symptoms of vulvovaginal candidiasis?

Vulvar itching is the hallmark of VVC. Other symptoms include irritation, burning, soreness, and pain with urination or intercourse. The vulvar and vaginal skin may become red and swollen. Itching causes scratching and rubbing, which may then cause cracks in the skin. Women often describe a thick, white, clumpy (cottage cheese-like) discharge, but there may be no change in discharge, or it may be thin and watery.

### Can I expect that, if I have itching and/or increased discharge, I have VVC?

No! Fewer than 50% of women who have vulvar itching have a yeast infection! There are many conditions that can cause vulvar itching. Vulvar skin conditions such as lichen simplex chronicus, lichen sclerosus, lichen planus, contact dermatitis, eczema, psoriasis, herpes simplex, or vaginal trichomoniasis are a few examples. Changes in discharge without irritation, itching, burning, or pronounced odor may be normal and associated with the menstrual cycle or with the birth control pill.

### How reliable is self-diagnosis for VVC?

Once women have had one or two properly-diagnosed yeast infections, they may recognize VVC on their own, if symptoms recur in exactly the same way. However, it is very important to be sure of the correct diagnosis. Repeated attempts to self-diagnose and self-treat may prolong and worsen symptoms that are not really related to VVC. If you self-treat and then are still uncomfortable, make an appointment to be seen by your clinician.

### What is the treatment for VVC?

Comfort measures are as important to treating VVC as are medications. Being careful about these lifestyle factors may also help to **prevent** VVC.

- Wear only loose, comfortable clothing, preferably made of cotton; that means no tight underwear, no thongs, no jeans, no lycra that hugs the vulva, no tights or pantyhose, no underwear or tight pajamas to bed.
- Take warm (or tepid) baths or use sitz baths, shower hoses, or rinses in plain water, followed by patting dry gently and application of anti-fungal medication or plain Vaseline®.
- Avoid any topical medications or feminine hygiene products other than those recommended by your practitioner.
- Avoid daily panty liners, pads, or urine protection panties, if possible.
- Apply cool gel packs or frozen peas, wrapped in protective fabric, to the vulva, as desired.
- Sexual partners do not need to be treated for yeast; occasionally, male partners will react to their partner's yeast infections with their own itching and burning. Control of the female partner's yeast infection will usually control the partner's symptoms.

Uncomplicated VVC that occurs sporadically and infrequently (90% of cases) usually responds well to the over-the-counter vaginal anti-fungal medications: **clotrimazole (Gyne-Lotrimin)** or **miconazole (Monistat)**. These medications come in vaginal creams or suppositories. They have the potential to cause secondary side effects of increased irritation even if they eradicate the VVC. The lower dose creams, used for 7 days, have less likelihood of this possible side effect. These vaginal medications are safe in pregnancy.



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Prescription-only **terconazole (Terazol)** also comes as a cream or suppository. This medication should not be used in pregnancy. Another prescription cream, used less frequently, is **butaconazole (Gynazole)**.

Because of its convenience, prescription **fluconazole (Diflucan)** is now the most commonly recommended anti-yeast medication. For uncomplicated, sporadic VVC, 150 mg taken orally, once, is all that is needed. It may take up to 48 hours for this medication to work (the same time it takes the creams and suppositories). It stays in the body for 72 hours, so no further doses are needed until after that time. Fluconazole is generally not recommended in pregnancy.

### Is fluconazole completely safe?

The longer fluconazole has been on the market, the more we have become aware of possible drug-to-drug interactions with this helpful medication. Most anti-depressants (SSRI's and SNRI's) and anti-cholesterol medications, as well as other medications, have very rare, but potentially dangerous interactions when taken with fluconazole. It is not known what the limits of safety are. It is therefore important for you to discuss any medications you take with your health care provider before accepting a prescription for fluconazole.

Side effects to fluconazole are rare, but include nausea, vomiting, diarrhea, stomach upset/pain, headache, dizziness, or hair loss.

### What is complicated VVC?

"Complicated" vulvovaginal candidiasis is present (10% of cases) when the following occurs:

- Severe signs and symptoms
- *Candida* species other than *C. albicans* (we call these "non-albicans yeast")
- Pregnancy, poorly controlled diabetes, immunosuppression, debilitation
- History of recurrent ( $\geq 4$ /year) culture-verified vulvovaginal candidiasis

Each of these situations must be taken into consideration by your health care provider and a personalized plan of treatment made for you. **In general:**

- Severe signs and symptoms may require a longer course of treatment or an increased dosage of medication, as may immunosuppression. Diabetes will need to be controlled.
- VVC in pregnancy is treated with clotrimazole 1% or miconazole 2% cream vaginally for 7 days. If it does not resolve, treatment is repeated for another 7-14 days.
- Recurrent VVC, unresponsive to initial treatment, may require prolonged treatment, usually fluconazole 150 mg taken orally day 1, day 3, and 6, then once a week for six months, if determined to be safe.
- Non-albicans yeast infections do not always need to be treated. If you are symptomatic, you may receive a prescription for 600 mg boric acid capsules or suppositories compounded by a pharmacy. One capsule or suppository is inserted vaginally each night for 14 nights. Boric acid, if taken orally, can be fatal, but is safe if used vaginally, as directed.