Vulvovaginal candidiasis (VVC)

What is VVC?

VVC is an uncomfortable syndrome caused by yeast organisms. The symptoms are itch, redness, discomfort, burning, swelling, skin splitting, and painful sex. Yeasts can live on our bodies without causing problems – this is called colonisation. However, sometimes the balance between the yeasts and our immune system is disturbed. When this happens, yeasts may over-grow and the body responds with inflammation. The yeast species most likely to cause problems is *Candida albicans*. Many other species sometimes cause VVC, including *Candida glabrata*, *Candida parapsilosis*, *Candida lusitaniae*, and *Saccharomyces cerevisiae*. VVC is not contagious - you cannot pass it to someone else and they cannot pass it to you. It is not transmitted sexually. VVC often occurs in people who never had sex or do not have a current partner.

Vulvovaginal candidiasis is classified into 4 types – acute, recurrent, chronic, and cutaneous VVC. The common name for all of them is 'thrush' or 'yeast infection'. However, these terms don't describe what is going on, and each of the 4 types behaves differently and affects different types of people. Each category has different symptoms, physical findings, risk factors, and treatment.

Since VVC is common, patients and doctors often assume that any vulval or vaginal irritation is due to 'thrush'. This is not true. Many conditions cause pain, itch, swelling, or discharge. If someone thinks they have 'thrush' but is not better after taking an over-the-counter antifungal vaginal cream, they should go to a GP. The GP should examine the vulva and do a swab. Looking inside the vagina with a speculum can be helpful, but sometimes this is too difficult due to pain. The GP might make a diagnosis and start treatment, but sometimes they refer to a specialist.

Acute VVC

Acute VVC is common, with 75% of people experiencing at least one episode after they start having periods and before menopause. The reason it mainly occurs during

this age range is that oestrogen helps yeasts to grow. Therefore, acute VVC should not occur in children or after the menopause, unless there is diabetes, an immune suppressing condition, or a source of oestrogen like medication or a tumour.

People with acute VVC report itching, burning, pain with sex, and pass with passing urine. This comes on quickly and often seems to happen at random. Risk factors for acute VVC include a recent course of antibiotics and pregnancy. There is thick yellow-white discharge and the vulval skin may be red and swollen. The nurse or doctor may see the vaginal skin looks inflamed and the discharge has a "cottage-cheese" appearance. The vaginal swab will usually grow *Candida albicans*, unless there was a recent course of antifungal medications.

There are many treatment options for acute VVC. Clotrimazole and other -azole medications are produced as vaginal creams packaged for 3 to 7 days of use. Women who are pregnant, diabetic, or have severe skin involvement should use medication for 7-14 days. Nystatin is a vaginal cream packaged for 7 days and is a good option for women who have a reaction to -azole creams. Tablets used for acute VVC include one-off doses of fluconazole or itraconzole. The dose can be 150mg or 200mg, whichever is cheapest to purchase. The response to medication should be quick and the symptoms should go away completely. If this does not occur, the problem might be something else.

If a person with untreated acute VVC has sex with a man, there may be stinging or redness of the penis. This is a skin reaction to the yeast or vaginal inflammation. It is easily treated with a cream containing hydrocortisone and clotrimazole. Men can also have problems with acute candidiasis, often at the head of the penis and under the foreskin. For the comfort and healing, it is best to avoid sex until treatment is finished and the skin is back to normal.

Recurrent VVC

Recurrent VVC is diagnosed when there are 4 or more episodes of acute VVC in a year. In between episodes, people feel normal. When they have an episode, it responds quickly to antifungal treatment. Most people with recurrent VVC are

otherwise healthy. No one knows why this happens to some people and not to others. Recurrent VVC has the same risk factors as acute VVC: courses of antibiotics, uncontrolled diabetes, and immune-suppressive diseases or medications. Another group at risk for recurrent VVC are those with chronic vulval skin conditions treated with steroid ointments. It is helpful to obtain more than one swab to prove that the symptoms are due to yeast at different points in time. If the swab grows a less common yeast organism, additional testing is needed to see what medication is best suited to that species.

The management of recurrent VVC is divided into 2 phases – treatment and suppression. Treatment is with at least 7 days of any cream or tablet antifungal medications used for acute VVC. Symptoms should then go away. Recurrent VVC can have a substantial negative impact on quality of life, so it is often worthwhile to take antifungal medication long-term to prevent future attacks. This is called suppression. The studies of this strategy lasted for 6-12 months, but most people will have more attacks of VVC when they stop suppression. Luckily, it is safe and effective to continue antifungal medications for many years.

Fluconazole tablets are the most common form of suppression. There are many different regimens for this medication. Each person can adjust the tablet dose and timing with a goal of finding the lowest dose and most convenient schedule that prevents symptoms. For some patients this is 200mg fluconazole weekly, for others it is 50mg twice a week, for others it is 100mg daily for 5 days before their period. Whatever works is fine. Itraconazole is an alternative that can be dosed in a similar fashion. Boric acid 600mg vaginal pessaries are also effective for treatment and suppression. However, boric acid can be irritating to the skin, is poisonous if taken by mouth, and cannot be used in pregnancy.

Chronic VVC

Chronic VVC is diagnosed when people have constant symptoms due to yeast that improve on antifungal treatments but come back when they stop the medication. Typical symptoms are pain, burning, stinging, pain with sex, and intermittent swelling

and redness. Abnormal discharge is not an important feature of chronic VVC. The vulval skin may feel fragile and split easily. Discomfort often gets worse before a period and gets better once bleeding begins. Antibiotics make symptoms worse. Chronic VVC can have a devastating impact on quality of life. There is constant vulvovaginal irritation, so people usually stop having sex.

People with chronic VVC often go months or years without a diagnosis. They might have negative swab results for yeast, sometimes because they took a course of antifungal medications recently, and sometimes because the levels of yeast are low. Doctors may believe there is dermatitis and give steroid ointments, but these do not help. People may be told they have 'vulvodynia' because there is pain with sex.

The appearance of chronic VVC is subtle. Sometimes there is mild swelling, redness, and skin splits at the labia minora, interlabial fold, and perineum (see *Vulval anatomy*). The doctor looks for signs of other skin problems, which should be investigated and managed before deciding on a diagnosis of chronic VVC. When a person has the typical symptoms and skin appearance, a positive swab for *Candida albicans* at any point in time supports the diagnosis of chronic VVC.

Treatment is daily fluconazole 50-100mg for at least 3 months, followed by re-evaluation with the treating doctor. There is often improvement after a couple weeks, but it can take up to 6 months for symptoms to fully resolve. Once things have settled for a few months, patients can try to reduce the frequency of the fluconazole tablets. Some find that 50mg 2 or 3 times a week is enough to keep them feeling normal. Others need 100mg of fluconazole every day to prevent symptoms. Itraconazole is another option for management of chronic VVC. Nystatin is used in pregnancy or if there is a reaction to tablets. Fluconazole and itraconazole are safe for long-term use unless there are chronic severe liver problems. At higher doses there can be interactions with other medications, so review your medication list with your doctor before starting long-term suppression.

No one knows exactly why chronic VVC occurs. It is possible it relates to an overly strong immune response against low levels of *Candida* species. This would explain why it takes a while to respond to medications, and why swabs are negative even when there are terrible symptoms.

Cutaneous VVC

Cutaneous VVC is an overgrowth of yeast in the skin folds that produces redness and flakiness of the skin. Some people feel stinging and discomfort, but some have no symptoms. Cutaneous VVC occurs mostly in post-menopausal patients who are carrying extra weight and have deep skin folds. Often, they have diabetes and urinary incontinence. The rash looks like jock itch (tinea cruris) or 'heat rash'.

Treatment is antifungal creams, powders, or tablets. Treatment should be continued until the rash clears, and then one or two weeks after that. Cutaneous VVC often returns and needs another round of treatment. If it does not cause symptoms, many people are happy to treat it when it appears rather than taking chronic medication to prevent it. If it is causing bothersome symptoms, suppression medications can be taken as described above.

Is there anything patients can do to cure or prevent VVC?

There are lots of claims on the internet about cures for thrush. Most of these are not based in science or have been unsuccessful in medical studies. Baking soda baths may be discussed as a candida treatment, but these are usually advised for a syndrome with similar symptoms called cytolytic vaginosis.

Changes that help with VVC

- Using the injection or implant for birth control, rather than the hormonal IUD or combined oral contraceptive pill
- In postmenopausal patients, stopping oestrogen creams, tablets, or patches
- Practicing good vulval care (see *Vulval care advice*)

Changes that benefit your health overall

- Eating a balanced diet low in processed foods and sugar
- Minimising alcohol consumption

- Quitting tobacco and other drugs
- Maintaining a healthy weight
- Taking antibiotics only if medically necessary
- Getting a good night's sleep
- Keeping good control of blood sugars in diabetic people
- Maintaining a normal iron level
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Examples of things that are NOT effective for most people are:

- Herbal supplements
- Vitamin supplements (other than iron for iron-deficiency)
- 'Digestive enzyme' supplements
- Gluten-free or sugar-free diets
- Prebiotics and probiotics
- Colon cleanses
- Tea tree oil or apple cider vinegar baths
- Eating extra yogurt or putting it in a douche
- Treatment of sex partners