

# Recurrent Vaginal Candidiasis

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## Summary

Recurrent vaginal candidiasis is one of the most common reasons for patients visiting their primary care doctors. Majority of the cases are caused by *Candida albicans*. Controlling of risk factors such as diabetes mellitus, use of broad spectrum antibiotics, contraceptive pills and steroid therapy helps in managing recurrent vaginal candidiasis. Initial 14-day course of oral azoles and followed by 6 months maintenance are effective in treating majority of the cases. Failure to treat recurrent vaginal candidiasis can lead to various bio-psycho-social complications.

**Key Words:** Recurrent Vaginal Candidiasis

## Introduction

Vaginal candidiasis is one of the most common gynecological problems seen in primary care. *Candida albicans* account for 90% of the infection. It is reported that all women will suffer at least one episode of vaginal candidiasis during their life time and up to 40-55% of them having recurrent vaginal candidiasis<sup>1</sup>. Recurrent vaginal candidiasis is defined as at least four discrete episodes of symptomatic infection occurring in a year<sup>2,3</sup>. It is estimated that 5% of all women who have a single episode of vaginal candidiasis will experience chronic or recurrent infection<sup>2</sup>. Recurrent vaginal candidiasis must be distinguished from persistent infection in which there is a symptom-free period in between the episodes of infection. Up to 33% of recurrent vaginal candidiasis is caused by non-albican species, which include *C. glabrata*, *C. tropicalis* and *C. parapsilosis*<sup>2,4</sup>.

## Clinical features

Women with recurrent vaginal candidiasis often present with intense vaginal discomfort. Common symptoms include odourless whitish discharge, pruritus vulvae, dyspareunia and dysuria. However, these symptoms

are not specific for candidiasis<sup>2,3,4</sup>. The itch of pruritus vulvae usually occurs in either mid-cycle or shortly after menstruation. Severity of pruritus and vaginal discharge positively correlate to higher yeast counts in their culture<sup>3</sup>. Vaginal examination will usually reveal erythema of vulva or vagina, presence of flaky vaginal thrush and swelling of labia minora<sup>4</sup>. Vaginal secretion sent for microscopic examination with 10% potassium hydroxide will demonstrate presence of yeast and pseudohyphae. Typical budding yeast of candida is seen in less than 30% of culture-positive cases. Sensitivity and specificity of direct microscopy increases to 70-100% if Gram's stain is performed. The yeast will appear as gram-positive grape-like structure with gram-positive germinating tubes of pseudohyphae. Vaginal swab for fungal culture is the gold standard for diagnosis when a patient has persistent and recurrent symptoms despite antimicrobial treatment<sup>1,3</sup>.

## Causes of recurrent candidiasis

Three primary theories have been proposed to explain why women develop recurrent vaginal candidiasis. First, the intestinal reservoir theory suggest that persistence of the organism in gastrointestinal tract later

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re-infect the vagina. This theory is based on observation in uncontrolled data in the late 1970s in which a concordance of almost 100% was observed between rectal and vaginal cultures in women with recurrent vaginal candidiasis. However, subsequent studies failed to sustain this theory<sup>1,4</sup>.

The second hypothesis put forward is the sexual transmission theory in which it is believed that the sexual partner is the reservoir or source for recurrent infection in the women. Again subsequent studies showed that in a majority of the cases the partner is culture negative. One longitudinal study indicates that the higher colonization rate in the man is reflective of his exposure to chronically infected women rather than he be the source. Treatment of the partner has no effect on the women's risk of recurrence<sup>1,4</sup>.

The third hypothesis is the vaginal relapse theory, which states that even with treatment, some women will remain colonized with the organism. The recurrent symptoms is not caused by new infection but that the organism increases in number and cause a new clinical episode when the environment permits. This include exogenous factors and also possibility of lowered local vaginal immune response. Some of these well known exogenous factors predisposing to recurrent vaginal candidiasis are shown in Table I. It is important to control these factors in managing recurrent vaginal candidiasis<sup>1,2,4</sup>.

Women taking oral contraceptive pills were found to have higher rate of vaginal candidiasis. According to one theory, candida cells have estrogen and progesterone receptors which when stimulated can cause fungal proliferation. Use of spermicidal jellies and creams also increases susceptibility to infection by altering the vaginal flora and increasing the adhesions of candida species. In patients using intrauterine contraceptive devices, budding cells on the IUCD threads could be a source reinfection. Diabetes mellitus stimulates formation of budding candida cells and aids in transition from colonization to infection. Cell mediated immunity also is less effective in killing the yeasts in diabetic patients. Prolonged used of broad spectrum antibiotics inhibit antibody synthesis and phagocytic activity and lead to lower resistance to yeast infection. One example is tetracycline shown to cause faster detachment of young budding yeast from the old blastoconidia.

Non-compliance with a treatment regime may result in persistent infection by the similar strain and species and

may be misdiagnosed as recurrence. It was reported that 15-20% of women with negative cultures after treatment present again with positive culture within 3 months. If the infection occurs after a period free period of 3 months following the previous treated episode, then it is more likely to be caused by a different strain of candida<sup>2</sup>.

### Differential diagnosis

Due to the availability of over the counter anti-fungal medications, self-medication is common. In one study it was found that up to 73% of women self treated with over counter medications and 42 percent used alternative medicines for self-treatment of recurrent vaginal candidiasis. However, when they were evaluated at specialist centers, only 28% were actually having vaginal candidiasis<sup>4</sup>. It is therefore important to take note of possibility of wrong diagnosis and inappropriate use of medications. Table II shows some of the skin conditions may be misdiagnosed as recurrent vaginal candidiasis.

### Treatment

There are many treatment options for recurrent vaginal candidiasis. Whichever regime is chosen, treatment must always be individualized. The treating physician must consider cost-effectiveness, convenience, possible side effects and the availability of the medication. It is also reminded that controlling underlying medical conditions such as diabetes mellitus is absolutely important and helpful. When recurrent infection is caused by *C. albicans*, it is best managed by using an initial 14-day course of oral azoles antifungal. This will induce clinical remission and negative fungal culture. It is then followed by 6 months maintenance regime<sup>2,4</sup>. Azoles drugs has broad anti-fungal spectrum of efficacy and high intensity of antimycotic activity. Effective azoles medications include ketoconazole, itraconazole and fluconazole. Maintenance therapy using clotrimazole vaginal pessary is an alternative to oral maintenance therapy. Most studies recommend maintenance for six months after which the patient is re-evaluated. For those who have recurrences once the maintenance is over, they may need to be put on medication for a longer period. However, the optimal dosing interval in maintenance therapy is still not clear. Table III shows the common recommended treatment regime for acute infection and maintenance therapy.

*C. albicans* resistance to treatment is rare. However, for infections caused by non-albican candida species,

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clinical evidence of resistance seems common. In this group of patients, terconazole vaginal cream is the drug of choice<sup>2</sup>. This drug interferes with cytochrome P450 isoenzymes and is particularly effective against *C.tropicalis* and *C. glabrata*<sup>2</sup>. Boric acid vaginal suppositories and topical flucytosine cream have also been used successfully in non-albicans candidiasis<sup>4</sup>.

Nystatin vaginal pessary is one of the cheapest antifungal agents but it is less effective than topical or oral azoles in the treatment of candidiasis. Its use usually requires up to 14 days. It is particularly useful in patients who develop allergies to azoles and also in the first trimester of pregnancy.

### Alternative therapy

One study looked at the association between ingestion of yogurt containing *Lactobacillus acidophilus* and the prevention of recurrent vaginal candidiasis. It was found that ingestion of 8oz of yogurt containing

*Lactobacillus acidophilus* decreases the rate of candidal infection. However, subsequent studies fail to show any significant results. Other measures recommended include wearing loose fitting cotton clothing and avoid wearing tights altogether. Again, little available evidence on the efficacy of these measures is available<sup>1</sup>. Similarly, use of substances such as vinegar and garlic by some patients remains a fallacy.

### Complications

Failure to treat recurrent vaginal candidiasis can lead to various bio-psycho-social consequences. Patients may present with recurrent dyspareunia, which may lead to unhappy sexual life. Some patients feel frustrated with the symptoms and suffer from reactive depression<sup>1,4,5</sup>. Besides depression, women with recurrent vaginal candidiasis also complain of less satisfaction with life, poor self esteem, anxiety and perceive life as more stressful.

**Table I: Risk factors for recurrent vaginal candidiasis**

Host factors	Yeast Factors
Impaired glucose tolerance	Virulence: ability to adhere to vaginal epithelium.
Diabetes mellitus	
Broad spectrum antibiotics	Protease production: Increased invasiveness.
Contraceptive pills	
Pregnancy	Germ tube formation: increase adherence.
Use of spermicidal jelly	
Steroid therapy	
Immunodeficiency	
Mechanical irritation	

**Table II: Skin conditions misdiagnosed as recurrent vaginal candidiasis**

Irritant contact dermatitis
Vulvar vestibulitis
Bacterial vaginosis
Genital herpes
Physiological discharge
Tinea cruris
Psoriasis
Lichen planus

**Table III: Recommended drug regime for recurrent vaginal candidiasis**

Agent	Dosing Regime
<b>Treatment for acute episode</b>	
Clotrimazole	100mg vaginal pessary for 7 days
Fluconazole	150mg orally single dose
Ketoconazole	200mg orally daily for 14 days
Terconazole cream	5g intravaginal for 3 days
<b>Maintenance</b>	
Clotrimazole	Two 100mg vaginal pessary twice weekly for six months
Ketoconazole	Two 200mg oral tablets for 5 days after menses for six months
Fluconazole	150mg orally once a month
Itraconazole	200mg orally once a month

**Conclusion**

Recurrent vaginal candidiasis is a common problem in clinical practice and can be frustrating for patients. Proper diagnosis and prompt treatment will reduce both the physical and psychological morbidity for the

patients. Controlling of risk factors and underlying medical disease such as diabetes mellitus and impaired glucose tolerance helps in preventing recurrent vaginal candidiasis. Use of maintenance therapy following treatment of acute symptoms has a role in preventing recurrent vaginal candidiasis.

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**Recurrent Vaginal Candidiasis:  
Multiple Choice Questions (MCQs)**

1. The following are features of recurrent vaginal candidiasis.
  - A. Persistent greenish vaginal discharge.
  - B. Pruritus vulvae
  - C. Dyspareunia
  - D. Dysuria
  - E. Vaginal bleeding
  
2. Risk factors for recurrent vaginal candidiasis include:
  - A. Steroid therapy
  - B. Broad spectrum antibiotics
  - C. Oral contraceptive pills
  - D. Impaired glucose tolerance
  - E. Hypertension
  
3. The following vulva conditions may be misdiagnosed as recurrent candidiasis:
  - A. Psoriasis
  - B. Contact dermatitis
  - C. Lichen planus
  - D. Vulvar vestibulitis
  - E. Tinea cruris
  
4. the following drugs are effective in treating recurrent vaginal candidiasis:
  - A. Oral itraconazole
  - B. Clotrimazole vaginal pessary
  - C. Oral tetracycline
  - D. Oral fluconazole
  - E. Oral terbinafine
  
5. Psychosocial complications of recurrent vaginal candidiasis include:
  - A. Reactive depression
  - B. Low self esteem
  - C. Unsatisfaction with sexual life
  - D. Increase medical cost
  - E. Anxiety