Vaginal thrush: quality of life and treatments

Karen Powell

Abstract

Vulvovaginal candidiasis, or vaginal thrush, is a common yeast infection experienced by three out of four women at some point in their lives. Females who experience recurrent symptoms of thrush may resort to buying products over-the-counter and will often fail to seek professional help. The symptoms of thrush can impact greatly on the quality of life of the woman, and can lead to depression and sexual problems with partners.

Key words: Thrush  ■  Quality of life  ■  Combination treatments

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Vulvovaginal candidiasis, or vaginal thrush, is a common yeast infection, experienced by three out of four women at some point in their lives. Approximately 75% of women have at least one episode in their life, the peak age of incidence being 20–40 years, and 40–45% will experience two or more episodes (Denning, 1995). Females who experience recurrent symptoms of thrush often resort to buying products over the counter (OTC) and may fail to seek professional help, often misdiagnosing their symptoms (Ferris et al, 2002). Many self-manage their symptoms and try alternative treatment regimens. It is suggested that recurrent episodes of infection significantly impact on quality of life (Chapple, 2001).

Background

Under normal circumstances, Candida albicans is present in 80% of the population and causes no adverse effects, but it is responsible for 80–92% of reported cases of thrush (Clinical Knowledge Summaries, 2010). However, 1% of females have continuous symptoms (Health Protection Agency (HPA), 2006). Thrush is rare in females who have not started menstruation and less common in post-menopausal women. It has a higher prevalence in, for example:

- Pregnant women, owing to changes in vaginal pH caused by hormonal changes

- Women with poorly controlled diabetes (Nwokolo and Boag, 2000)

- Immunosuppressed women such as those with HIV, AIDS, or those receiving chemotherapy

- Women with intrauterine devices.

Recurrent vulvovaginal candidiasis (RVVC), defined as four or more thrush infections in a 12-month period, occurs in approximately 5% of healthy women of reproductive age (British Association for Sexual Health and HIV (BASHH), 2007). Again, RVVC has a higher prevalence in women with diabetes and those with a weakened immune system. However, it is important to differentiate between recurrence and non-compliance as both may result in persistent infection. It is important that women who experience recurrent thrush obtain a cure as quickly as possible for their symptoms, as recurrence can severely impact on quality of life, leading to depression and psychosocial problems (Denning, 1995; Rolfe and Henderson, 2010).

Candida glabrata has an increasing incidence worldwide, and accounts for a smaller proportion of vulvovaginal cases (5%) (Ray et al, 2007; Clinical Knowledge Summaries, 2010), particularly in females with diabetes. Therefore, it is paramount that females who are experiencing recurrent episodes of infection have further investigation to rule out C. glabrata, as it intrinsically demonstrates reduced susceptibility to azole drugs, but is vulnerable to nystatin (a polyene antifungal drug) or boric acid vaginal suppositories (Goswami et al, 2006).

As many women buy OTC treatments and fail to seek advice or investigation of recurrent infections, it is probable that other strains of Candida remain undiagnosed. More importantly, many women will buy imidazole drugs that are effective in treating eight out of 10 infections, but some infections will remain untreated, causing persistent symptoms. In particular, diabetic females respond poorly to single doses of fluconazole 150 mg, but this could be the result of inappropriate medication.

Thrush: the facts

Thrush is caused by changes that alter the natural balance of ‘harmless bacteria’ that keep the vaginal pH acidic and maintain the survival of Candida spores in low numbers or in an inactive state. Changes in vaginal pH cause the vaginal wall to become less hospitable and bacteria die, resulting in an overgrowth of Candida and subsequent symptoms of thrush. The endocrine system governs the acid/alkaline balance in the vagina and the normal acidic pH (under 4.5) protects the vagina from infection and promotes the growth of lactobacilli, the ‘good’ bacteria that are normally present. The lactobacilli
prevent an overgrowth of other bacteria and microbes that can cause inflammation and irritation by performing lactic acid fermentation. Candida thrives in the warm, moist and airless environment of the vagina.

Other factors that do not cause thrush, but may increase susceptibility to infection include (Pirotta et al, 2003):

- Wearing tight clothing such as denim jeans or non-cotton underwear
- Antibiotics, as they not only fight infection but kill off ‘friendly bacteria’
- Some highly perfumed hygiene products can alter pH in the vagina
- People who experience allergies such as hay fever may also be more prone to thrush infection.

Symptoms

The symptoms that women experience vary from vulval pruritis to dysuria (painful urination) and dyspareunia (painful sexual intercourse). Many women have a non-offensive, ‘curdy’ white discharge, and discharge can also be watery. However, women who experience a foul-smelling, purulent discharge are advised to seek further investigation as this can be linked to bacterial vaginitis. Apart from the aforementioned symptoms of thrush, women may additionally experience vulvovaginal inflammation, the signs and symptoms of which comprise erythema developing in the vaginal and vulval region, cracks on the skin, vaginal fissures, or oedema causing swelling.

Quality of life

The symptoms of vaginal thrush can impact greatly on women who experience recurrent thrush infections and affect their quality of life. Fashion-conscious females may reluctantly resort to wearing underwear and clothing that keep symptoms at bay. Research suggests that women with recurrent vulvovaginal candidiasis feel that their symptoms have the greatest negative impact on work and social life (Nyrjesy et al, 2006). The following comments from female sufferers reveal how symptoms can affect relationships:

‘It does get you down. My husband gets really annoyed with me because of it; my sex drive is practically non-existent! I’m itching and going insane because of this frustrating matter down below!’

‘This past six months I have suffered with it with every period and every following day after sex.’

‘Twenty-six years of fluconazole and I still have thrush—I have tried every lotion, pill and potion.’

‘It is depressing, it has wreaked havoc with relationships. I enjoy sex with my husband and the thrush has put a stop to it many a time.’

In a study by Chapple (2001), South Asian women were asked to discuss their perceptions and experiences of vaginal thrush with regard to quality of life. Some women felt a constant need to scratch, which made it difficult for them to conceal their condition in public situations; the symptoms can make the woman feel dirty, itchy and embarrassed, and express a reluctance to have sex with partners. They described their difficulties and their attempts to hide the problem (Chapple, 2001):

‘It can be embarrassing because sometimes you really want to itch, and then you’ve quickly got to go to the toilet.’

‘No matter what culture, anything down below is associated with being dirty.’

Women are often embarrassed to talk about the problem, especially with a male GP, and often request prescription treatment without seeing a doctor or practice nurse (Chapple, 2001). GPs commonly prescribe a combination treatment for the first episode of symptoms, but recommend to patients that recurrent thrush should be investigated (Chapple, 2001).
Table 1. Combination treatments available for vulvovaginal candidiasis

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Preparation</th>
<th>Action</th>
<th>Benefits women who</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capsule:</td>
<td>(e.g. Canesten Duo)</td>
<td>Systemically treats underlying infection</td>
<td>Have busy and active lives</td>
</tr>
<tr>
<td>Fluconazole 150mg</td>
<td></td>
<td></td>
<td>Want fast, discreet and instant relief and treatment</td>
</tr>
<tr>
<td>External cream:</td>
<td>Clotrimazole 2% w/w</td>
<td>Relieves external itching and soreness</td>
<td></td>
</tr>
<tr>
<td>(e.g. Canesten Combi)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pessary:</td>
<td>Clotrimazole 500mg</td>
<td>Treats underlying infection internally</td>
<td>Want instant symptom relief and treatment</td>
</tr>
<tr>
<td>(e.g. Canesten Combi)</td>
<td></td>
<td></td>
<td>Have used a pessary before</td>
</tr>
<tr>
<td>External cream:</td>
<td>Clotrimazole 2% w/w</td>
<td>Relieves external itching and soreness</td>
<td></td>
</tr>
<tr>
<td>(e.g. Canesten Cream Combi)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External cream:</td>
<td>Clotrimazole 2% w/w</td>
<td>Treats underlying infection internally and externally while relieving symptoms of itching and soreness</td>
<td>Women who would rather use cream than other preparations</td>
</tr>
<tr>
<td>(e.g. Canesten Cream Combi)</td>
<td></td>
<td></td>
<td>Menopausal women who may experience vaginal dryness</td>
</tr>
<tr>
<td>Internal cream:</td>
<td>Clotrimazole 10% w/w</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, females do not always follow the advice to be examined. It is vital that recurrent symptoms be investigated, as they could be the result of other diseases and not a thrush infection, such as:

- Cystitis, which can cause a burning sensation on voiding
- Chlamydia and genital herpes, which can cause a vaginal discharge and vulval soreness
- Skin diseases (not related to infections) can cause vaginal itching
- Atrophic vaginitis, which can cause itching, burning and pain
- Bacterial vaginosis is more common than thrush and can have similar symptoms.

Owing to embarrassment and convenience, some sufferers prefer to purchase OTC treatments from pharmacies. Buying products for recurrent thrush infections places an economic burden on the individual and some women may resort to purchasing low-price and low-quality systemic treatments. However, it is paramount that first-time sufferers consult a GP or other health professional for medical advice before self-purchasing a treatment for thrush.

It is suggested that up to 20% of women with thrush could also have another infection. Therefore, if women continue to purchase products for recurrent infections they could be at risk of undiagnosed infections or complications.

Natural and alternative remedies

There is anecdotal evidence to suggest that many females are resorting to trying alternative treatments to relieve their symptoms of thrush; however, there is minimal research to support the properties of these remedies with regard to the treatment of thrush. For years women have eaten natural yoghurt containing Lactobacillus acidophilus (‘friendly bacteria’), or inserted it into the vagina with the aim of relieving symptoms. Others resort to eating a yeast- and sugar-free diet, but there is no evidence to prove the efficacy of this.

A tampon soaked in diluted tea tree oil can also be used, but tea tree can cause irritation (Mårdh et al, 2002). Garlic has antibacterial and antifungal properties, but can cause irritation and is not thought to be powerful enough to clear chronic symptoms of thrush. Calendula also has antifungal and soothing properties, and is available in a number of forms: pessary, gel and cream. However, the gel and cream should not be used internally. Acupuncture can rebalance the internal energies to help prevent or avoid recurrence of the thrush infection, but it will not actively treat the condition.

Recommended treatment

All topical and oral azole therapies give a clinical and mycological cure rate of over 80% in non-pregnant women, and treatment failure is considered to have occurred if symptoms do not resolve within 7–14 days in uncomplicated acute vulvovaginal candidiasis. The choice of treatment is therefore a matter of personal preference, availability and affordability, and a range of products offers versatility and appropriateness for specific symptoms and patient preference. The available combination products will offer treatment for systemic, internal and external symptoms, and popular preparations are listed in Table 1.

Most products contain clotrimazole (e.g. Canesten), an azole, broad-spectrum antifungal drug used topically to treat a variety of superficial fungal infections, including candidiasis, and fluconazole, a triazole antifungal drug used in the treatment and prevention of superficial and systemic fungal infections. Fluconazole inhibits the fungal cytochrome P450 enzyme 14α-demethylase. Most of the drug is excreted in the urine; very little is metabolized by the liver. It is the least toxic of all the antifungal drugs, but 25% of women will experience some side-effects. Common side-effects are nausea and abdominal discomfort; raised liver function test results occasionally occur. Skin rashes occur in up to one in 20 patients and these may be severe. In rare cases, fluconazole can interact with the tablet management of diabetes.
Other antifungals in the azole group include econazole, fluconazole, ketoconazole and miconazole (Table 2).

**Side effects and contraindications**

**Oral treatments**
The side-effects that may be caused by oral treatments for thrush include:
- Nausea
- Abdominal pain
- Diarrhoea and flatulence
- Rash
- Headache.

Oral treatments should not be used during pregnancy, suspected pregnancy or by women who are breastfeeding.

**Creams**
Fifteen percent of females will experience burning or irritation on initial application of the cream. Internal cream can cause damage to latex contraceptives and diaphragms.

**Pessary**
Care should be taken if the female is pregnant to avoid damage to the cervix on insertion.

**Case studies**
The following case studies reflect the prevalence and impact of thrush infections on individual females. The women all expressed recurrent use of combination products and appreciate the flexibility that these can provide.

### Case study one
Mrs A is a 43-year-old married female who has experienced recurrent episodes of thrush for a number of years. She tries to not let symptoms affect her quality of life, but has to abstain from sexual intercourse and experiences pain on voiding urine. Mrs A becomes symptomatic following the commencement of medication (amoxicillin and prednisolone—steroids which lower the body’s resistance to infection) for asthma and recurrent chest infections. She finds that the thrush symptoms are more persistent the longer the course of prescribed antibiotic medication. She never uses highly perfumed personal hygiene products, as they can make her symptoms worse. Despite having prescribed medication, Mrs A resorts to buying an OTC treatment for thrush. She finds that an oral and cream combination treatment alleviates her symptoms most effectively within 2 days, but she continues to use the cream for 1 week. Mrs A finds the products easy and convenient to use, but finds them costly to buy.

### Case study 2
Mrs B is a 45-year-old married female who has been experiencing symptoms of thrush since the age of 13 years. Incidentally, she started menstruating the same year. There is no pattern to recurrent episodes (symptoms can reoccur in a couple of weeks, but can be clear for months); however, symptoms often recur when she is either premenstrual or menstruating. Mrs B finds that she can experience thrush following sexual activity and believes that

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**Table 2. Single treatments for vulvovaginal candidiasis**

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Ingredients</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canesten</td>
<td><strong>External cream:</strong> Clotrimazole 2%w/w</td>
<td>Apply to genital area 2–3 times daily</td>
</tr>
<tr>
<td>Canesten</td>
<td><strong>Pessary:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clotrimazole 500mg</td>
<td>1 insertion at night as a single dose</td>
</tr>
<tr>
<td></td>
<td>Clotrimazole 200mg</td>
<td>Nightly for 3 nights</td>
</tr>
<tr>
<td></td>
<td>Clotrimazole 100mg</td>
<td>Nightly for 6 nights</td>
</tr>
<tr>
<td>Canesten Oral</td>
<td><strong>Capsules:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluconazole 150mg</td>
<td>Single dose</td>
</tr>
<tr>
<td>Diflucan</td>
<td><strong>Capsules:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluconazole 150mg</td>
<td>Single dose</td>
</tr>
<tr>
<td>Gyno-Daktarin</td>
<td><strong>Intra vaginal cream:</strong> Miconazole 2%</td>
<td>5mg applicatorful once daily for 5–14 days, or twice daily for 7 days. For topical use, apply to anogenital area twice daily</td>
</tr>
<tr>
<td>Gyno-Pevaryl</td>
<td><strong>Ovule:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Miconazole 1.2 g</td>
<td>1 ovule at night at night as a single dose</td>
</tr>
<tr>
<td>Gyno-Pevaryl</td>
<td><strong>Cream:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Econazole 1%</td>
<td>5mg applicatorful intravaginally and apply to vulva at night for at least 14 nights</td>
</tr>
<tr>
<td>Gyno-Pevaryl/</td>
<td><strong>Pessary:</strong></td>
<td></td>
</tr>
<tr>
<td>Gyno-Pevaryl</td>
<td>Econazole 150mg</td>
<td>One insertion daily for 3 nights/one insertion at night as a single dose</td>
</tr>
<tr>
<td>Nizoral</td>
<td><strong>External cream:</strong> KETOCONAZOLE 2%</td>
<td>Apply to anogenital area once or twice daily</td>
</tr>
</tbody>
</table>

NB. All products damage latex condoms and diaphragms. The effect on latex condoms and diaphragms is not yet known for Nizoral. From: Joint Formulary Committee (2010)
her symptoms may be exacerbated as a result of frequently wearing jeans. Mrs B also finds that an oral and cream combination treatment effectively treats her symptoms, and purchases the products OTC. Mrs B finds the products expensive to buy and has to purchase the combination as the cream is not fully effective on its own (the cream only gives symptomatic relief, but the internal treatment within combination products actually treats and clears the infection).

Case study 3
Miss C is a 44-year-old single female who has been experiencing one episode of thrush per year for 12 years. Initially, she used a cream to alleviate symptoms, but found that the symptoms returned. Miss C always buys products OTC and likes to use both oral and cream treatments as she gains relief from symptoms in just 2 days.

Case study 4
Miss D is a 19-year-old single female with type 1 diabetes who has been experiencing symptoms of thrush for more than 2 years. She is not sexually active, but has had investigations to rule out other infections. Miss D finds that wearing jeans, non-cotton underwear and perfumed personal hygiene products can worsen the symptoms. Initial treatment began with a cream, but this was not effective on its own as the symptoms returned quickly. Miss D finds the combination of a pessary and cream more effective than an oral and cream combination. She finds relief of symptoms in 2 days, but continues to use the cream to relieve itching. She finds the pessary easy to use and commented that the instructions for use are easy to follow. Despite having regular treatment for at least 3 months at a time, symptoms still return eventually.

Following discussion with the author, Miss D intends to have further investigation to assess whether C. glabrata is the cause of her symptoms.

These case studies provide examples of females who experience varying patterns of systemic episodes of thrush, but each have different treatment preferences. The females spoke candidly about the effects of symptoms on their quality of life; however, three out of the four females chose to self-diagnose and manage their symptoms by purchasing OTC treatments. If women are buying combination treatments, however, they are opting for a treatment which offers symptomatic relief, as well as the internal treatment which will clear the infection. As many women choose OTC products for the symptomatic relief of thrush, it is vital that women who experience recurrent episodes of infection are encouraged to seek medical intervention or further investigation.

Conclusions
Thrush is a common condition that affects many women. As it is often the case that women will self-manage their symptoms and buy OTC treatments, they may experience recurrent infections that require further investigation. Some women experience symptoms of burning, itching and discharge, but these can also be present as a result of some sexually transmitted infections, vulvitis, bacterial vaginitis or simple allergy.

The case studies presented in this article demonstrate the impact that the symptoms of thrush can have on quality of life. Without effective treatment, symptoms become recurrent, causing psychosexual dysfunction and depression in many sufferers (Denning, 1995; Rolfe and Henderson, 2010).

However, a range of treatments in varying formats is readily available to successfully treat a high percentage of females, offering flexibility for both internal and external symptoms, and with minimal side-effects. Women rely greatly on these products to treat their symptoms without seeking further assistance or advice from health professionals. However, the nurse should be mindful to advise female patients to seek medical advice for both the first occurrence of thrush, and any further episodes.