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Yeast Infections: Patient Information

Most yeast infections, (85%) are caused by a fungus called Candida albicans. Yeast infections come from migration of yeast from the gastrointestinal tract and is not considered a sexually transmitted infection. 30% of healthy women carry Candida in the lower genital tract as a part of their normal flora with no symptoms and are not considered to have an infection. The presence of yeast in the lower genital tract is not considered an infection unless it produces disturbing symptoms. 75% of premenopausal women have had at least one yeast infection; yeast is less common after menopause. Yeast also causes the common diaper rash in babies.

Symptoms: Patients commonly complain of vaginal or vulvar itching, irritation and pain with intercourse. If the vulvar skin has fissures or scratches, patients may experience discomfort after voiding. Many patients have no discharge, a little thin discharge or the classic white and clumpy curd-like or so-called "cottage cheese" discharge. The vagina and vulva usually appears swollen and red.

Causes: Sporadic yeast infections occur usually without any precipitating factor and have no cause. Factors known to predispose to symptomatic yeast infections include: high blood sugar levels, diabetes (often have non-albicans type yeast colonized), recent use of antibiotics (1/4-1/3 of women are prone to yeast after antibiotic treatment), higher estrogen levels such as from pregnancy or from the pill, contraceptive devices like diaphragms, genetic susceptibility, immunosuppression with steroids and a change in sexual activity. Although scientific studies have not been performed; many patients report yeast infections occurring after wearing tight clothing or synthetic clothing, wearing jeans, rigorous abrasive sports, perspiration and prolonged exposure to moisture, heat and a high sugar diet.

Diagnosing a yeast infection can be performed by history or by an examination. A slide test of vaginal secretions will not show budding yeast or hyphae in 50% of yeast infections. Patients do not need cultures unless the infection is unresponsive to previous therapy or the patient has had more than 4 yeast infections that year. Since 30% of all vaginitis symptoms are caused by yeast, patients often use over-the-counter preparations. Other causes of itching include bacterial vaginosis, mixed infections, normal physiology, trichomonas, contact dermatitis, allergic or chemical reactions and hypersensitivity reactions.

Uncomplicated vaginal candidiasis or yeast are sporadic, infrequent episodes with mild to moderate symptoms, most likely due to Candida albicans in healthy, non-pregnant women. Over 90% of patients will have relief of symptoms using over-the-counter preparations or prescription oral or vaginal therapy. All treatments have similar cure rates and the choices are determined by patient preference. Topical treatments may cause some local irritation or burning from the cream; other patients feel that the cream is actually soothing. Oral treatments are usually well tolerated but may cause gastrointestinal intolerance, headache, rash or transient liver function abnormalities with long term courses of therapy. Oral medications may take a day or two longer

to relieve symptoms but many patients prefers the convenience. The patient may resume sexual intercourse when her discomfort resolves and asymptomatic partners do not need to be treated. Uncomplicated infections usually respond to treatment within a couple of days. Complicated infections require a longer course of therapy and may take two weeks to fully resolve.

Treatment Options include:

- Gyne-Lotrimin (Clotrimazole) 1% cream 5 g/day x 7-14 days or 100 mg vaginal tablet daily x 7 days
- Monistat (miconazole) 2% cream 5 g/day x 7 days or 200 mg vaginal suppository daily for 3 days
- Terazol 0.4% cream x 7 days; 0.8% cream 5 g/day x 3 days; or 80 mg vaginal suppository daily x 3
- Nystatin (Mycostatin) 100,000 unit vaginal tablet daily x14 days
- Diflucan 150 mg oral tablet single dose is usually effective but patients with severe symptoms need to take a 2nd dose in 3 days (each tablet is effective in vagina for at least 72 hours)
- Fluconazole or diflucans 100mg 2x/d orally for 7 days

Pregnant Patients: Yeast infections are not harmful in pregnancy, therefore, patients should wait until after the 12th week of pregnancy to treat symptomatic yeast infections. If treatment is needed, avoid oral antifungals (azoles are associated with case reports of birth defects if used in the first trimester) and use vaginal clotrimazole or miconazole for 7 days or nystatin suppositories every day for two weeks and topical steroid cream treatments to the vulva.

Breastfeeding women: Nystatin does not enter breast milk and is compatible with breastfeeding. Diflucans (fluconazole) is excreted in human milk, but the American Academy of Pediatrics considers the use of fluconazole compatible with breastfeeding since there have not been any adverse reports. Vaginal antifungal treatments are routinely used since systemic absorption is minimal.

Severe yeast infections involving the vulva need oral antifungal therapy and benefit from the addition of topical corticosteroids for the first 48 hours until the yeast load has been reduced.

Complicated Yeast infections include patients with: poorly controlled diabetes, immunosuppression, debilitation, severe symptoms, other yeast species like Candida glabrata, pregnancy, or are recurrent (≥4/year). Patients with recurrent infections may harbor a reservoir of yeast or have a genetic predisposition to yeast infections. Prolonged courses of anti-fungal therapy for 7-14 days are needed for complicated yeast infections.. Women with recurrent yeast infections recorded a 2 fold increase in symptomatic episodes when using pantiliners, pantihose, sexual lubricants or consumption of cranberry juice or acidophillus. Although controversial, most studies do not support the treatment sexual partners.

- C. glabrata: rarely causes symptoms, even when identified by culture. Half of yeast infections with this strain responds to usual yeast treatment. Some respond intravaginal boric acid (600 mg capsule once daily at night for two weeks and most respond to (>90 percent cure) intravaginal flucytosine cream (5 g nightly for two weeks). Both boric acid capsules and flucytosine cream must be made by a compounding pharmacy. Boric acid capsules can be fatal if swallowed. There is no good data on the efficacy of compounded

Nystatin 100,000 U vaginal suppository nightly for 14 days. Potential side effects include burning, redness, and irritation.

Persistent and Recurrent Yeast:

Patients should review their vulvar health habits and consider screening tests for diabetes or HIV if yeast infections are persistent. We recommend treatment with Diflucan (fluconazole) 150mg orally every 3 days for 3 dosages followed by once per week for six months. Given the safety profile of low dose fluconazole, laboratory monitoring is not needed. If ketoconazole 200-400mg/day is used daily for more than 2 months, then monitoring liver function tests is recommended. Maintenance therapy with fluconazole aka Diflucan 150 mg once a week for 6 months or Chlortrimazole 500 mg vaginal suppositories once a week for 6 months has been shown to be effective in multiple studies. This maintenance therapy should be begun within two weeks after an infection has been clinically cured. Patients can have recurrences off treatment but resistance is not seen and retreatments are continued for one year.

Prevention: The popular belief that ingestion or vaginal administration of yogurt or agents containing live Lactobacillus acidophilus decreases the rate of candidal colonization and symptomatic relapse is considered unproven. There are also no data to support the concept of vaginal immunotherapy. In women susceptible to symptomatic yeast infections with antibiotic therapy, a dose of Diflucans (fluconazole)150 mg orally at the start and end of antibiotic therapy may prevent post-antibiotic vulvo-vaginitis.

Hypersensitivity reaction: Males who develop immediate post-coital itching and burning with redness and a rash of the penis which improves with a shower and 12-24 hours of time may have an acute hypersensitivity reaction to Candida organisms or antigens in the partner's vagina, even in the absence of symptomatic vulvovaginitis. Additional treatment with a topical low potency steroid may give faster relief. This condition does not benefit from topical antimycotic therapy since the key to eradicating symptoms lies in eliminating Candida organisms from the lower genital tract of female sexual partners. This often requires the female partner to follow a long-term maintenance antimycotic regimen.

Vulvar Candidiasis: Patients who have excess skin folds, are diabetic, wear occlusive clothing or are immobile can have vulvar yeast with no vaginal symptoms. These chronic skin irritations usually respond to long term treatment with a daily exterior antifungal cream as needed (Econazole nitrate 1% external cream daily) or an antifungal powder (Econazole nitrate powder) if moisture is an issue. The topical treatment is given along with a month long treatment with an oral antifungal like ketoconazole 200-400mg/day. Patients may also benefit from an antihistamine to reduce itching or taking an Atarax before sleep to avoid inadvertent excoriations.