Oral candidiasis and HIV disease

Oral candidiasis, which is also called thrush, is a fungal infection of the mouth and/or throat. It is often the first illness and signal that HIV disease is progressing to a more severe stage, particularly infections that are recurrent or less responsive to treatment.

While it can sometimes occur without symptoms, the most common are discomfort and burning of the mouth and throat and an altered sense of taste (often described as “bad”). Creamy white or yellowish spots on the mouth and throat that can be removed by light scraping are also common. These may be accompanied by cracking, redness, soreness and swelling at the corners of the mouth. A bad case can include mouth sores.

A more serious condition of the throat and windpipe, called esophageal candidiasis, is on the list of AIDS-defining illnesses, affecting up to 1 in 5 of people with AIDS. It often occurs together with oral candidiasis. Symptoms include chest pain, nausea and painful or difficult swallowing, causing people to not want to eat.

Oral candidiasis is rare if CD4 counts are above 500. Outbreaks are more common as the count drops to 100, when it may be harder to treat. Recurrent fungal infections are very common in children living with HIV, especially thrush.

Cause

Oral candidiasis is caused by the fungus called Candida. Everyone has small amounts of the fungus in the mouth, vagina, digestive tract and skin. In healthy persons, their immune systems prevent it from causing disease. However, a weaker immune system makes it easier for Candida to grow and cause disease.

Certain drugs can alter the natural organisms in the mouth, which can then allow the fungus to grow. These include the extended use of antibiotics, steroids and oral birth control with a high estrogen content. Other factors that may stimulate Candida to grow include diabetes, pregnancy, iron, folate, vitamin B12 or zinc deficiency and using antihistamines. Cancer chemotherapy, stress and depression can also cause candidiasis.

Diagnosis

Oral conditions are usually diagnosed by appearance and symptoms. It can be confirmed by scraping a sore and checking it under a microscope. Further lab tests are usually performed if the infection does not clear up after treatment. A small tube called an endoscopy may be used to look for signs of infection in the windpipe.

Treating oral candidiasis

Topical treatment (applied on the affected area) is the first choice for oral candidiasis and usually works for mild-to-moderate cases. These include mouth rinses and lozenges, or troches. One or two lozenges are taken for oral symptoms 3–5 times a day. They should be sucked slowly and not chewed or swallowed whole. Common brands are Mycelex ( clotrimazole) and Mycostatin (nystatin).

Mouth rinses are less effective as they only have contact with the mouth for a short time. However, they may be the best choice for someone who has a very sore and dry mouth. Rinses should be swilled around in the mouth for as long as possible and then swallowed. They’re used at least 4 times a day after symptoms have gone.
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Systemic treatments that work throughout the body are used for recurring disease or outbreaks that do not clear up with topical treatment and for esophageal candidiasis. Fluconazole (Diflucan) tablets are as effective as lozenges, and are generally easier to take and tolerate.

Three antifungal drugs are used to treating oral and esophageal candidiasis. They include Nizoral (ketoconazole, taken with acidic food or drink), Sporanox (itraconazole, great potential to interact with HIV drugs) or Diflucan (fluconazole, which tends to be saved for later use).

Side effects and drug interactions
Common side effects of oral azole drugs (ketoconazole, fluconazole and itraconazole) are nausea, vomiting and belly pain. Others include headaches, dizziness, drowsiness, fever, diarrhea, rash and changes in the sense of taste. The most serious problem is liver toxicity, but this is rare and usually reverses after treatment when the drug is stopped. Nevertheless, liver function should be checked closely, particularly with ketoconazole.

Intravenous amphotericin B may pose serious side effects, including kidney toxicity. The most common side effects are fever, shaking, chills, altered blood pressure, nausea, vomiting and headache. These reactions are usually severe after the first few doses and lessen with subsequent treatment. Liposomal versions of the drug (like Abelcet) are generally less toxic and as effective than its earlier formula. Intravenous Amb should only be used in cases where there is a direct threat to life or all other treatments have failed.

Many drug interactions are possible when taking azole drugs and Amb. Some can cause several heart or kidney problems. Be clear about all the medicines you take and consult a pharmacist about possible interactions.

Prevention
Using antifungal drugs to prevent fungal infections is approached with great care and is generally discouraged, especially using fluconazole this way. This makes treating newer and more aggressive infections more difficult and often unsuccessful. However, this may not be possible in some people with recurrent infections who must remain on long-term therapy to prevent them.

Antifungal drugs and pregnancy
The Federal Guidelines for the Prevention of Opportunistic Infections recommend not using antifungal drugs during pregnancy due to possible birth defects. They further state that azoles be stopped in women who become pregnant and that women taking these drugs use effective birth control.

Topical therapies may be preferable for pregnant women. For systemic treatment the Guidelines suggest using Amb, especially in the first trimester.

Although no formal studies have been done, pregnant women have used amphotericin B without apparent harm to their unborn children, though the drug has possible severe side effects including kidney toxicity and anemia.
Tips for preventing fungal infections

Overall, the best way to naturally prevent fungal infections is to eat healthfully and regularly, avoid excessive sugar intake, and avoid or decrease alcohol, caffeine, dairy and cigarettes.

- Decrease or avoid sugars (corn and maple syrup, glucose, fructose and sucrose). Sugar is food for Candida and helps it grow. Read the labels on packaged foods for these sugars.
- Decrease or avoid alcohol. Alcohol converts to sugar and helps Candida grow.
- Drink milk or eat yogurt that contains acidophilus bacteria—“friendly” bacteria that helps your body fight off “unfriendly” germs, like Candida. Also available in health food stores.
- Eat larger amounts of food that may keep yeast from growing.

Some nutritionists believe garlic has natural antifungal properties. Fresh garlic is considered best, although commercial garlic “pills” help reduce the odors. (NOTE: Large amounts of garlic may interfere with HIV meds, especially Norvir (ritonavir).

- Antibiotics may lead to yeast infections. “Friendly” bacteria are found naturally in the body and help clear unfriendly yeasts. Common antibiotics kill these bacteria which then allow yeast to grow, especially in the vagina.

Other publications that may help

Oral Conditions and HIV Disease
www.projectinform.org/publications/oral/

Systemic Candidiasis
www.projectinform.org/publications/candidas/

Vaginal Candidiasis
www.projectinform.org/publications/candidav/
## Oral candidiasis and HIV disease

### Drugs used to treat oral candidiasis

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th>DOSE</th>
<th>SIDE EFFECTS</th>
<th>NOTES</th>
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</thead>
<tbody>
<tr>
<td><strong>Topical Therapies &gt;&gt;</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>clotrimazole (Mycelex) tretches</td>
<td>10mg 4–5 times daily for 1–2 weeks</td>
<td>May cause altered taste and stomach upset</td>
<td>Suck slowly; do not chew or swallow whole</td>
</tr>
<tr>
<td>nystatin (Mycostatin) pastille</td>
<td>1–2 pastilles 4–5 times daily</td>
<td>May cause irritation in the mouth; nausea</td>
<td>Suck slowly; do not chew or swallow whole</td>
</tr>
<tr>
<td>nystatin (Mycostatin) oral suspension</td>
<td>5ml 4 times daily for 7–14 days</td>
<td>May cause stomach upset</td>
<td>Swish around mouth before swallowing</td>
</tr>
<tr>
<td><strong>Systemic Therapies &gt;&gt;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ketoconazole (Nizoral)</td>
<td>200mg a day, 7–14 days;</td>
<td>Nausea, vomiting, stomach</td>
<td>Monitor liver function; take with food</td>
</tr>
<tr>
<td>itraconazole (Sporanox)</td>
<td>100 mg a day, 7–14 days;</td>
<td>Nausea, vomiting, stomach</td>
<td>Monitor liver function; take with food</td>
</tr>
<tr>
<td>fluconazole (Diflucan)</td>
<td>200mg a day, 7–14 days;</td>
<td>Nausea, vomiting, stomach</td>
<td>Monitor liver function</td>
</tr>
<tr>
<td>AmB (Fungizone) AmB lipid complex (Abelcet)</td>
<td>100mg a day 4 times daily (oral suspension); 0.5mg/kg a day, 14–21 days (IV)*</td>
<td>For intravenous form: kidney toxicity, electrolyte losses, fever, chills, sweats</td>
<td>Swish around mouth before swallowing; monitor kidney function</td>
</tr>
<tr>
<td><strong>Other Therapy &gt;&gt;</strong></td>
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<tr>
<td>gentian violet (1% solution in water)</td>
<td>Applied to affected areas twice a day for 3 days</td>
<td>May cause swelling</td>
<td>Available over the counter; may be useful for recurrent infections when applied every 7 days for 1 month; messy application</td>
</tr>
</tbody>
</table>

* Esophageal candidiasis