

Disease of the Day 11

Candidiasis

Canididiasis

✓ Causative agent

- *Candida albicans*
 - ↳ Kingdom Fungi
 - ↳ Dimorphic fungi (yeast)
 - ↳ Deuteromycota (fungi imperfecti)
- Other *Candida* species (asexual non-pigmented yeast)
 - ↳ *C. tropicalis*
 - ↳ *C. parapsilosis*
 - ↳ *C. glabrata*

Types of Candidiasis

✓ Mucocutaneous

- Yeast infection (vulvovaginitis)
 - ↳ STD
 - ↳ Men are usually asymptomatic
- Oral Candidiasis (thrush)
 - ↳ Early sign of AIDS

✓ Onychiamycoses (nail infection)

✓ Candidemia (fungemia) - systemic infection

✓ (moniliasis) Old term

Predisposing conditions

✓ Ubiquitous (Normal flora: GI tract, mouth, vagina)

- AIDS
 - ↳ CD4 count less than 400 cell/ μ l
- Diabetes
- Oral contraceptives
- Tight synthetic clothing
- Prolonged use of antibiotics
- Leukemia
- Prostheses
- Organ transplants

Signs and symptoms

✓ Vaginal candidiasis

- Itching, burning internal pain, white cheesy discharge, reddening and swelling of vaginal tissues

✓ Oral thrush

- Small white flecks to milk-like curds on the mucous membranes
- An inflamed base underneath the white splotches

Treatment

✓ Yeast infections

- Fluconazole
- Miconazole
- Clotrimazole
- Ketoconazole

✓ Oral thrush

- Fluconazole
- Clotrimazole troches
- Nystatin rinses
- Gentian violet

✓ Systemic

- Amphotericin B

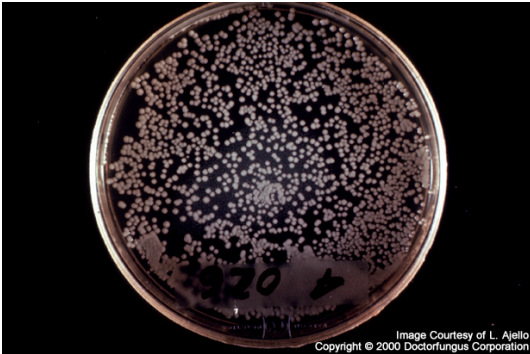
Prevention

- ✓ Maintain a good immune system
- ✓ Good hygiene with dry skin
- ✓ Prevent the predisposing conditions if possible

Candida albicans



Candida albicans on a plate



Chlamydiaspores



KOH stain of an oral thrush smear



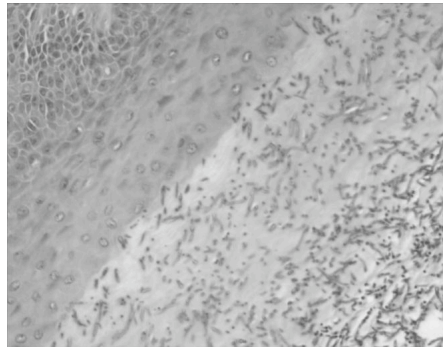
Oral candidiasis (thrush)



Oral thrush



Candida vaginitis in the mouse



Diaper rash



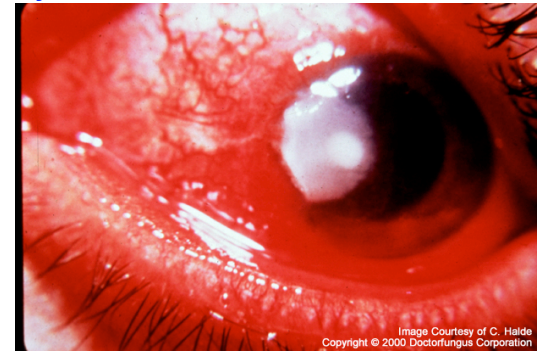
Onychomycosis (nail infection)



Onychomycosis (nail infection)



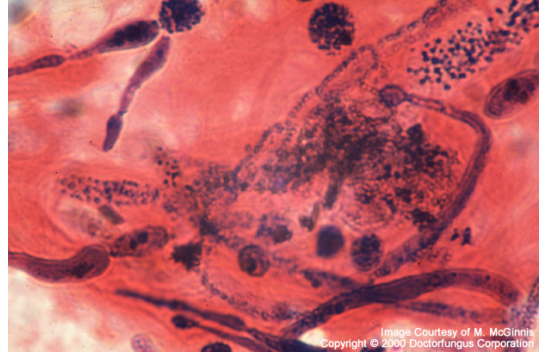
Eye infection



Skin and finger infection

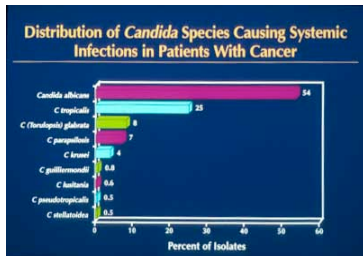
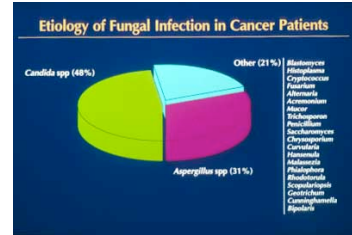


Heart tissue



Predisposing Factors for Opportunistic Fungal Infections

Underlying Condition	Immune Defect	Iatrogenic Factors
Leukemia	Granulocytopenia	Chemotherapy
Lymphoma	T-cell-mediated immunity	Immunosuppressive drugs
Bone marrow transplant		Broad-spectrum antibiotics
Organ transplant		Breaks in skin or mucosa
AIDS		Indwelling catheters
Primary immune disorders		Peritoneal dialysis
GI disease		Prolonged hospitalization
Diabetes		Antifungal prophylaxis (!)
Severe burns		
Premature birth		
IV drug abuse		



Fungal Infection in Cancer Patients: Crude Mortality by Infecting Agent

≥80%	50%–60%	No Deaths From
<i>Aspergillus</i>	<i>Candida</i> [†]	<i>Curvularia</i>
<i>Candida</i> [*]	<i>Alternaria</i>	<i>Hansenula</i>
<i>Fusarium</i>	<i>Penicillium</i>	<i>Malassezia</i>
<i>Mucor</i>		<i>Saccharomyces</i>
<i>Trichosporon</i>		

^{*} Systemic infection with or without fungemia.
[†] Candidemia alone, without tissue involvement.

