### MYCOTIC INFECTIONS

#### MYCOSES

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<td><strong>Subacute or chronic infection.</strong></td>
<td><strong>Normal intestinal flora in 40-80% of healthy people.</strong>&lt;br&gt;<strong>They also isolated from oral cavity, vagina &amp; rectal area.</strong></td>
<td><strong>A spectrum of diseases caused by Aspergillus species.</strong>&lt;br&gt;Their spores common in environment such as soil, food.</td>
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<td><strong>Capsulated yeast cryptococcus neoformans often found in bird droppings.</strong></td>
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<td><strong>A. fumigatus.</strong>&lt;br&gt;- Other species as: <strong>A. niger, A. flavus.</strong></td>
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#### Aetiology

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#### Clinical diseases

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<td><strong>1. Inhalation of dust contaminated by excreta of pigeons</strong>&lt;br&gt;<strong>2. Lung infection: primary symptomless granuloma mainly in immunocompromised host.</strong>&lt;br&gt;<strong>3. Skin, bone, LN affection.</strong>&lt;br&gt;<strong>4. Cryptococcal meningitis in which spread of organism occurs from infected sinuses.</strong></td>
<td><strong>1. Superficial lesion</strong>&lt;br&gt;<strong>2. Mucous membrane:</strong>&lt;br&gt;- Oral thrush: discrete white patches on mucosal surface.&lt;br&gt;- Vaginal thrush: white lesion on vulva, vagina and cervix.&lt;br&gt;<strong>3. Skin: Infection occurs in moist warm area as axilla, groin, submammary fold.</strong>&lt;br&gt;<strong>4. Nail: Infection of finger web, nail fold.</strong>&lt;br&gt;<strong>5. Chronic mucocutaneous (CMC) candidiasis.</strong>&lt;br&gt;<strong>6. Systemic lesion:</strong>&lt;br&gt;- Candidal endocarditis: follows heart valve surgery.&lt;br&gt;- Candidaemia.</td>
<td><strong>1. Superficial Aspergillosis:</strong>&lt;br&gt;Fungal colonization in:&lt;br&gt;- paranasal sinuses,&lt;br&gt;- external ear&lt;br&gt;- eye.&lt;br&gt;<strong>2. Respiratory disease:</strong>&lt;br&gt;- Bronchial asthma: following inhalation of spores.&lt;br&gt;- Broncho-pulmonary Aspergillosis: the hyphae occlude lumen of bronchioles.&lt;br&gt;- Aspergilloma: Called fungus ball occur on preexisting lung cavity e.g. TB.&lt;br&gt;<strong>3. Invasive Aspergillosis:</strong> Haematogenous spread from lung to other organs.</td>
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### Cryptococcosis

**Specimen:** CSF, biopsy material.

**CSF examination:**
1. Increased level of protein.
2. Decreased glucose level.
3. Increased leucocytic count with 90% lymphocytes.

**Microscopy:** India ink preparation show capsulated yeast cell in CSF and exudate.

**Culture & identification:** on SDA: creamy, white, mucoid colonies after 1-2 days.

*C. neoformans* is urease positive.

**Serological test:**
- Detection of Ag in CSF by latex agglutination is useful.
- Detection of Abs.

**Treatment**
- Fluconazole
- 5-Flucytosin

### Candidiasis

**Specimen:** Differ according to site of infection.

**Direct microscopy:**
- Wet film in KOH or
- Gram stained smear.
- They are Gram positive budding yeast cell.

**Identification:** *C. albicans* is differentiated from other species:

**Germ tube formation:** Candida is grown on human serum at 37°C for 3 hours, a wet KOH film show filamentous outgrowth.

**Serology:** Ag detection: ELISA, RIA

**Skin test:** Type IV hypersensitivity.

**PCR.**

**Treatment**
- Fluconazole
- Itraconazole
- Amphotericin-B
- Caspofungin
- Voriconazole
- Itraconazole

### Aspergillosis

**Specimen:** Differs according to site of infection.

**Direct microscopy:** KOH mount of sample shows septated mycelium with characteristic dichotomous branching.

**Culture on SDA:** Velvety to powdery surface colored growth.

**Serology:** for detection of antibodies or antigen.

**Skin test**

### Systemic Mycoses (Endemic Mycoses)

- These are a group of systemic diseases caused by pathogenic dimorphic fungi present in soil.
- **Definite** geographical distribution mainly in North and South America

1. *Histoplasma capsulatum*
2. *Blastomyces dermatitidis*
3. *Coccidioides immitis*
4. *Paracoccidiodes brasiliensis*

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**Dimorphic fungi**

- **Environment:** Routine culture media (SDA) 25-35°C—Mold form
- **Tissue/Enriched media (BH) 35-37°C—Yeast form**