

Candidosis

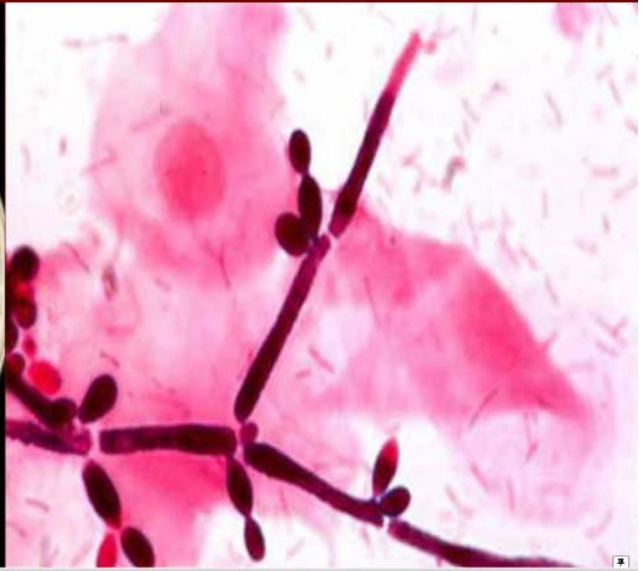
- Candidiasis also called as Monoliasis,
- Can infect Skin, Mucosa, or Internal Organs
- Called as Yeast Like fungus
- Currently important cause of opportunistic fungal infection.



What are Candida

- Normal flora
 - Exist in Mouth, Gastrointestinal tract.
 - Vagina, skin in 20 % of normal Individuals.
 - Colonization increases with age, in pregnancy
 - Hospitalization
 - Immunity Depends on T lymphocytes, and effective Immunity
- Important etiological agent presenting as opportunistic infection in Diabetes and HIV patients

Macroscopic and Microscopic appearance of *Candida* spp



Systemic Candidosis

- Occurs in Patients who carry more yeasts in Mouth, Gastrointestinal system,
- Predisposed with Individuals with
 - 1 On antibiotic or/and Steroid Therapy
 - 2 Immunosuppressed
 - 3 Recipients with organ transplantation
 - 4 **Infancy – Old age – Pregnancy**
 - ***On Antibiotic therapy***
 - 5 Indisposed with trauma Occluding lesions,
 - 6 Immuno Supression, Major event in AIDS patients
 - 7 Diabetes mellitis.
 - 8 Zink and iron deficiencies

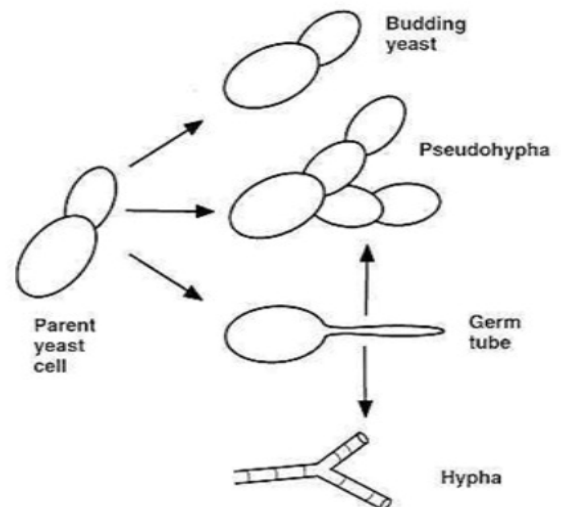
Pathogenesis and Pathology

- Mucosal infections occur superficially –Discrete white patches on mucosal surface.
- Can affect tongue
- Infants and old persons are affected
- In Immune compromised /AIDS. Oral candidosis is commonly seen
- Vaginal Candidosis causes itching soreness white discharge, White colored lesions,
- Pregnancy in advanced stage,
- Majority experience one episode in a life time

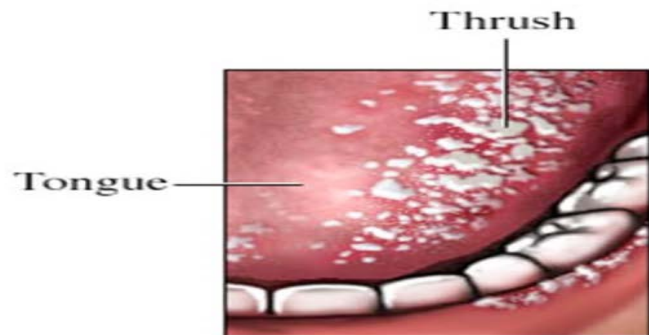
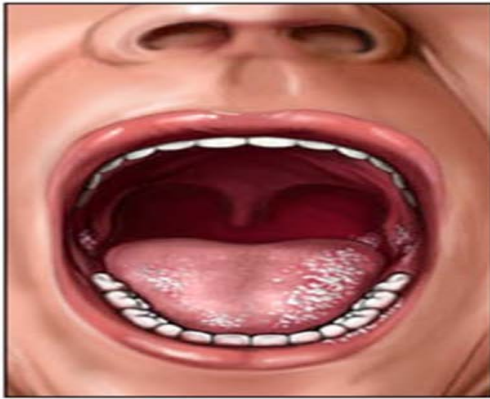
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Important species of Candida in Human infections

- C.albicans
- C.tropicalis
- C.glabrata
- C.Krusei



Oral Thrush produced by *Candida albicans*



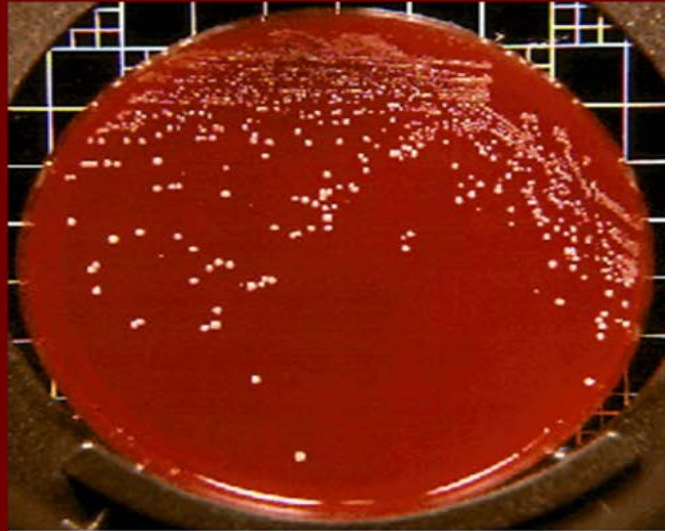
Laboratory Diagnosis

- Skin scrapings,
- Mucosal scrapping,
- Vaginal secretions
- Culturing Blood and other body fluids,
- *Observations*

Microscopic observation after Gram staining. Gram + yeast cells.

Culturing

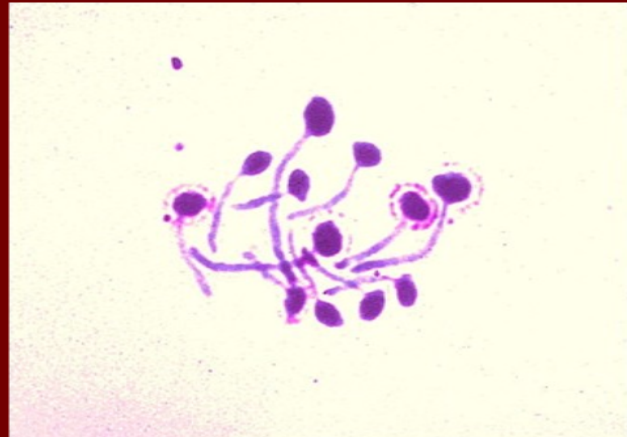
- Easier to culture on Sabouraud's dextrose agar
- Culturing in routine Blood culture Media
- Culturing urine - A semiquantitative estimations are essential Colony forming units essential in attributing infections



Candida albicans
Sheep blood trypticase soy (STSA) agar

Easier Identification of species as C.albicans

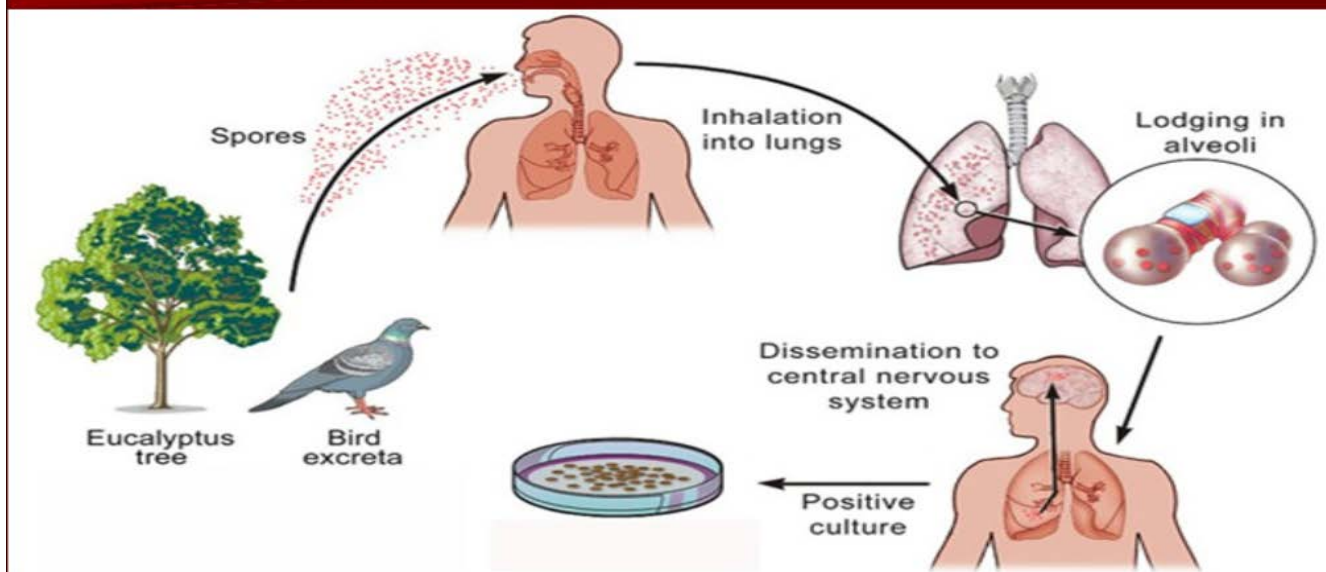
- ***Germ tube test*** identifies *C.albicans* from other *Candida* species.
- Majority of Diagnostic laboratories depend on this test.



Pigeons and Red river gum trees harbor the Cryptococcus in nature



Life cycle of C. neoformans



Pathogenesis

- Enters through lungs - inhalation of Basidiospores of *C. neoformans*
- Enters deep into lungs, Men acquires more infections, and women less infected.
- Self limiting in most cases,
- Pulmonary infections can occur.
- Present as discrete nodules - Cryptococcoma.

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Pathogenesis

- Can infect normal humans
- Abnormalities of T lymphocyte function aggravates, the clinical manifestations.
- In AIDS 3- 20% develop Cryptococcosis.
- Present with Chronic meningitis , Meningo encephalitis
- Manifest with – head ache low grade fever,
- Visual abnormalities ,Coma – fatal
- Treatment reduces the morbidity and cure in non immuno suppressed expected.

Morphology

- A true yeast
- Round 4 – 10 microns
- Surrounded by Mucopolysaccharide capsule.
- Thick in vivo
- Negative staining with India Ink and Nigrosin
- 60% of the infected prove positive by India Ink preparation on examination of CSF
- KoH preparations in Sputum and other tissues,
- PAS and Mucicarmine staining helps confirmation.

Culturing

- CSF -Culturing on Sabouraud's agar, and incubated at 37^o c for upto to 3 weeks
- Cultures appear as Creamy, white, yellow Brown colored
Simple urease test helps in confirming the isolate.



Laboratory Diagnosis.

- CSF – Microscopic observation under India Ink preparation
- Direct microscopy - Gram staining
- Cultures on Sabouraud dextrose agar,
- Serological tests for detection of Capsular antigen
- **CSF findings mimic like Tuberculosis**
- IN CSF - latex test for detection of Antigen
- Blood cultures,
- ELISA