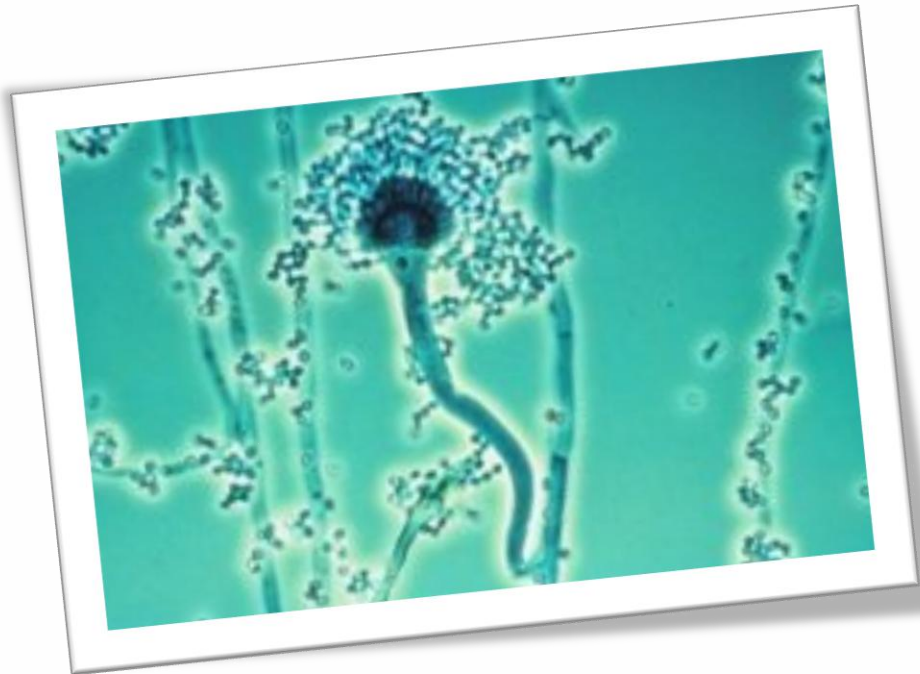


Objectives

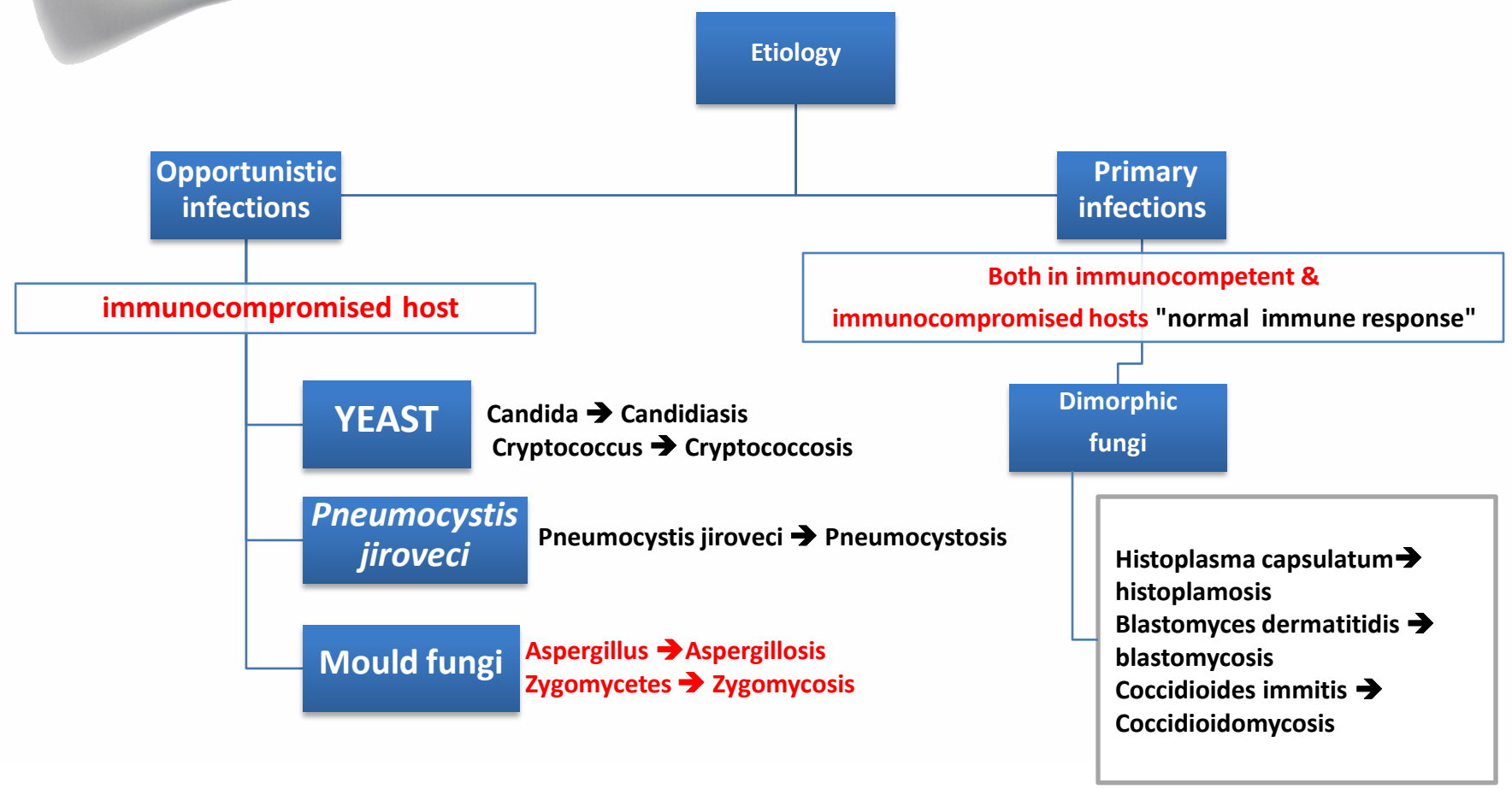
Objectives

Were not given





Mind map (Respiratory Fungal Infections)

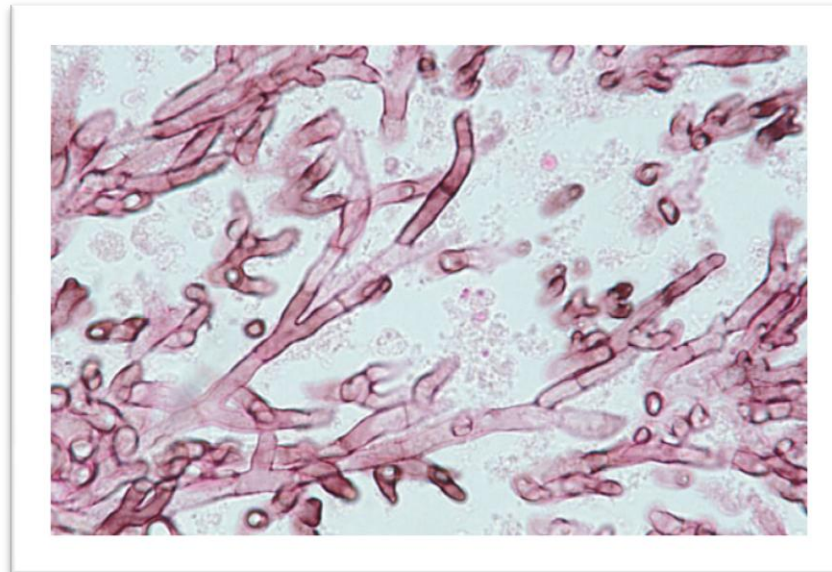


Aspergillosis

Aspergillosis is a spectrum of diseases caused by members of the genus *Aspergillus*.

-The type of disease and severity depends upon the physiologic state of the host and the species of *Aspergillus* causing the disease.

-It may colonize **without causing a disease**



Classification of Aspergillosis

	Chronic aspergillosis >3 months	Invasive aspergillosis	Allergic aspergillosis
Pulmonary	Aspergilloma of lung "fungal ball"	Invasive pulmonary aspergillosis AIDS patient	-Allergic bronchopulmonary Aspergillosis (ABPA)
Sinusitis	sinusitis aspergilloma chronic invasive sinusitis	Acute invasive Aspergillus sinusitis	-Allergic Aspergillus sinusitis
	Aspergilloma of lung: Develops in pre-existing lung cavity "Chronic cavitory pulmonary"	immunocompromised host AIDS patient	in people with a History of asthma

Chronic pulmonary Aspergillosis "Aspergilloma"	Cough, hemoptysis, variable fever Radiology will show mass in the lung "air crescent"
Invasive pulmonary Aspergillosis	Cough , hemoptysis, Fever, Pneumonia, Leukocytosis Radiology will show lesions with halo sign
Allergic bronchopulmonary (ABPA)	History of Asthma, Fever, Bronchial obstruction, Eosinophilia "↑IgE" Wheezing +/- Skin test reactivity to <i>Aspergillus</i> Serum antibodies to <i>Aspergillus</i> Pulmonary infiltrates

Diagnosis of pulmonary Aspergillosis:

1) Specimen:

Sputum, BAL (Bronchoalveolar lavage), Lung biopsy, Blood.

2) Lab Investigations (Direct Microscopy):

Grecothmethenamine silver stain (GMS) will show fungal septate hyphae with Dichotomous branching

3) Culture:

On SDA "Sabouraud dextrose agar" bacterial media is insufficient

4) Serology :

A) Test for Antibody

I.D (Immunodiffusion) Test

B) Test for Antigen

EELISA test for galactomannan Antigen

Treatment of aspergillosis

Voriconazole

AmphotericinB

Fungal Sinusitis

Etiology:

AspergillusFlavus

Clinical Features

➤ *In immunocompetent (normal immune response):*

Allergic fungal sinusitis.

Nasal polyps, headaches, nasal obstruction.

➤ *In immunocompromised (defective immune response):*

Fungal sinusitis is chronic and invasive

Complications: infection may spread to the eyes (cause blindness) → brain (usually fatal) and becomes rhinocerebralaspergillosis

Diagnosis:

➤ Histology:

will appear as septate fungal hyphae

➤ Culture:

take tissue and mucin (mucus) samples

- If tissue is negative, mucus is positive (contains eosinophils) → allergic fungal sinusitis
- If tissue is positive, mucus is negative → invasive fungal sinusitis

➤ Measurement of IgE level and RAST test

➤ Clinical and radiology

Treatment:

depends on the type and severity of the disease and the immunological status of the patient

➤ **Allergic sinusitis:** remove polyps and give the patient steroids

➤ **Chronic and acute Invasive sinusitis:** Fungal therapy to stop the spread and surgically remove all the infected tissue

Zygomycosis

Classification:

- Pulmonary zygomycosis
- Rhinocerebralzygomycosis

Etiology:

Zygomycetes (***Non-septate hyphae***)

Example: ***Rhizopus***, Mucor, Absidia

Risk factors:

Diabetic ketoacidosis

Complications:

- ✓ Angioinvasion, Thrombotic invasion of blood vessels
- ✓ Pulmonary infarctions and hemorrhage
- ✓ Rapid evolving clinical course
- ✓ High mortality

Pulmonary zygomycosis

Clinical features:

- ✓ Acute
- ✓ Fever
- ✓ pulmonary infiltrates that do not respond to antibacterial therapy.
- ✓ Consolidation , nodules, cavitation, pleural effusion
- ✓ hemoptysis (coughing up of blood)

Diagnosis:

- ✓ Specimen
- ✓ Direct microscopy
- ✓ Serology is not available

Treatment:

Drug of choice: ***Amphotericin B***

Surgery is needed

Questions

A 25 year old man came to the doctor with fever and wheezing and a history of asthma and lab test shows elevated IgE. what is most likely diagnosis?

- A. Chronic pulmonary Aspergillosis
- B. Allergic bronchopulmonary (ABPA)
- C. Invasive pulmonary Aspergillosis

What treats aspergillosis?

- A. penicillin
- B. Voriconazole

What increases the risk of getting a fungal infection?

- A. 1. Diabetes
- B. 2. Use of steroid
- C. 3. Chemotherapy
- D. 4. All of the above

The route for respiratory fungal infection

- A. 1. Inhalation
- B. 2. Through blood
- C. 3. Through lymphatic system
- D. 4. Pulmonary aspiration
- E. 5. All of the above

Questions

The most common risk factor for zygomycosis is

- A. Diabetic ketoacidosis
- B. Granulocytopenia
- C. Corticosteroid therapy
- D. Malignancy

The best treatment for zygomycosis is

- A. amphotericin B
- B. penicillin
- C. Posaconazole
- D. Itraconazole

A patient presented with fungal sinusitis and upon diagnosis, the histological appearance showed septate fungal hyphae, the causative agent is:

- A. Aspergillusflavus
- B. Rhizopus
- C. Candida
- D. Cryptococcus neoformans