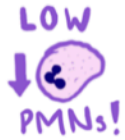
Invasive Pulmonary Aspergillosis

Epidemiology

SEVERE immunodeficiency OR neutropenia

- Hematopoietic stem cell transplants
- Hematologic malignancy
- Solid organ transplant
- High dose glucocorticoids
- Primary Immunodeficiencies



Presentation

- **Fever**
- **Hemoptysis**
- **Pleuritic chest pain**
- Cough
- Shortness of breath

Differential Diagnosis

Aspergillus:

- Septate hyphae
- Acute angle branching

Mucormycosis:

- Non-septate hyphae
- Right angle branching

Pathophysiology

- **Inhalation** of *Aspergillus sp.* spores/ conidia
  - Spores and conidia **ubiquitous** in soil/ environment
- *Aspergillus sp.* can **cross tissue planes**
  - Blood vessel erosions → hemoptysis
- Organisms:
  - Most common: ***Aspergillus fumigatus***
  - Also, *Aspergillus flavus, Aspergillus terreus*

Diagnosis and Treatment

Isolation of *Aspergillus sp.* is NOT sufficient
Why? Aspergillus is so prevalent in the environment.
Diagnosis depends on **finding the organism AND the right clinical context**.

Direct Isolation of Aspergillus

- Biopsy
- BAL
- Sputum Sample
- **Culture + histopathologic evidence of tissue invasion** most suggestive of invasive dz

Indirect Markers of Aspergillus

- ***Galactomannan antigen***: constituent of Aspergillus cell wall
- ***Beta-D-glucan assay***: common in multiple fungal infections, not specific to Aspergillus

Imaging

- ***Chest CT w/ Halo Sign***-
  - pulmonary nodules surrounded by GGOs

Treatment

- 1st-Line Treatment: **Voriconazole**