**PULMONARY ASPERGILLOSIS**


**Take home points:**

1. There are four types of pulmonary aspergillosis: aspergilloma, chronic necrotizing aspergillosis, invasive pulmonary aspergillosis, and allergic bronchopulmonary aspergillosis (ABPA).
2. Think of invasive pulmonary aspergillosis in the neutropenic, BMT, or solid organ transplant patient who develops hemoptysis, pleuritic chest pain, and has a CT chest with multiple nodules, pulmonary infarction, and pleural-based infiltrates.

**Aspergilloma (a.k.a. “fungus ball”):**
- Develops in pre-existing lung cavity (most commonly from TB).
- Can be asymptomatic; if symptomatic, most common presentation is hemoptysis.
- Look for cavity with “fungus ball” on chest CT; fungus ball is gravity dependent.
- Antifungals not necessary if asymptomatic; if symptomatic, difficult to treat given walled off cavity.

**Chronic necrotizing aspergillosis (semi-invasive aspergillosis):**
- Develops in moderately immunocompromised hosts (e.g. COPD/chronic lung disease on steroids).
- Progresses over months to years. CXR shows infiltrate in upper lobes or superior segments of lower lobes.
- Treat with IV ampho or itraconazole (or newer azole agents).

**Invasive pulmonary aspergillosis:**
- Develops in BMT (32%), hematologic malignancy (29%), solid organ transplantation (9%), and HIV (8%).
- Presents with pleuritic CP and hemoptysis (from pulmonary infarction due to angioinvasive quality of aspergillus).
- On CT look for multiple nodules, the “halo sign” (hemorrhage surrounding a nodule), the “crescent sign” (necrosis around a nodule), pleural-based infiltrates.
- Treatment difficult, high mortality. Use ampho or voriconazole and reverse underlying immunosuppression if possible.

**Allergic bronchopulmonary aspergillosis (ABPA):**
- Develops most commonly in asthmatics or CF due to hypersensitivity reaction to aspergillus antigens.
- Usually presents with refractory wheezing, brown mucus plugs, pleuritic chest pain, fever, eosinophilia.
- Look for fleeting upper-lobe infiltrates on CXR. Can lead to bronchiectasis and pulmonary fibrosis.
- Treat with corticosteroids to suppress the immunologic response to aspergillus antigens.
- Antifungal treatment with azoles has also been shown to be therapeutic in these patients.

The clinical spectrum of conditions resulting from the inhalation of Aspergillus spores:

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ICH = immunocompromised host; IPA = invasive pulmonary aspergillosis; ABPA = allergic bronchopulmonary aspergillosis