**Isolated Aspergilloma in a Patient with Mild COPD**

Julia Regino PA-S, Sheree Piperidis PA-C
Quinnipiac University Physician Assistant Program

**Introduction**
- Aspergillus is a fungal species found in decomposing plant materials that infects humans through inhalation of spores.
- Chronic pulmonary aspergillosis (CPA) is typically seen in individuals with some underlying pulmonary disease and has been underdiagnosed due to nonspecific manifestations of disease.
- Tuberculosis (TB) is the most common underlying condition in those with CPA. Table 1 lists other associated conditions.
- Prevalence of CPA is <1 in 100,000 in the United States in cases associated with TB.
- CPA typically presents within multiple cavities. Less common presentations are Aspergillus nodules and simple aspergillomas.
- Simple aspergilloma is more likely to be asymptomatic than other forms of CPA.
- Aspergillomas mimic other lesions on imaging and can only be confirmed through biopsy. Figure 1 shows an example history.
- Some symptoms of CPA include hemoptysis, cough, fatigue, and weight loss.
- In a retrospective study including 60 patients, incidence of life-threatening hemoptysis was similar between asymptomatic and symptomatic groups and could not be predicted by other means.
- Complications of CPA include progression to fatal hemorrhage, pulmonary fibrosis, or invasive pulmonary aspergillosis.
- CPA may be considered a high mortality disease.

**Objective Findings**
- Physical exam:
  - Vital signs: BP 155/78 mmHg, HR 88 bpm, Temp 98.7°F, SpO2 96% on room air
  - General: A&O 3x3, no acute distress
  - Respiratory: breathing non-labored, lung sounds present bilaterally and clear on auscultation
  - Heart: S1 S2 present, no murmurs/hoarseness
  - Extremities: no edema, full active ROM, strength 5/5
  - Labs:
    - WBC 7,000 per mm³
    - Hgb/Hct 11.7/37%

**Case Description**

**Figure 2. Course of illness**

- Incidental finding on annual lung cancer screening program CT imaging
- Biopsy findings pointed to fungal mass
- 6-month course of oral voriconazole
- Repeat imaging showed shrunken, stable mass
- Surgical intervention

**Differential Diagnosis**
- Inflammatory lesion
- Infection
- Malignancy

**Diagnostic Testing**
- Low dose CT scan showed right side lung nodule (1.8 cm x 1.3 cm) with inflammation (Figure 3)
- PET scan showed avidity of nodule
- CT-guided biopsy of nodule showed fungal hyphae
- Pulmonary Function Testing showed mild air trapping
  - FEV1/FVC = 69%
- 3 month follow-up CT showed shrunken nodule (1.2 cm x 0.8 cm)
- 6 month follow-up CT showed stable nodule without diffuse inflammation

**Table 1. Associated underlying pulmonary disease**

| Tuberculosis | Non-tuberculosis mycobacterial infection | COPD (emphysema type) | Pneumothorax | Previous lung cancer | Pneumonia | Allergic bronchopulmonary aspergillosis with or without asthma |

**Outcome**
- A 6-month course of voriconazole 200mg PO BID did not eradicate the mass.
- Patient was determined to be a good candidate for thoracic surgery via pulmonary function testing.
- Underwent a video-assisted right upper lobe wedge resection with needle localization and intra-operative IV voriconazole.
- Pathology showed an aspergilloma with clear margins.
- Patient discharged from hospital on POD/2 without oral antifungal therapy.

**Discussion**
- General recommendation for initial therapy of CPA is 4-6 months of oral antifungal therapy with follow-up imaging every 3 months.
- Recurrence is common following discontinuation of medical therapy.
- Oral itraconazole and voriconazole are the preferred agents with associated side effects of hepatitis, neuropathy, GI upset.
- No current research to compare efficacy of the two drugs or efficacy in different CPA manifestations.
- The patient had suboptimal response to 6 months of oral antifungals and the decision was made to pursue surgical intervention.
- Surgical resection is an often curative option for those who are candidates with low risk of mortality and recurrence with single aspergilloma.
- Intra-operative and postoperative antifungal use may be considered in the setting of fungal spillage but is poorly defined in the guidelines.
- In a study following 60 patients with aspergilloma, medical therapy was mostly non-curative and early surgical resection had better outcomes than resection following a period of disease progression.

**Conclusion**
- CPA is usually seen in patients with underlying pulmonary disease.
- Prevalence of CPA is poorly defined despite the dangerous sequelae of the illness.
- Current literature does not sufficiently investigate different management options for varied manifestations of CPA.
- Surgical resection is a viable, and possibly superior, management option in patients with single aspergilloma.

**References**