A Man From Nepal with a Cavitary Lung Lesion

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1. History and Physical

- Patient was a healthy 26-year-old man who presented to the emergency department with 6-week history of productive cough with occasional blood, subjective fever, and night sweats.
- He was seen in outpatient facilities 3 times for these symptoms and prescribed oral antibiotics for pneumonia with no relief.
- Patient was born in Nepal and moved to Ohio 7 years ago. Moved to Pennsylvania 2 months ago.
- No known exposure to tuberculosis.
- No history of smoking.
- Worked in a large warehouse as a forklift operator.
- Vital signs and physical exam were normal.

2. Radiography:

- Chest radiograph revealed consolidation in the superior region of the right lower lobe (Figure 1).
- CT of the chest showed small areas of cavitation within the right lower lobe consolidation (Figure 2).

3. Clinical Course Prior to Diagnosis

- Sputum bacterial cultures were negative.
- Sputum fungal culture had negative smear.
- Three early morning sputum AFB smears were negative.
- Sputum sample sent for nucleic acid amplification for *M. tuberculosis* was negative.

4. Diagnostic Testing

- Bronchoscopy revealed an occlusive endobronchial lesion which was biopsied for histopathology and culture. By appearance on bronchoscopy, neoplasm was suspected.
- GMS stain of endobronchial lesion showed broad-based budding yeast (Figure 3). The morphology was consistent with *Blastomyces* species.
- Antigen for *Blastomyces* was positive in serum and urine.
- Fungal cultures from sputum and bronchial aspirate grew *Blastomyces dermatitidis*.

5. Discussion

- *Blastomyces* is a dimorphic fungus endemic to North America particularly in areas bordering the Mississippi and Ohio River basins, Great Lakes, and St. Lawrence River.[1]
- It characteristically reproduces by single broad-based budding.
- Most commonly, *Blastomyces* infects the lungs (91%) and can cause an acute or chronic pneumonia.[2] It can also affect skin (18%), bone (4%), genitourinary tract (2%), and central nervous system (1%).
- Severe and disseminated disease is more common in immunocompromised patients.[3]
- *Blastomyces* infection is highly variable and can mimic other diseases.
- Diagnosis is confirmed with with identification of *Blastomyces* in culture, direct visualization in a clinical specimen, histopathology, or antigen detection in urine or serum.[1,4]

6. Discussion continued

- Severe pulmonary disease is treated with amphotericin B followed by itraconazole once improvement is noted.[5]
- In less severe disease, patients can be treated with itraconazole as initial therapy.
- Itraconazole serum concentration should be monitored.
- Duration of treatment is 6 to 12 months.

7. Case Follow Up

- Patient started itraconazole for pulmonary blastomycosis. At 2 months follow up, his symptoms had resolved.

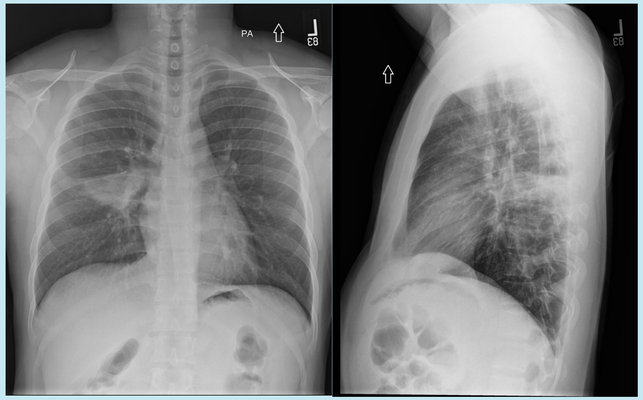

Figure 1: Chest radiograph

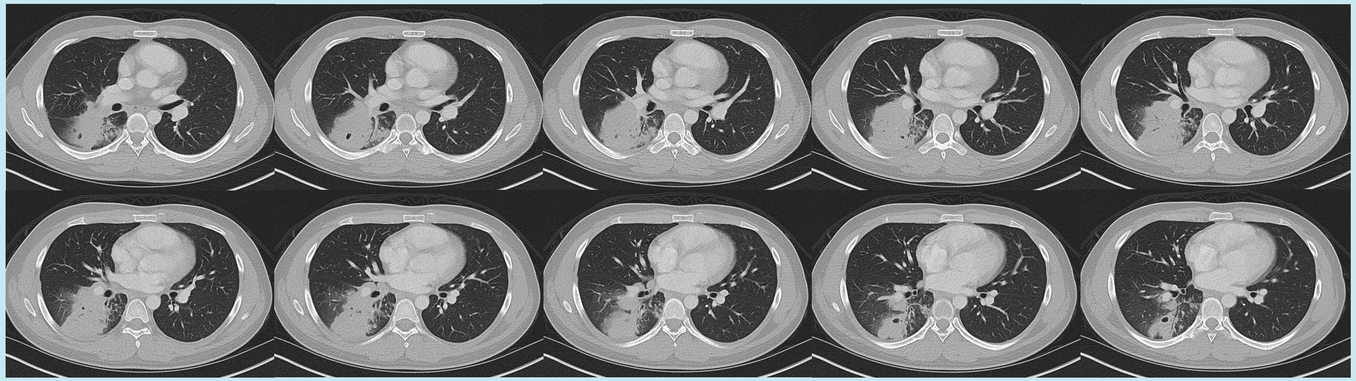

Figure 2: Chest CT

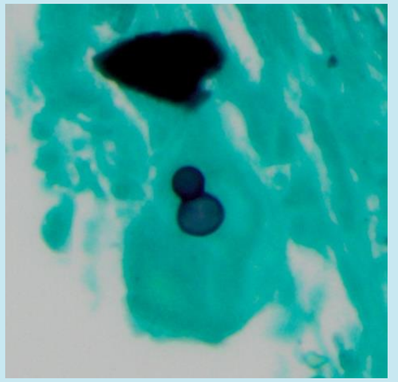

Figure 3: GMS stain of endobronchial lesion

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