

Cryptococcus Pneumonia Masquerading as Primary Lung Cancer

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ABSTRACT

Cryptococcus pneumonia (CP) is recognized as an opportunistic infection in immunocompromised individuals. However, it can afflict those that are immunocompetent. We describe a case of CP that presented as a large mass in the chest that was thought to be primary lung cancer. We then provide a brief literary review of CP in immunocompetent hosts.

KEYWORDS

Cryptococcus pneumonia, Fungal infections, Lung cancer.

Introduction

Cryptococcus pneumonia (CP) has a variety of radiographic presentations. Herein we share and describe an interesting radiographic case of immunocompetent CP where initial diagnostic momentum suggested primary lung malignancy.

Case

A 47-year-old female with a 15-pack year smoking history presented with subacute chest pain radiating to her back along her left side. CT Chest revealed a large left pleural based upper lobe mass measuring in the axial plane with lymphadenopathy at stations 4L, 7, and 11L (Image 1 and 2). Differential diagnosis included neoplastic process versus atypical infection.

Endobronchial ultrasound-guided biopsies of stations 4L, 7, and 11L were negative for malignancy. A percutaneous core needle biopsy of the left upper lobe mass was done thereafter. Pathology for the core biopsy was positive for cryptococcus gattii (Image 3, 4, and 5). Serum cryptococcus antigen was positive with a titer of 1:5120. MRI Brain was normal, lumbar puncture was

positive for cryptococcus antigen. Work up for HIV, tuberculosis, coccidiomycosis, blastomycosis, histoplasmosis, and aspergillosis were all negative.

Discussion

Cryptococcosis pneumonia is an uncommon infection worldwide typically due to inhalation of spores from contaminated soil and bird droppings. It compromises 20% of all fungal infections, second to aspergillus [1]. Dissemination from the lungs to the CNS in immunocompetent hosts is exceedingly rare and thus routine lumbar puncture is not indicated. A case series of 166 patients demonstrated that serum titers greater than or equal to 1:512 had a high pretest probably for CNS invasion [2]. Radiographic features of CP include hilar or mediastinal lymphadenopathy with lobar infiltrates, or solitary or few well defined, non-calcified nodules that are typically pleural based [3,4]. A retrospective analysis of 76 immunocompetent patients with PC showed that most patients were less than 50 years of age and without preexisting lung disease [5].

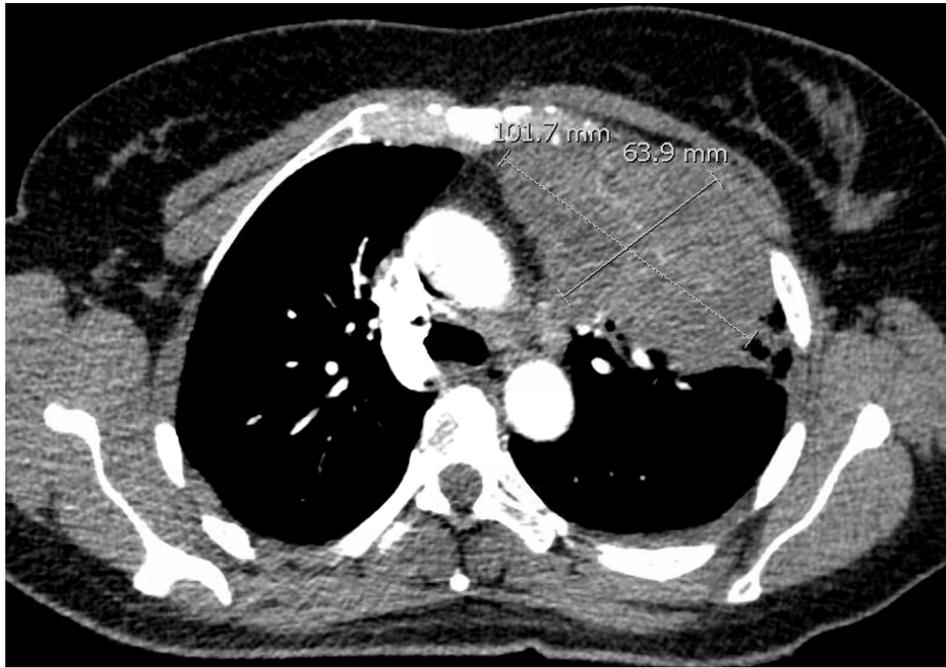


Image 1: Computed tomography axial image. Left upper lobe mass.

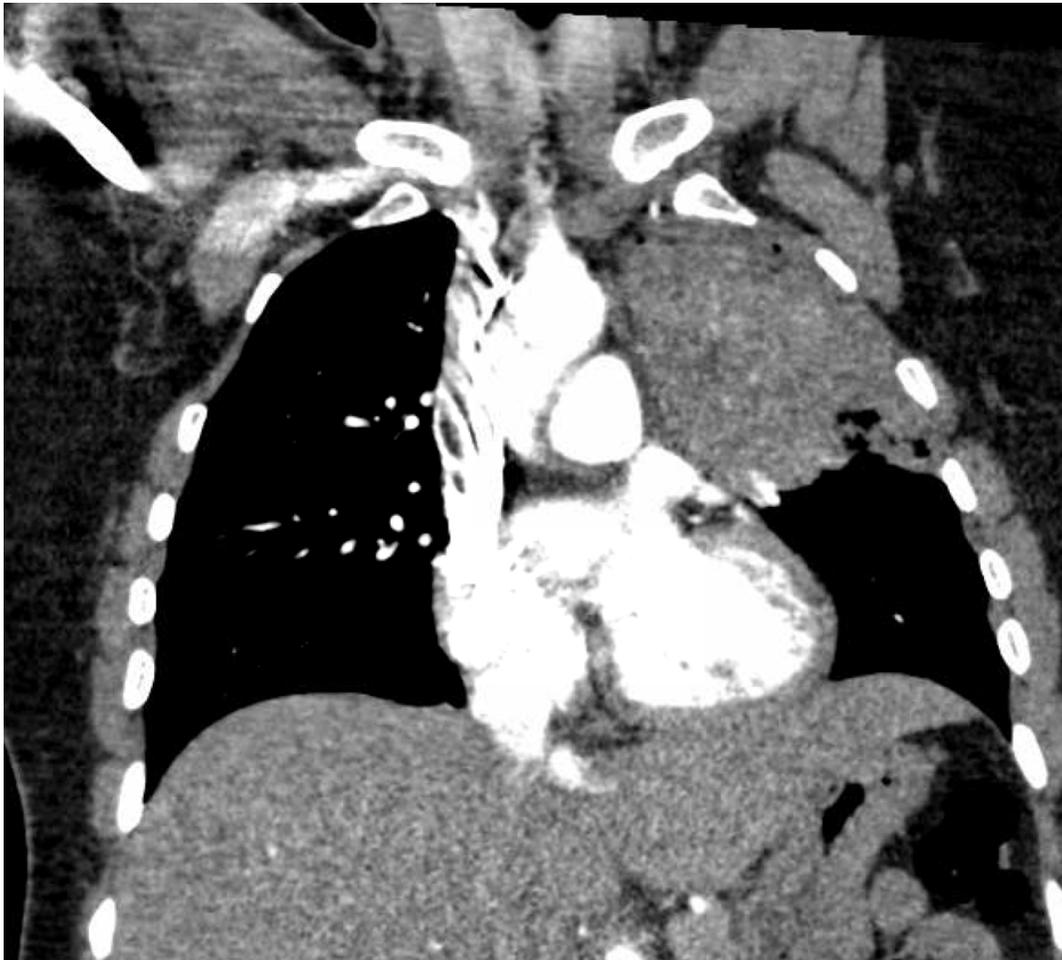


Image 2: Computed tomography coronal image. Left upper lobe mass.

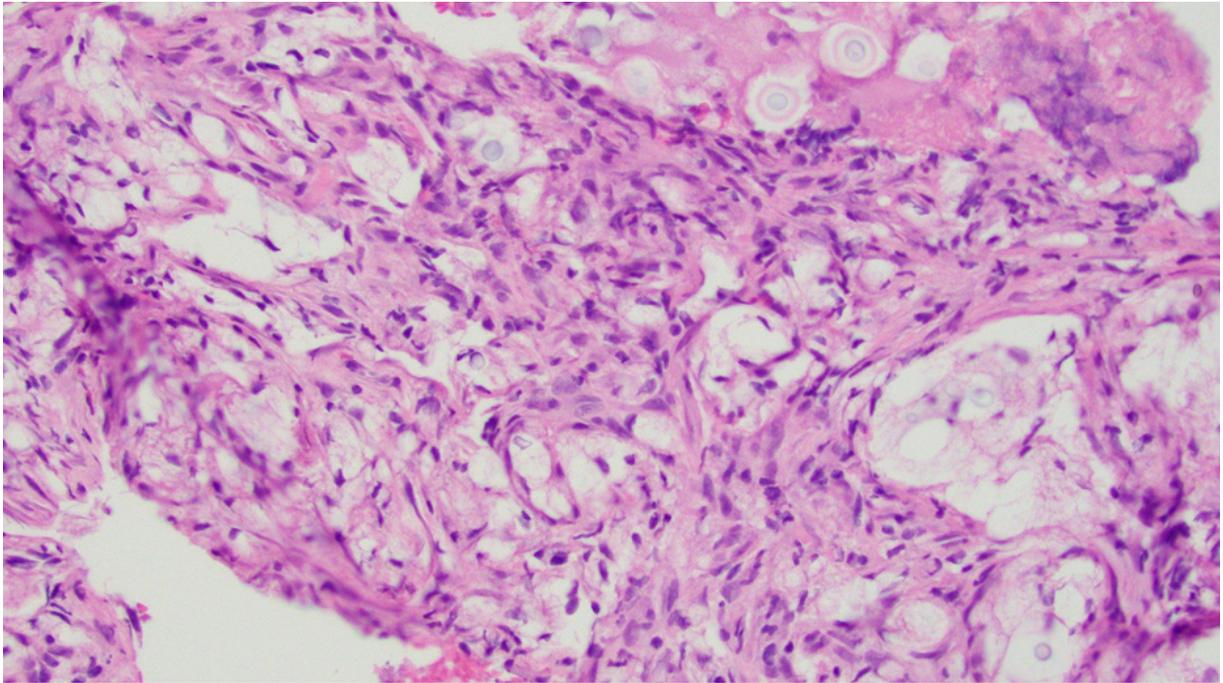


Image 3: H&E stain demonstrating lung parenchyma with cryptococcal organisms. The organisms appear as spherical yeast with a halo around the cells.

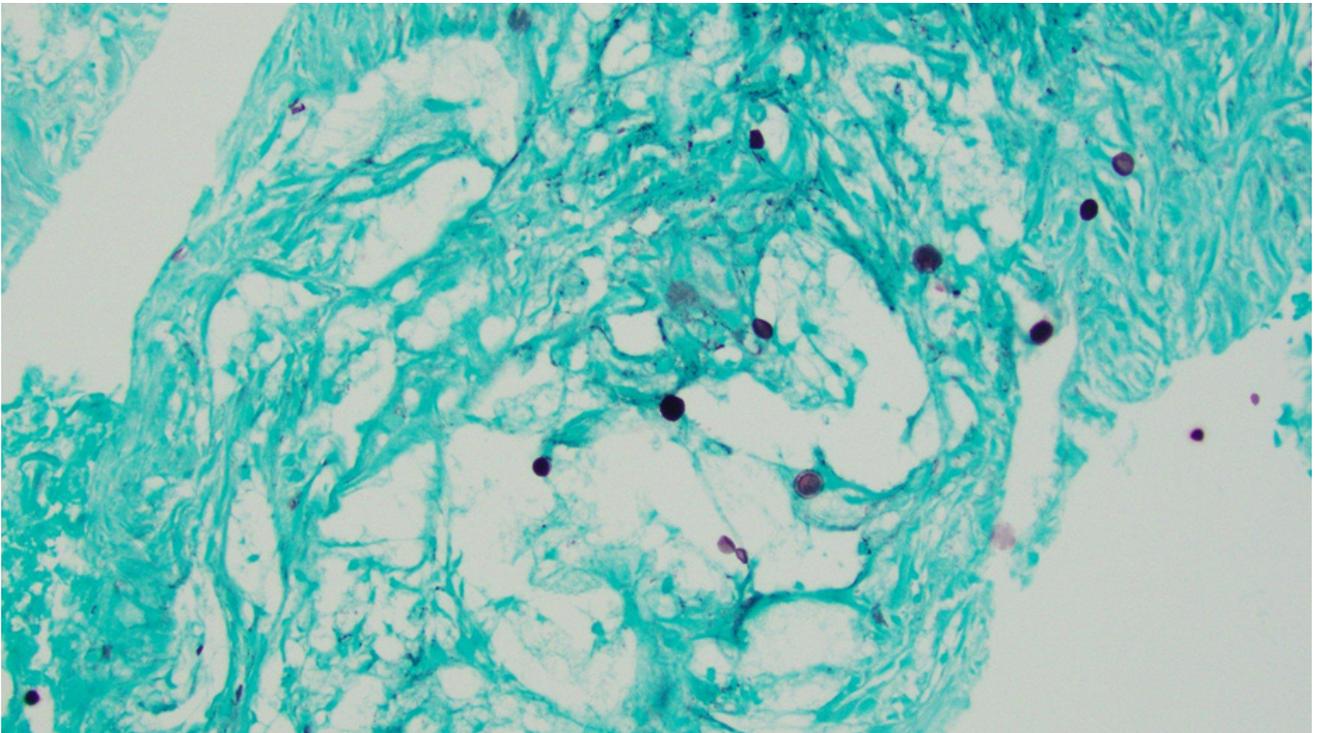


Image 4: GMS stain to highlight fungal organisms.

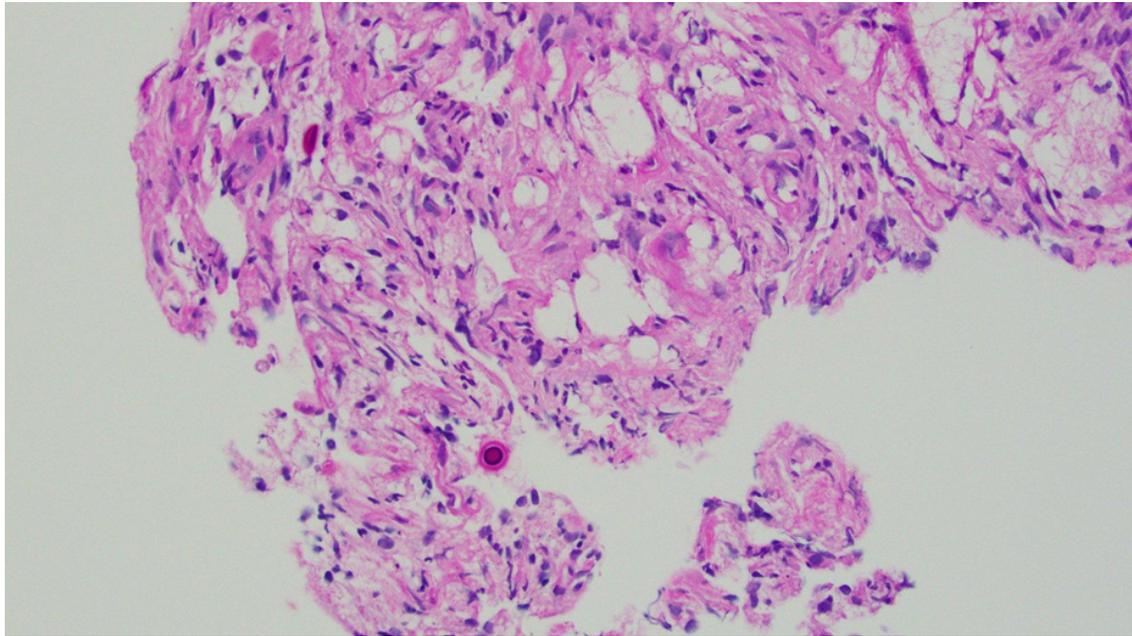


Image 5: PAS slide which stains the capsule of cryptococcus. Kindly note that the capsule-deficient form of cryptococcus neoformans exists.

Cases describe cryptococcal masses resulting in superior vena cava obstruction or Pancoast's syndrome, both of which were satisfactorily treated with lobectomy and antifungal therapy [6,7]. A case series exists where 3 of 7 patients with immunocompetent pulmonary cryptococcus required lobectomy. The 3 patients had masses measured at 12 cm, 3 cm, and 1.7 cm. The patient with a 1.7 cm mass had pulmonary hemorrhage and hemoptysis and thus urgently required resection [8].

Conclusion

Immunocompetent pulmonary cryptococcus is rare and has a variety of radiographic presentations. Though malignancy is on the differential given the radiographic findings, it is important to recognize atypical infections can present this way. Investigating for CNS invasion is not typically indicated but when serum titers are extremely elevated it is prudent to pursue lumbar puncture.

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