Case Report

Pulmonary cryptococcosis: An unusual presentation

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ABSTRACT

Cryptococcal infection of the lung is usually asymptomatic in immunocompetent hosts. Symptomatic cryptococcal lung infection presenting as an endobronchial mass lesion in an immunocompetent host is rare. We report our experience with an immunocompetent young patient presenting with an endobronchial mass lesion caused by cryptococcal infection. This male patient presented with left sided collapse, consolidation on computed tomography scanning, and was found to have a polypoid lesion in the left main bronchus. The diagnosis was confirmed by bronchial biopsy and the patient responded well to parenteral antifungal therapy. The case report is followed by a review of pulmonary cryptococcosis including clinical features, diagnosis, and treatment.

KEY WORDS: Cryptococcosis, endobronchial mass, pulmonary cryptococcosis

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INTRODUCTION

Cryptococcal infection in humans commonly presents as cerebromeningal cryptococcosis, pulmonary cryptococcosis, visceral cryptococcosis, osseous cryptococcosis, cutaneous cryptococcosis and mucocutaneous cryptococcosis. Pulmonary cryptococcosis in immunocompetent individuals usually remains asymptomatic as the cryptococcus remains colonized in the tracheobronchial tree or causes benign pulmonary cryptococcosis.¹ However in immunocompromised individuals, it tends to cause more symptoms and requires aggressive treatment. Radiological presentations include discrete pulmonary nodule or mass, lobar or segmental consolidation, diffuse, bilateral small nodular or reticulonodular pattern and very rarely pleural effusion and cavity.² There are only a few case reports of pulmonary cryptococcosis presenting as endobronchial mass lesion with lung collapse.

We report such a case of pulmonary cryptococcosis in an immunocompetent patient from a tertiary care hospital.

CASE REPORT

A 33-year-old male bank employee presented to our outpatient department with a 4 month history of dry cough, and breathlessness on exertion associated with wheeze. He was a nonsmoker and teetotaller. There was no history of high risk behavior, but he had a history of exposure to pigeons in his house for the past 1 year. He had a history of being treated with empirical antituberculous therapy for an exudative pleural effusion 2 years ago. For his current symptoms, he had been initially treated by his local physician with antibiotics and inhaled bronchodilators, but his symptoms persisted. At presentation, he had no neurological symptoms.

Physical examination revealed decreased breath sounds on the whole left hemithorax. Vital signs were stable. Initial investigations such as total leukocyte count, differential count, and renal and liver function tests were within normal limits. A chest X-ray [Figure 1] revealed a left upper zone, mid zone, lower zone air space consolidation; and an elevated hemidiaphragm possibly due to collapse of the left lower lobe. A computerized tomography (CT) scan of the chest [Figure 2] showed a mass lesion in the left main bronchus (LMB), causing complete collapse of left upper lobe and partial collapse of left lower lobe with...
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Consolidation with no mediastinal lymph adenopathy and no peripheral lung nodules.

Fiberoptic bronchoscopy [Figure 3] performed under local anesthesia revealed a white polypoid endobronchial mass lesion in LMB causing complete occlusion.

Bronchial washings showed no evidence of TB or fungal infection. However, bronchial biopsy of the lesion showed yeasts consistent with Cryptococcus [Figure 4] and subsequent cultures grew Cryptococcus. The cryptococcal antigen was not tested in our patient as the clinical suspicion was very low. Moreover, the value of serological tests in the diagnosis of this condition is doubtful. The patient was then evaluated for his immune status. Test for human immunodeficiency virus (HIV) by ELISA technique was negative. His total lymphocyte count, CD4 and CD8 counts, and immunoglobulin levels were normal. The patient was initiated on intravenous amphotericin B (0.7 mg/kg daily) and fluconazole (1,200 mg per day). A repeat chest X-ray [Figure 5] after 10 days of therapy showed significant resolution of the lesion and his symptoms had improved. Intravenous amphotericin was stopped and he was discharged home on oral fluconozole 1,200 mg per day. After a month of oral fluconozole (1,200 mg per day), he was switched over to maintenance dose of oral fluconozole 400 mg per day. He remained well with good improvement in
symptoms and chest X-ray findings. CT scan chest and bronchoscopy have not been repeated in our patient as he was not keen on having either of them. Further, his remarkable clinical improvement made us agree with him on this management decision.

DISCUSSION

Pulmonary cryptococcosis is caused by the inhalation of cryptococcal particles into the lungs causing pulmonary infection and subsequent hematogenous dissemination may cause central nervous system infection. Pulmonary involvement occurs commonly as an opportunistic infection in immunocompromised patients and seldom in immunocompetent patients. Cryptococcosis is caused by the inhalation of Cryptococcus neoformans as it is a common soil inhabitant and found throughout the world particularly in areas where the soil is contaminated by pigeon's droppings, decayed wood, and vegetables.[1] Pulmonary cryptococcosis is difficult to diagnose because symptoms and radiological findings are nonspecific, and are variable depending on the immune status of the patient.[2]

Radiological manifestations can be varied and depend on the immune status. Most common findings are single or multiple pulmonary nodules, air space consolidation, patchy interstitial or alveolar infiltrates, and solid mass lesion with lymphadenopathy which may be mistaken as lung carcinoma and particularly so if it is associated with lung atelectasis, as seen in our patient.[2-6] Review of the literature on the radiologic manifestations of pulmonary cryptococcosis showed only a few cases presenting as endobronchial mass with collapse.[2-6] Endobronchial involvement can also manifest as pseudomembranous tracheobronchitis, similar to that described in association with aspergillosis.[7]

Inoue et al., reported a case of endobronchial cryptococcosis with mediastinal lymphadenopathy in an immunocompromised individual whose bronchoscopy revealed three white elevated lesions in the upper lobe and bronchus of left lung.[8] Long et al., described a patient with right upper lobe consolidation, whose bronchoscopy revealed a gelatinous mass in the right upper lobe bronchus.[9] Chang et al., described a case of primary pulmonary cryptococcosis in an immunocompetent individual who developed left upper lobe collapse due to endobronchial occlusion.[10] Emmons[11] and Mahida et al.,[12] have also reported cases of endobronchial cryptococcoma. Thomas et al., reported a case of endobronchial cryptococcosis and tuberculosis in an immunocompetent patient, whose bronchoscopy revealed a tumor like growth covered with slough completely occluding the anterior segment of right upper lobe bronchus.[13]

The management of pulmonary cryptococcosis depends upon the immune status of the patient and the symptoms. Usually pulmonary infection resolves spontaneously in most patients especially immunocompetent individuals and few patients who have severe symptoms require treatment. Some researchers have suggested that selected, otherwise healthy individuals with primary pulmonary cryptococcosis, especially patients with very prominent or disabling symptoms, or those potentially at risk for the development of severe disease, might benefit from directed therapy.[14,15] The rationale for this approach is that morbidity and mortality from pulmonary cryptococcosis can be reduced if treatment is started before dissemination and meningeal involvement occur.

Our case is unique, as the patient had endobronchial mass lesion completely occluding the left main bronchus causing complete collapse of left upper lobe and partial collapse of left lower lobe with air space consolidation. The diagnosis of the pulmonary cryptococcosis in our case was based on the histopathology from the endobronchial biopsy from the mass lesion and microbiological confirmation. As our patient had significant symptoms and radiological abnormalities, he was treated with intravenous amphotericin and fluconazole as in a case of cryptococcal meningitis.[16] This resulted in good clinical and radiological improvement and the duration of maintenance antifungal therapy with oral fluconazole in immunocompetent host will be 6-12 months therapy.[10]

This case highlights the fact that pulmonary cryptococcosis can present as endobronchial mass lesion even in immunocompetent subjects, mimicking lung tumor; and therefore needs to be considered in the differential diagnosis of such lesions. Furthermore, such cases warrant aggressive medical treatment in order to avoid the need for surgical intervention. Therefore, early clinical, radiological recognition, and pathological confirmation are important in the management of primary pulmonary cryptococcosis.

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