Case Report

Isolated pulmonary mucormycosis presenting as cavitary lesion in an immunocompetent adult: A rare case report

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Abstract

Cavitary lung lesions have a specific array of differential diagnosis. Among rare causes is mucormycosis that should not be overlooked. A high index of suspicion is necessary for a correct diagnosis and aggressive management. It usually occurs in immunosupressed patients. It is a life-threatening, rapidly progressive, and angioinvasive fungal infection. We present a case of pulmonary mucormycosis presenting as a cavity in an immunocompetent middle aged male.

Key words: Angioinvasive, cavity, immunocompetent, mucormycosis, pulmonary

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Introduction

Mucormycosis is caused by the ubiquitous saprophytic fungi. The most common organisms causing mucormycosis belong to the genera *Rhizopus*, *Lichtheimia*, and *Mucor*.[1] It is associated with high mortality and morbidity. Pulmonary mucormycosis first came into light by in 1876.[2] The incidence of pulmonary mucormycosis is increasing in recent years. Physicians should maintain a high index of suspicion while encountering nonmycobacterial cavitary lesions not responding to antibiotic therapy. Isolated pulmonary mucormycosis is extremely rarely reported.[3]

Case Report

A 44-year-old man presented to us with the chief complaints of on and off fever, cough with expectoration, dyspnea, New York Heart Association grade 2 and two episodes of hemoptysis since 2 months. On asking leading questions, he admitted of having a right sided pleuritic chest pain. There was no history of diabetes mellitus, hypertension, or any other chronic illness. He had received multiple antibiotics from local practitioner without any improvement.

Physical examination revealed temperature of 101.0F, pulse 104/min, respiratory rate 28 cycles/min, with pallor and grade 1 clubbing. Respiratory system examination revealed cavernous bronchial breathing, crackles, and egophony at the right lung base. White blood cell count was 26,000 with 90% neutrophils and 8% bands. Blood cultures were negative. Rapid ELISA for HIV antibodies was negative. Three early morning sputum samples were negative for acid fast *Bacilli*. Liver and kidney functions were normal. Fasting and postprandial blood sugar were normal. Chest radiograph showed nonhomogeneous opacity of the right lower zone with a large cavity in lower and mid zone [Figure 1]. High resolution computed tomography thorax revealed a

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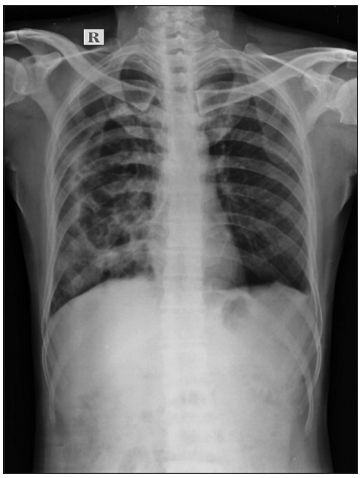

Figure 1: Chest X-ray posterior-anterior view showing a non-homogeneous opacity of the right lower zone with large cavity

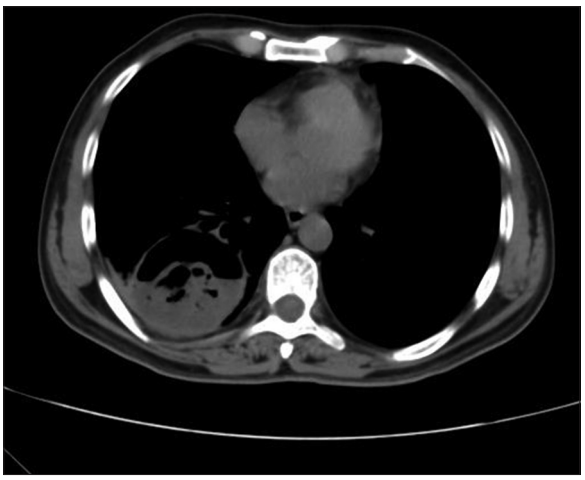

Figure 2: High resolution computed tomography thorax showing a well-defined thick walled lesion with air fluid level and multiple air foci within it in the apical and posterior segment of right lower lobe and lateral segment of right middle lobe lower and mid zone

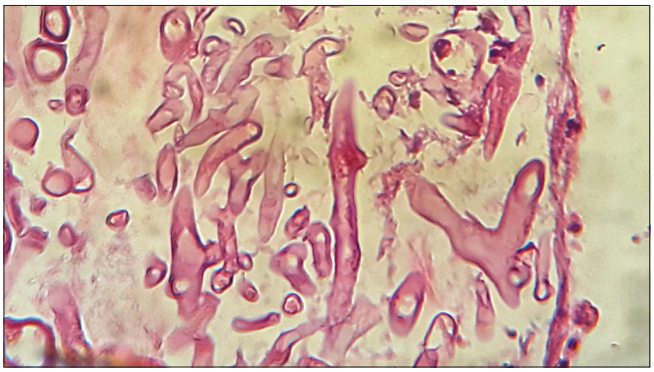

Figure 3: H and E stained slide (×40) showing pleomorphic, irregular, broad, branching aseptate hyphae with characteristic budding at right angles suggestive of mucormycosis

well-defined thick walled lesion with air fluid level and multiple air foci within it in the apical and posterior segment of the right lower lobe and lateral segment of the right middle lobe. Posteriorly, the lesion abutted the posterior chest wall and anteriorly, it extended to the hila and was surrounded by ground glass opacity [Figure 2].

Histopathologic examination revealed evidence of mycotic infection in the segmental bronchioles with peribronchial destruction at places infiltrating into the lung connective tissue [Figure 3]. The mycotic elements were broad, branching aseptate hyphae belonging to zygomycetes family suggestive of mucormycosis. Fungal culture of the exudate inoculated on to Sabourad's Dextrose agar (SDA) media yielded white cottony colonies with no reverse pigmentation in 7 days. Treatment was started with amphotericin B deoxycholate 1.5 mg/kg/day for 6 weeks.

Discussion

Pulmonary mucormycosis occurs after inhalation of fungal sporangiospores. Mucormycosis agents being angioinvasive have a potential to cause infarction and necrosis of the affected tissues.[4] Diagnosis of pulmonary mucormycosis can be challenging because of its rarity. On chest imaging, pulmonary mucormycosis may present with focal consolidation, lung masses, pleural effusions, cavities, or multiple nodules.[5]

Direct histological examination of the tissue biopsy remains the gold standard for diagnosis. Effective management requires a 3-pronged combination of medical and surgical modalities along with the correction of the predisposing underlying condition(s). Amphotericin B or its newer lipid formulation – liposomal amphotericin-B along with the extensive surgical debridement to remove the necrotic tissue, remains the mainstay of therapy.[6]

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Conflicts of interest
There are no conflicts of interest.

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