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Pneumonectomy in Pulmonary Mucormycosis

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Abstract: ***Mucormycosis covers a group of opportunistic infections caused by fungi in the class Zygomycetes, order Mucorales.Mucormycosis manifests in a variety of organs as well as disseminated disease.[1]In developing countries, especially in India, mucormycosis occurs mainly in patients with uncontrolled diabetes mellitus (DM) or trauma. In India prevalence of mucormycosis is 14 per 100 000 population. [2]Among the disease spectrum, pulmonary mucormycosis (PM) is the second most common presentation, which may develop as a result of inhalation or by haematogenous or lymphatic spread.[3]***

Keywords: Pulmonary mucormycosis, lobectomy, uncontrolled diabetes

1. Introduction

The first case of pulmonary mucormycosis was described in 1876 by Furbringer . The estimated incidence of the disease is 1.7 cases per million people per year in the United States.[4]Even with aggressive therapy mortality is as high as 70 %due to resistance to antifungal therapy[5]Tissue biopsy is gold standard for diagnosis of pulmonary mucormycosis. On CT can present as consolidation, masses , nodules, cavities, lymphadenopathy or pleural effusion. Signs suggestive of PM include halo sign, reversed halo sign and air crescent sign. [6]Even with aggressive therapy mortality is as high as 70 %due to resistance to antifungal therapy[5]Recommended treatment is amphotericin b lipid formulation in combination with surgery and modification of risk factors. A combination of surgical excision and antifungal therapy has been shown to be the optimal treatment strategy for mucormycosis. In a review of 929 cases of mucormycosis, a 70% survival was reported when both surgery and antifungal therapy was used.[6]

2. Case Report

A 59 year old lady presented with chief complaints of cough, right sided gradual onset throbbing chest pain and low grade continuous fever. She was a known case of DM (recently diagnosed on insulin), RA (since 2.5 years On DMARD's)and Hypothyroidism (since 3years on Thyroxine). She was admitted in the ICU with diagnosis of Uncontrolled diabetes with RA with Hypothyroidism with cavitatory lesions in the lungs .
On auscultation bilateral crepts R>L heard.

Investigations
*Chest XRAY:*3 large air fluid levels seen in right hemi-thorax with non homogeneous opacities right upper zone , right mid zone and right lower zone, suggestive of loculated hydropneumothorax.

*MSCT Thorax (P+C):*Right sided hydropneumothorax with partial collapse of the right lung. (Fig 1,2) Multiple cavitations involving middle, upperlobes with surrounding areas of consolidation.(Fig 3) Left lung is clear.(Fig 4)

Right lung upper and middle lobectomy was done with findings of cavitations in middle lobe and pus filled pneumonia in upper lobe. Histopathology was confirmed as mucormycosis. Patient was discharged after the pneumothorax was resolved showing good inflation of lower lobe after 1 month. She was continued on antifungals and antibiotics to prevent infection of the lower lobe and adequate control of BSL.

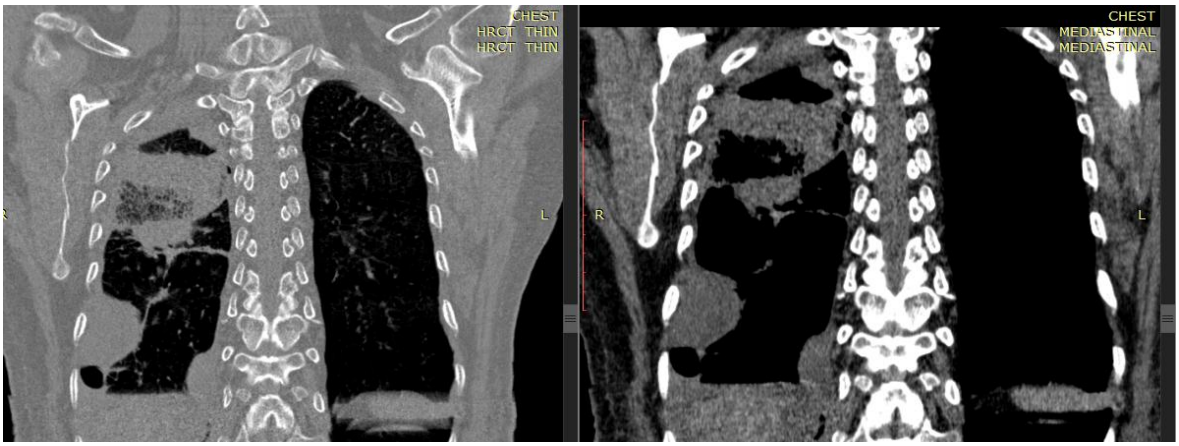


Figure 1: Hydropneumothorax and partial collapse

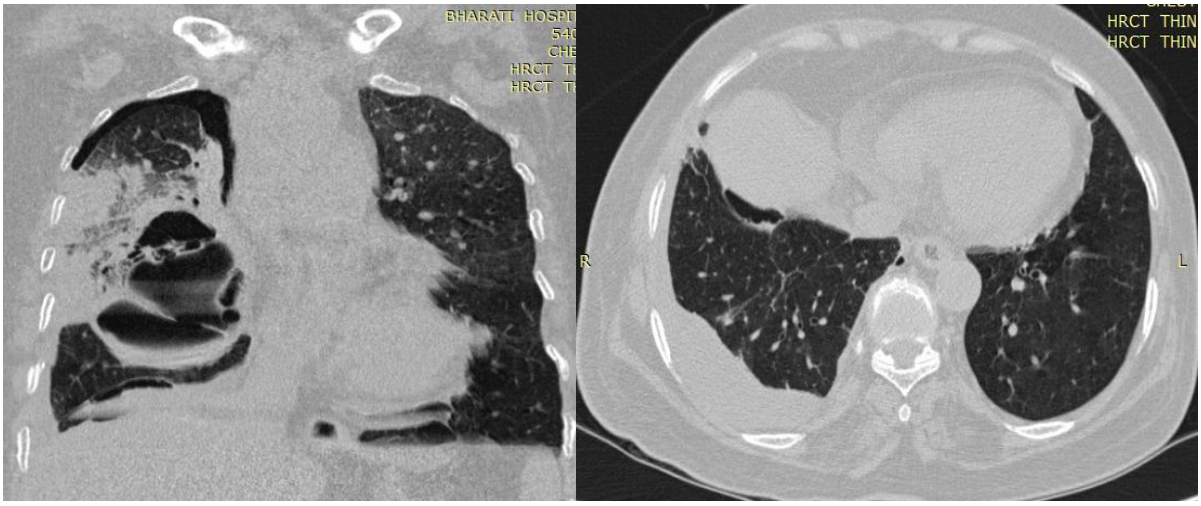


Figure 2: Partial collapse of the right lung

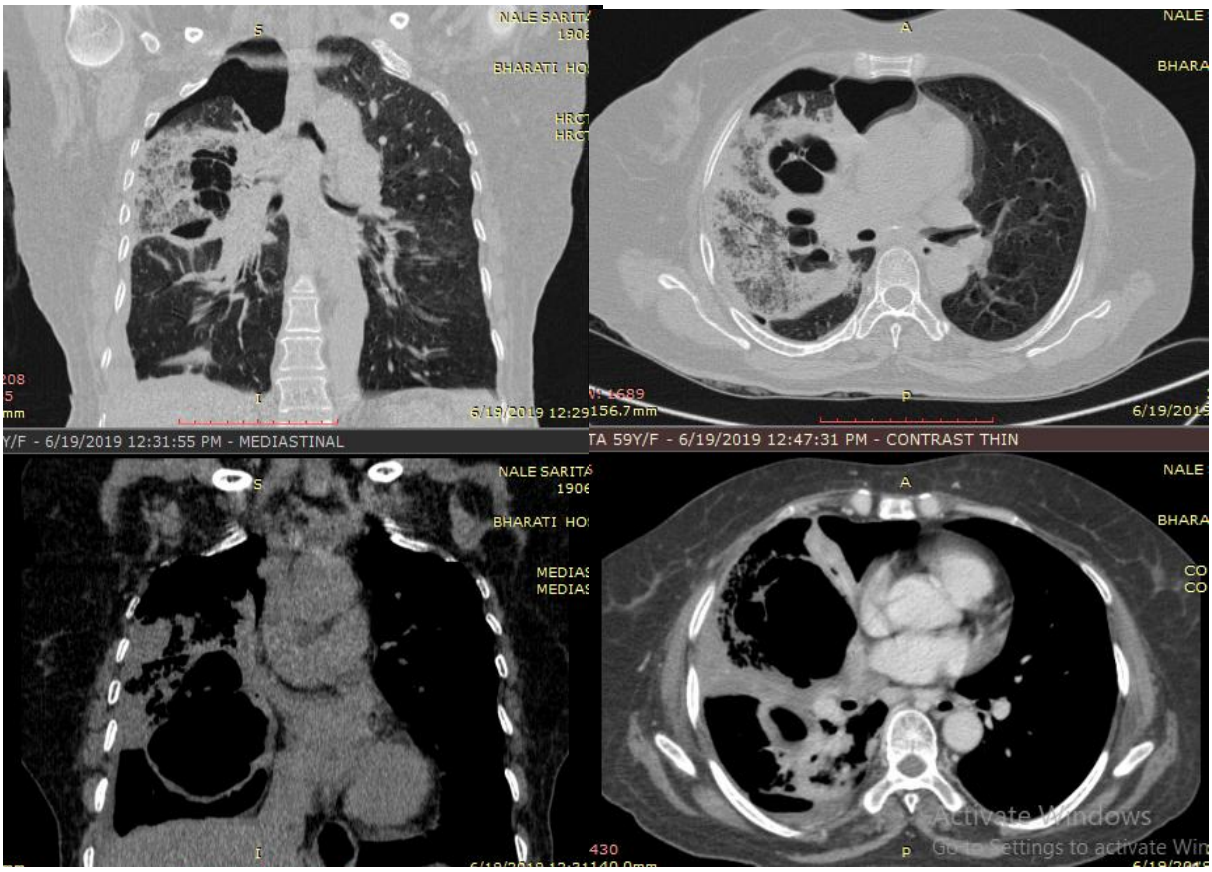


Figure 3: Multiple cavitations are seen involving middle, upper and lower lobes with surrounding areas of consolidation.

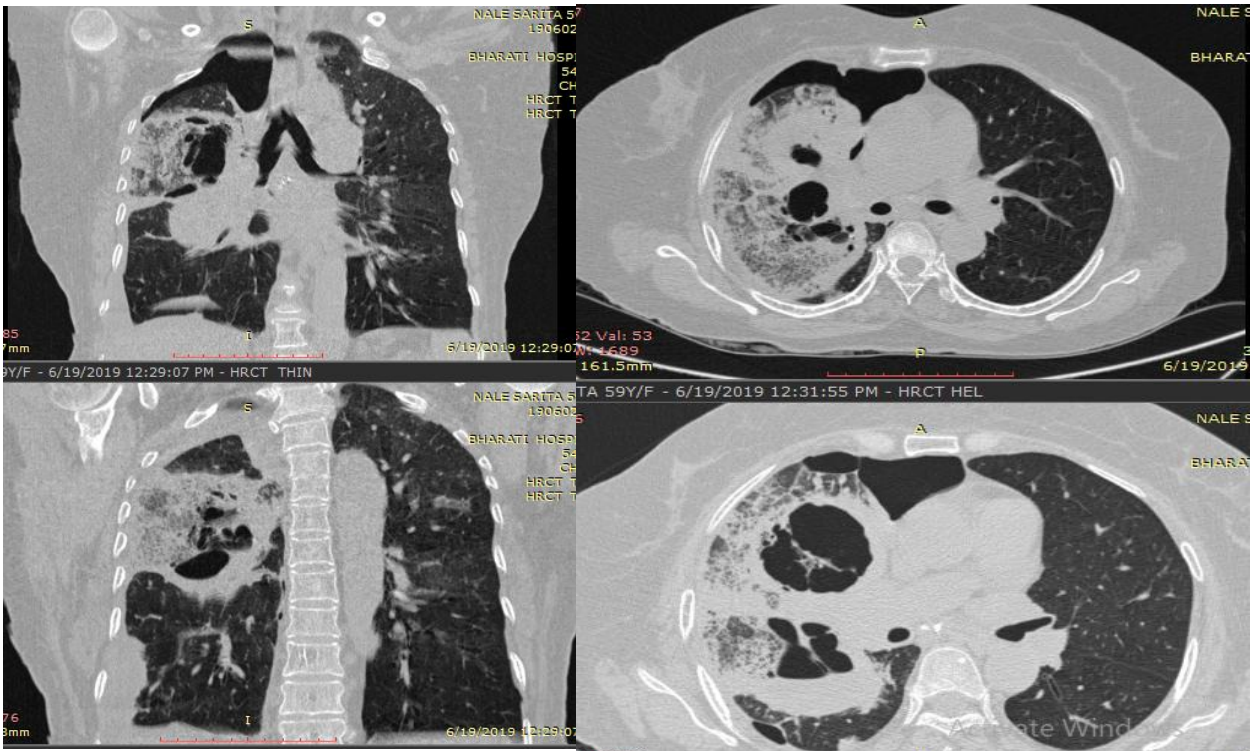
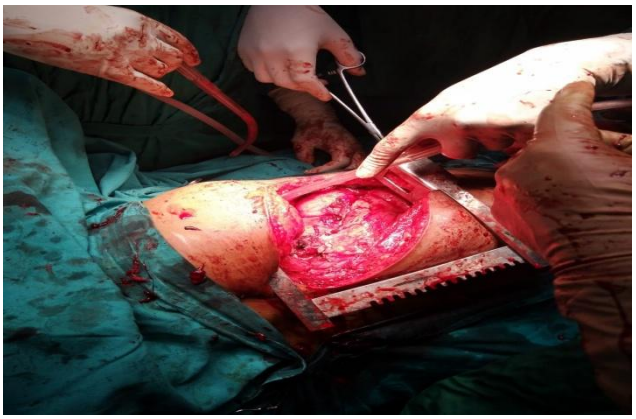
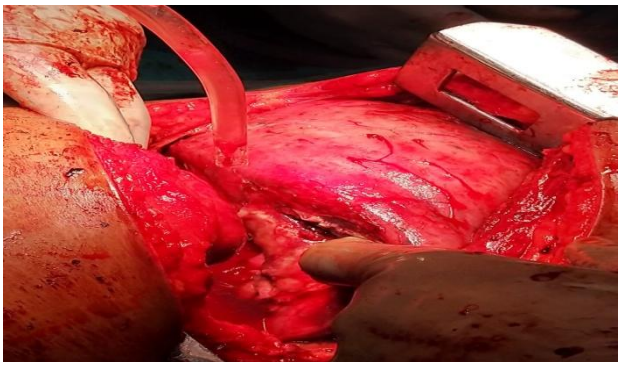
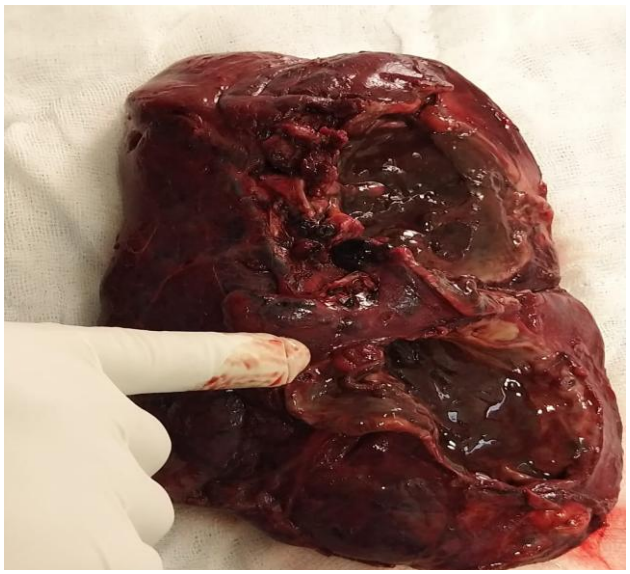


Figure 4: Left lung is clear







3. Discussion

Pulmonary mucormycosis is a rare life-threatening opportunistic lung disease seen in a immunocompromised host. Clinical picture may mimic pneumonia. When left untreated it caries ahigh mortality rate of 76%.[7] Usually diagnosis is late because of non-specific clinical and radiological features.[8]

On CT Pulmonary mucormycosis most frequently presents as consolidation or nodule/mass with halo sign, reversed halo sign, central necrotic cavity or air-crescent sign.

Tissue biopsy is often required for diagnosis.[9]

Treatment of mucormycosis involves a combination of surgical debridement of involved tissues and antifungal therapy. Elimination of predisposing factors for infection is also critical. Intravenous amphotericin B is the drug of choice. Therapy should continue until there is clinical resolution of the signs and symptoms of infection, as well as resolution of radiographic signs of active disease.[10]

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