Pulmonary Mucormycosis Presenting With Recurrent Laryngeal Nerve Palsy

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Abstract

Pulmonary mucormycosis is an uncommon infection and its endobronchial form is rare. Fever, cough, dyspnoea and hemoptysis are the usual presenting symptoms. Hoarseness of voice, a rare manifestation of endobronchial mucormycosis, has been reported earlier but its exact anatomical basis was unclear. We report an instance of polypoid endobronchial mucormycosis and vocal cord paralysis in a patient with type 1 diabetes and diabetic ketoacidosis.

INTRODUCTION

Pulmonary mucormycosis is an uncommon but life threatening infection occurring in diabetes mellitus and other immunocompromised states. The first case of pulmonary mucormycosis was described in 1876 by Furbinger and its endobronchial form in 1958. Till 1999, Lee et al reviewed 87 patients with primary pulmonary mucormycosis, out of which 34 (39%) had endobronchial lesion. Only four patients (12%) in this group had polypoid mass and one had vocal cord paralysis. We report polypoid endobronchial mucormycosis and vocal cord paralysis in a patient with type 1 diabetes and diabetic ketoacidosis. To the best of our knowledge, only one previous case of vocal cord paralysis associated with endobronchial mucormycosis has been reported in literature.

CASE REPORT

A 30 years male presented with history of anorexia, weakness and weight loss for two months followed by hoarseness of voice and shortness of breath for four days and epigastric pain for one day prior to admission. On examination, he was dehydrated and tachypnoeic but hemodynamically stable (BP 140/90 mmHg). Chest auscultation revealed inframammary and infraaxillary crepitations. Indirect laryngoscopy demonstrated a left vocal cord paresis in paramedian position. He had severe hyperglycemia (blood glucose 450 mg/dl), deranged renal functions (urea-64 mg/dl; creatinine 2 mg/dl), severe acidosis (PaO2 100 mmHg, HCO3 - 3.5 mmol/L and pH of 6.87) and ketonuria (+++). Chest X-ray showed left middle and lower zone consolidation (Fig. 1). His Hb was 11 gm/dl, total leukocyte count of 31.2 x 10³/mm³ with polymorphonuclear cell predominance (80%). He was treated for diabetic ketoacidosis with intravenous saline, insulin infusion and appropriate management for hypokalemia from which he recovered within 48 hours (pH 7.52 and HCO3 - 27 mmol/L). He was also administered intravenous cefotaxime and amikacin. Fibreoptic bronchoscopy revealed congested bronchial mucosa and a polypoid lesion in the left main stem bronchus; biopsy of which showed broad aseptate hyphae with right angled branching consistent with mucormycosis (Fig. 2). He was started on amphotericin B, but later succumbed to a bout of massive hemoptysis.
D ISCUSSION

Mucormycosis refers to infection caused by fungi of the order Mucorales belonging to the class Zygomycetes. Rhizopus is the most commonly identified genus followed by Mucor and Cunninghamella. These organisms are usually found on soil, dung and vegetable matter and generate spores that are inhaled by man. In the tissues, they form characteristic broad aseptate hyphae with branching at right angles.

Diabetes, particularly in the setting of diabetic ketoacidosis is a major predisposing condition for the occurrence of pulmonary mucormycosis and it accounted for 23% and 56% of all cases reviewed in different series. However, 80-85% of patients with endobronchial mucormycosis were diabetic. Pulmonary mucormycosis has been reported from India presenting as fungal ball, fatal hemoptyis and recurrent pneumonia but none of these patients had recurrent laryngeal nerve palsy. These fungi have obligatory requirement of iron for their growth. In ketoacidotic state, binding of the iron to transferrin is reduced, therefore, more free iron is available to promote the growth of mucorales.

Hoarseness has been reported previously in patients with endobronchial mucormycosis, however the exact anatomical basis for the same has not been mentioned. In our patient a left vocal cord paresis in paramedian position was seen by indirect laryngoscopy, suggestive of isolated left recurrent laryngeal nerve involvement, possibly entrapped by a paratracheal necrotizing lesion due to mucormycosis.

The left recurrent laryngeal nerve has a more convoluted intrathoracic course and is closely apposed to the tracheoesophageal groove than the right. For this reason, the left recurrent laryngeal nerve is affected more often (75%) than the right (15%), and the rest being bilateral.

Mucormycosis is associated with in the extensive tissue necrosis due to its unique angioinvasive properties. Rupture of paratracheal abscess from necrotizing tracheobronchitis or massive hemoptyis from extensive tissue necrosis is well documented as a cause of sudden death in such patients as happened in our case.

REFERENCES