ISOLATED PULMONARY MUCORMYCOSIS IN AN IMMUNOCOMPETENT PATIENT

João Santos Silva[1], Carolina Torres[3], Susana Clemente[2], Paulo Calvinho[1]

[1]Cardiothoracic Surgery Department, Hospital Beatriz Ângelo, Loures, Portugal.
[2]Pneumology Department, Hospital Beatriz Ângelo, Loures, Portugal.
[3]General Surgery, Emergency Department, Hospital Beatriz Ângelo, Loures, Portugal.

*Contacto Autor: joao.mss88@gmail.com

Abstract

Mucormycosis is a life-threatening fungal infection that occurs mainly in immunocompromised patients. Its occurrence isolated in the lung rare and carries a high mortality risk if untreated.

We report the case of a 76-year old male immunocompetent patient, under treatment for pulmonary tuberculosis, admitted to the emergency department with hemoptysis.

Bronchoscopy was performed and active bleeding from the middle lobe bronchus was found. Chest CT scan identified a solitary cavitary lesion in the middle lobe.

The patient was proposed for urgent open middle lobectomy. Postoperative period was uneventful. Pulmonary mucormycosis was confirmed and adjuvant therapy with Amphotericin B was performed for 30 days.

Despite its rarity, mucormycosis prevalence is expected to raise together with increasing number of immunocompromised patients. A high level of suspicion is recommended as early diagnosis can be determinant.

INTRODUCTION

Mucormycosis is a life-threatening fungal infection that occurs mainly in immunocompromised patients.[1] Its prevalence is very low, with only with only 87 cases reported in a 30-year review published in 1999.

Typically an airborne infection, it extends to the rest of the body by invading alveolar blood vessels.[2] Its occurrence isolated in the lung is extremely rare[1], specially in the immunocompetent population, and clinical manifestations are non-specific, including fever, cough, hemoptysis or dyspnea.

The most common underlying risk factors are diabetes, glucocorticoids use, hematologic malignancies, transplantation, treatment with deferoxamine, iron overload, AIDS, injection drug abuse, trauma/burns and extreme malnutrition.

Several sites of infection have been described, but all syndromes have in common is an underlying infarction and necrosis of host tissues, that result from blood vessel invasion by hyphae, with marked and accelerated tissue destruction[2], which carries a high mortality reported between 40 and 76%.[3,4]

Pulmonary mucormycosis may present as lobar consolidation, solitary nodule, cavitation or in a disseminated form.[5]

Differencial diagnosis of pulmonary mucormycosis may include lung neoplasm, other mycotic or fungal infections, pulmonary infarction and tuberculosis.

CASE REPORT

A 76-year-old immunocompetent male presented to the emergency department with severe hemoptysis.

Previous medical history of repeated urinary infections due to ureteral stenosis and a 6-month history of known pulmonary condensation with bronchial biopsy compatible with pulmonary tuberculosis under anti-bacillary treatment.

Urgent flexible bronchoscopy identified active bleeding from the middle lobe bronchus and CT scan confirmed a cavitary lesion confined to the middle lobe (Image 1). The patient was proposed to urgent middle lobectomy by right thoracotomy. The middle lobe had some adhesions in the fissures and to the parietal pleura, easily debrided, and a hard consistency lesion. Upper and lower lobes were inspected with no signs of invasion or additional lesions. Middle lobectomy was performed without opening of the bronchus and sequential division of vein-bronchus-artery with mechanical staplers.

Postoperative period was uneventful. Drainage removed on day 3 and at 6-month postop, patient asymptomatic with no signs of lung infection in CT scan (Image 2).

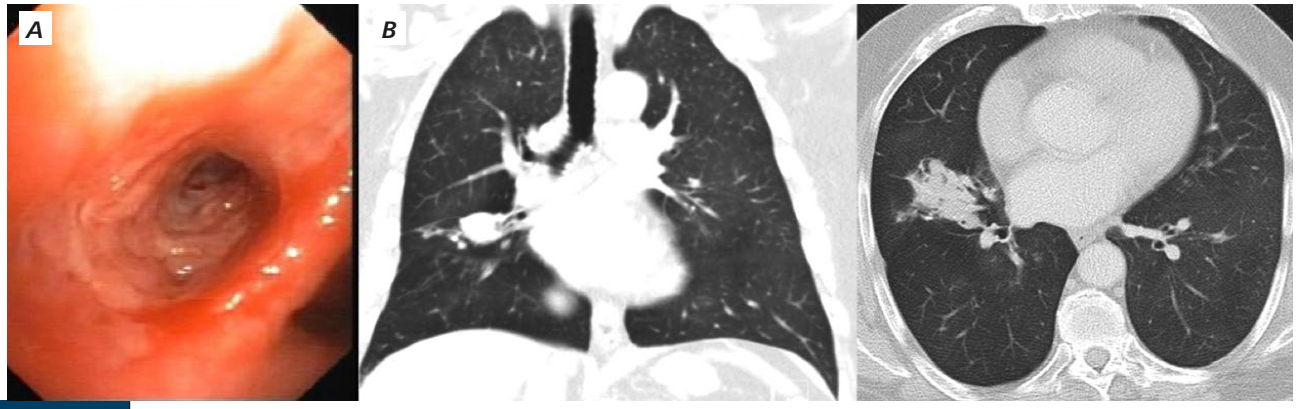

Figure 1 *Preoperative workup with **A** - bronchoscopy findings showing bleeding from medium lobe bronchus, and **B** - CT scan showing coronal (left) and axial (right) views of the lung cavitated lesion.*

Histopathological examination confirmed pulmonary mucormycosis and adjuvant treatment with liposomal Amphotericin B was performed for one month.

DISCUSSION

Clinical presentation of pulmonary mucormycosis is non-specific but the presence of hemoptysis should be a red flag due to the angioinvasive capacity of the fungi.[4]

The failure of the pneumonic process to improve after medical treatment, should raise the alertness to other differential diagnosis. Other radiologic signs such as upper lobes predominance or indirect signs of necrosis – cavitation, air crescendo, halo sign and rim enhancement – are usual.[4,5]

Transthoracic biopsy or endobronchial ultrasound with a radial probe may be of some help but its value is usually poor unless to exclude underlying malignancy. Sputum cultures are difficult to be conclusive[4], and specimen analysis is usually needed for diagnosis.

Therefore, several studies agree that a prompt and aggressive approach, including antifungal systemic therapy, surgical resection and control of the underlying disease, if present, should be the mainstay of treatment . Some studies report mortality rates as high as 96% in the non-treated groups comparing to 27% of operated patients.[4] Usually, massive hemoptysis or bacterial coinfection due to obstruction are the causes of death.

Differential diagnosis should include malignancy and a special attention to this pathology in the transplant-recipient population should be present.

Despite mucormycosis being a rare infection, its prevalence is expected to raise together with increasing number and survival of the organ transplantation population as well as acquired immunodeficiencies. A high level of suspicion is recommended in the presence of the right clinical setting, as early diagnosis may be determinant for the prognosis.

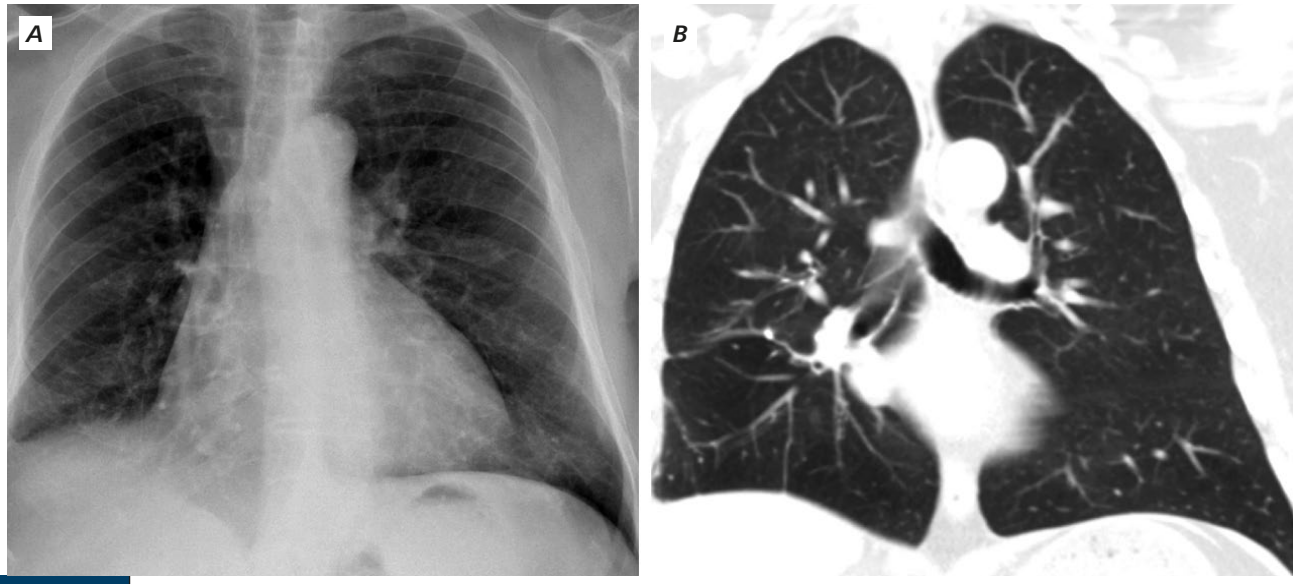

Figure 2 ***A** - Chest X-ray at discharge and **B** - Chest CT scan at 6-month postop with no signs of disease recurrence.*

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