

CASE REPORT

Rare presentation of endobronchial tuberculosis mimicking a malignancy: A Case Report

Shahid Majid, Aaliya Mohi-Ud-Din-Azad, Khurshid Ahmad Dar, Naveed Nazir Shah,
Mohd Haris Gulraize Ansari, Naeem Firdous Dar

Department of Respiratory Medicine, GMC Srinagar

INTRODUCTION

Pulmonary tuberculosis is a widely prevalent disease in India. It is caused by *Mycobacterium Tuberculosis*. Pulmonary tuberculosis commonly presents as consolidation, which may be segmental or lobar, usually involving the upper or superior segment of the lower lobe. Endobronchial tuberculosis is a rare form of pulmonary tuberculosis, with an incidence of 5.8%-30% of all cases of *Mycobacterium tuberculosis*.¹ Endobronchial tuberculosis is defined as tuberculosis infection of the tracheobronchial tree with microbiological and histopathological evidence. It is due to the rupture of an infected lymph node through a bronchial wall or lymphatic spread to the lining of the bronchial tree. Clinical presentation is nonspecific. Clinically Endobronchial tuberculosis can mimic asthma. Here we present a rare case of endobronchial tuberculosis mimicking a malignancy.

CASE REPORT

A 50 yr old female, a non-smoker with no known comorbidities, presented with complaints of left-sided chest pain, breathlessness and productive cough for one month. Left-sided Chest pain was insidious in onset, non-progressive in nature and dull in character. The pain was felt intermittently and had no association with exertion. The pain did not bother the patient's day-to-day activities. No aggravating or relieving factor of pain was present. The pain did not radiate to any other part of the body.

The patient also complained of breathlessness which was insidious in onset and non-progressive and was present when the patient used to climb stairs and was relieved by taking rest. The patient had no similar complaints in the past. The patient also had a cough associated with purulent expectoration, which did not bother the patient's daily activities. No history of hemoptysis, weight loss, fever, anorexia, sweating, swelling of feet, or loss of appetite.

On Clinical examination patient was healthy built, well oriented. The general examination was within normal limits. Systematic analysis revealed a wheeze with crepts in the left infrascapular area of the chest. Examination of other systems was normal. Laboratory tests and chest radiography was performed, which revealed anaemia (Hb was 8.5 g/dl) and left lower zone opacity, respectively (Figure 1 a). The patient was prescribed antibiotics and symptomatic treatment, and a provisional diagnosis of community-acquired pneumonia was made. The patient's sputum did not grow any organism on culture. AFB staining and CBNAAT for MTB were also negative. On follow-up after one week, there was no improvement in her symptoms. She was then advised of CECT chest, which showed evidence of consolidation with air bronchogram and collapse involving the superior and inferior lingula segment with surrounding ground glassing. Multiple enlarged mediastinal nodes were also seen. (Figure 1 b).

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Correspondence:

Dr. Aaliya Mohi-Ud-Din-Azad, MD
Lecturer, Department of Respiratory Medicine, GMC Srinagar
Email : Aaliya.azad@gmail.com

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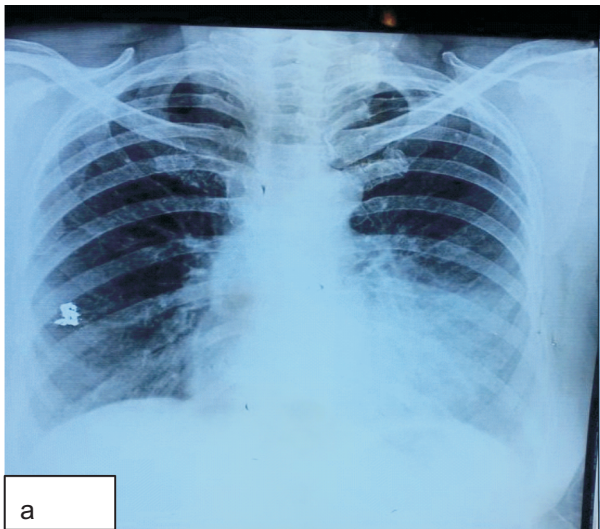


Fig. 1: (a) chest radiograph showing left lower zone opacity.

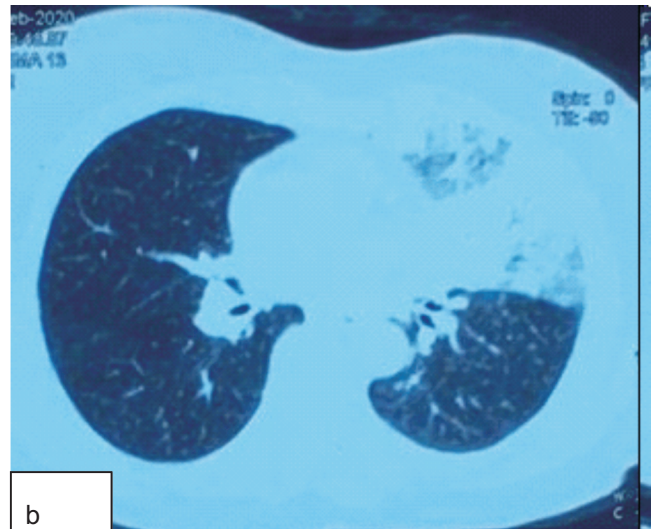


Fig. 1: (b) CT chest shows consolidation with air bronchogram and collapse in lingula with surrounding GGO's.

Following the inconclusive results of sputum analysis and no clinical improvement, eventually patient underwent bronchoscopy, which showed a necrotic endobronchial lesion in the left upper lobe bronchus and lingula. A biopsy was taken from the endobronchial lesion and was sent for HPE. (Figure 2).

Histopathological examination of the lesion showed chronic granulomatous inflammatory tissue with necrotic areas. A repeat bronchoscopy was done, and a biopsy was again taken from the lesion and sent for HPE and ZN staining. In addition, bronchoalveolar lavage was taken from the left upper lobe and sent for CBNAAT for MTB.

Repeat HPE of the lesion showed granulation tissue with

necrotic areas. On ZN staining of the lesion, acid-fast bacilli were seen. MTB was detected on CBNAAT of BAL, which was rifampicin sensitive. The patient was then started on ATT for six months. After completion of ATT, the patient improved clinically and symptomatically. Repeat radiology and bronchoscopy showed resolution of consolidation and endobronchial lesion, respectively. (Figure 3).

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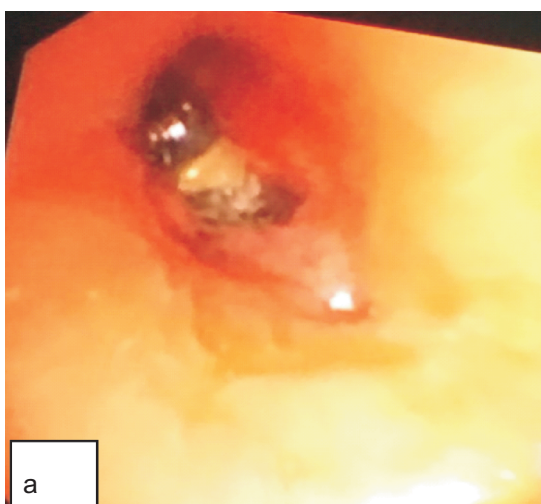


Fig. 2: (a) Bronchoscopy showing endobronchial growth in left main bronchus

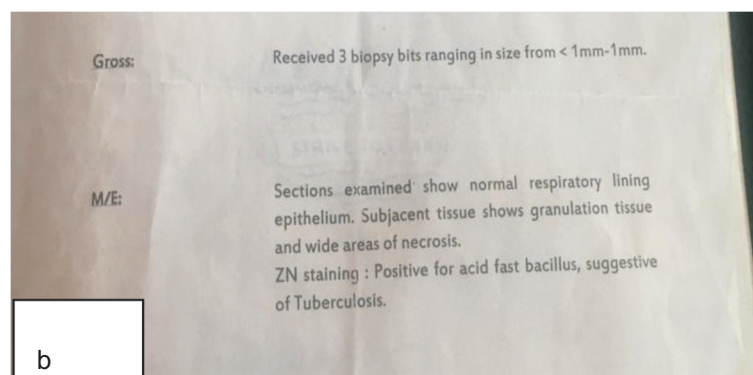


Fig. 2: (b) Histopathological examination report.

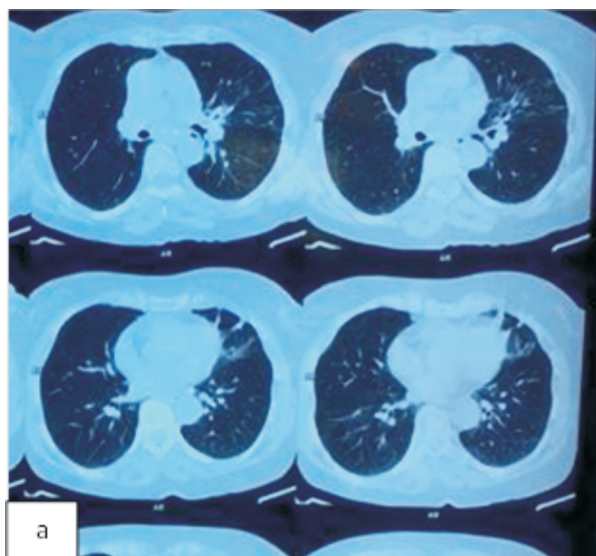


Fig. 3: Repeat CT after completion of ATT showing resolution of consolidation in lingula.

DISCUSSION

In all cases of *Mycobacterium Tuberculosis* the incidence of EBTB is between 5.8% and 30%¹. Primarily seen in the population under 35 years, with children being at risk. Higher preponderance was seen in females. Possible reasons include prolonged exposure to tubercle bacilli, as females expectorate less frequently due to social causes. Also, female bronchi are narrower than males, so they are more susceptible to EBTB.²⁻⁵ EBTB diagnosis remains a challenge and is often underdiagnosed, as fiberoptic bronchoscopy is not typically performed in all patients with tuberculosis⁶. Underdiagnosis of EBTB is common as the lesion is often not evident on chest radiographs. There is also limited data on the clinical manifestation of EBTB which can mimic asthma. The most common symptom is barking cough; yet, this is a nonspecific feature, and so are the chest pain, blood-streaked sputum, generalized weakness, dyspnoea, and fever; however, longer duration of symptoms in patients with pulmonary tuberculosis is the main predictor of concomitant EBTB⁷. Our patient did not have respiratory complaints typical of tuberculosis; she had radiological findings mimicking malignancy.

In about 10%-20% of patients with EBTB, Chest radiographs may be normal⁶. The most common abnormality on chest X-ray in EBTB is the presence of parenchymal infiltrates or consolidation in the affected lobe, as in our patient. Other findings may be present such as

segmental or lobar collapse due to bronchial stenosis^{8,9}.

High-resolution computed tomography (HRCT) is superior to chest radiographs. HRCT not only assists in the localization of disease but also in evaluating parenchymal disease. HRCT has higher sensitivity of more than 95% in the evaluation of EBTB^{10,11} and biopsy is required for the diagnosis of EBTB, though the yield of biopsies to diagnose EBTB ranges from 30% to 84%^{12,13}. Histopathological findings assist in the early diagnosis and prompt initiation of treatment¹⁴. Radiological features suggestive of lung cancer, like consolidations with irregular margins and thick-walled cavities, showing high metabolic activity on the 18-FDG-PET and CT-imaging, are also typical for lung tuberculosis. However, differentiation according to the radiological findings can not be provided. The diagnosis has to be confirmed by histopathological and microbiological tests.

Complications of EBTB are bronchial stenosis and stricture formation. Chung and Lee have classified EBTB into seven subtypes: actively caseating, edematous hyperemic, fibro stenotic, tumorous, granular, ulcerative, and nonspecific bronchitis. Any subtype can be transformed into another depending on disease progression or healing. Formation of the granulation tissue is the main factor which classifies the subtypes, though^{6,15}. In our case, endobronchial tuberculosis was edematous hyperemic and ulcerative type as per Chung and Lee's classification.

The treatment of EBTB is the same as pulmonary tuberculosis^{6,16}. It involves a fixed dose regimen of four primary drugs: isoniazid, rifampicin, ethambutol, and pyrazinamide for an initial two months and then a continuation phase of treatment with daily isoniazid and rifampicin for a further four months. Corticosteroids have been used as an adjunct therapy, but the role of corticosteroids in treating endobronchial tuberculosis is not established. Steroids may be beneficial in preventing bronchial stenosis because of their anti-inflammatory properties.¹⁷

CONCLUSION

The prevalence of endobronchial tuberculosis is higher, mainly among young females, as is the case in our patients. In EBTB, the AFB smears are negative and diagnostic bronchoscopy is not routinely performed. Therefore, such

cases remain undiagnosed and result in increased morbidity and even mortality. Nevertheless, anti-tuberculosis therapy remains the first choice. In scarring and stenosis, an Interventional procedure via bronchoscopic routes such as laser, argon, and stent placement is used to maintain the patency of the bronchial tree. Surgical procedures are reserved for refractory cases.

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