

Case Report

Endobronchial tuberculosis simulating a tumor: an interesting case report

Natesh Ganesan*, Prasanth, Gangadharan Vadivelu

Department of Respiratory Medicine, Saveetha Medical College, Chennai, Tamil Nadu, India

Received: 11 March 2022

Accepted: 29 March 2022

*Correspondence:

Dr. Natesh Ganesan,

E-mail: vikramnatesh123@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Endobronchial tuberculosis (EBTB) is a special form of TB which is associated with significant morbidity and potential mortality. EBTB is the infection of tracheobronchial tree, and continues to remain challenging for clinicians to diagnose. The incidence of EBTB has been reported to be 5.8% to 30% in people with pulmonary TB. 60-year-old male, chronic smoker presented with complaints of dyspnea, cough with expectoration and sore throat for 2 weeks. General examination showed patient to have pallor and respiratory system examination showed decreased breath sounds in left infraaxillary region and bilateral crepitations. Routine blood investigations done showed decreased hemoglobin levels, elevated total leukocyte count, ESR. Sputum AFB was negative. Mantoux-15 mm in duration. Chest X-ray showed homogenous opacities over the left lower zone and elevated right diaphragm. CT thorax done showed a subsegmental peripheral soft tissue density 4.3×2.2 cm in the inferior lingula segment. Bronchoscopy showed whitish plaques over the anterior tracheal wall near carina and over left main bronchus. Endobronchial tissue growth seen occluding the lingula bronchus. Biopsy was taken and histopathology showed a granulomatous lesion, BAL Gene Xpert was positive for MTB. Patient was started on 3 tablets ATT. Clinicians need to be vigilant in patients who are AFB smear negative, with symptoms; bronchoscopy should be considered in those selected cases.

Keywords: Endobronchial tuberculosis, Diagnostic challenges, Bronchoscopy

INTRODUCTION

TB a major global health problem and is one of the most prevalent diseases in low socioeconomic background. WHO global tuberculosis report 2021 there where nearly 10 million people affected worldwide with 26% of total cases from India. India is one amongst the developing countries have high case burden.¹ EBTB is the infection of tracheobronchial tree, and continues to remain challenging for clinicians to diagnose. The incidence of EBTB has been reported to be 5.8% to 30% in people with pulmonary tuberculosis.² Various other studies have a high incidence of more than 50%. No prospective studies are available, but since the wide spread use of bronchoscopy more cases of EBTB have been detected. In this case report we presented you a case of EBTB presenting as a tumor.

CASE REPORT

A man in his late sixties, a chronic smoker with a 20-pack year smoking history presented with complaints of dyspnea for 2 weeks which was progressively worsening, followed by cough with expectoration and sore throat for 2 weeks. History of loss of weight (7 kgs in 2 months) and appetite. General examination done showed patient to have pallor and decreased breath sounds in left intraaxillary region and bilateral scattered crepitations. Routine blood investigations done showed decreased hemoglobin levels, elevated total leucocyte count of 11620 cells/cumm (neutrophils 87.7%, lymphocyte 6.2%, monocytes 6.1%, eosinophil's 0.0%, basophils 0.0%), elevated ESR 112 mm/hr, Mantoux test done showed an induration of 15 mm. Sputum AFB was negative for MTB. Chest X-ray

showed homogenous opacities over the left lower zone and an elevated right diaphragm (Figure 1A). CT thorax done showed a subsegmental peripheral soft tissue density, 4.3×2.2 cm and mucous plugging in the inferior lingula segment (Figure 1B).

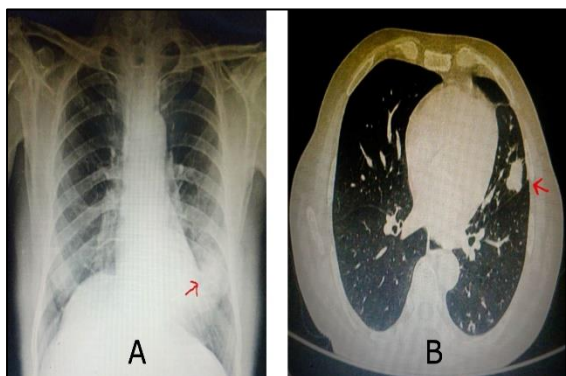


Figure 1: (A) Chest X-ray Showing homogenous opacities over the left lower zone (red arrow); (B) CT thorax showing a subsegmental peripheral soft tissue density (red arrow).

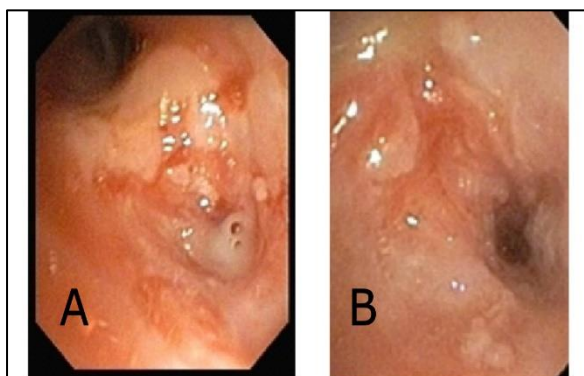


Figure 2: (A) Endobronchial tissue growth seen occluding the lingula bronchus; (B) post biopsy lingula segment opening seen.

Centrilobular nodules with linear branching pattern and peribronchiolar thickening noted in bilateral lung fields. Multiple enlarged mediastinal lymph nodes and a defect of size 3.5 cm noted in the posterolateral surface of right hemidiaphragm. Bronchoscopy done showed whitish plaques over the anterior tracheal wall near carina and over left main bronchus (Figure 2). Endobronchial tissue growth seen occluding the lingula bronchus. Biopsy was taken from the lingula tissue growth and bronchial wash was taken from lingula and posterior lobes, post biopsy lingula segment opening was seen. Bronchial wash Gene Xpert was positive for *Mycobacterium tuberculosis* and rifampicin resistance was not detected. Biopsy showed features of caseating granulomatous lesion and AFB was isolated. Patient was started on 3 tablets of HRZE according to FDC. Post follow up patient improved clinically.

DISCUSSION

TB is one amongst the leading cause for morbidity and mortality in low socioeconomic countries. The diagnosis EBTB remained a challenge and was often underdiagnosed, as fiberoptic bronchoscopy was not performed in all patients with tuberculosis. EBTB had a female predominance and affected patients were in their second to third decade.³ The exact pathogenesis of EBTB was not yet fully understood, the proposed mechanisms included direct extension from parenchymal focus; implantation from the infected sputum; hematogenous spread; lymph node erosion into an adjacent bronchus; and lymphatics spread.⁴

EBTB may affect any part of bronchus but most commonly primary bronchi, bilateral superior lobar bronchi and right middle lobar bronchus are commonly involved. Jung et al classified EBTB according to the number of bronchi involved into single and multiple levels.⁵ The clinical manifestation may widely vary depending on the site of involvement and duration, but most predominant symptom was dry cough followed by chest pain, hemoptysis, generalized weakness, dyspnea and fever, occasionally affected individuals may have wheeze or rhonchi.⁶

Early diagnosis can change the disease progression and its course. Sputum smear examination still remained one of the best low cost measures of detecting MTB, but it had a low yield and smear positivity remained at a low 16-53%, which was mainly attributed to mucus entrapment by proximal bronchial granulation tissue.⁷ Recent advances with Gene Xpert have shown to improve detection of MTB in sputum. Chest X-ray may be normal in 10-20% of EBTB patients and were nonspecific. In various studies Bilateral patchy infiltrates are seen.⁸ HRCT thorax was found to be superior to plain CT thorax and had a sensitivity of more than 95%. Most common findings were centrilobular pattern with tree in bud appearance, although bronchial wall thickening, endobronchial obstruction, extrinsic obstruction by adjacent adenopathy and scarring had also been described in various studies.⁸

Bronchoscopy still remained the quick and most valuable method of diagnosis. Chung et al classified seven subtypes based on bronchoscopy which was closely related to pathology: (I) nonspecific bronchitic (II) edematous-hyperemic (III) actively caseating (IV) granular (V) ulcerative (VI) tumorous and (VII) fibrostenotic.⁹ In our patient it was of type VI. Various studies have determined sensitivity of bronchoscopy biopsy to be 30-84% and the most common sub type in literature was granular.

Most complications were noted in the third decade and were stenosis and stricture formation and might lead to respiratory compromise if larger airways were involved. In our patient luckily no complications were noted.

Treatment of EBTB was similar to pulmonary tuberculosis. Involved the initiation of fixed dose regimen

of four anti tuberculous drugs HRZE. The use of corticosteroids had been beneficial with studies showing a positive outcome for the patients, however we did not start on steroid therapy in our patient.⁴

CONCLUSION

EBTB is a rare form of tuberculosis and carries a significant morbidity and mortality. Early diagnosis and initiation of anti-tubercular therapy is essential to prevent complications. Modern interventions like bronchoscopy aids in the diagnosis and preventing complications.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Ramadass S, Mani K, Praveen A, Kumar S. Prevalence of pulmonary tuberculosis in India. Lung India. 2020;37(1):45-52.
2. Kassam NM, Aziz OM, Somji S. Endobronchial Tuberculosis: A Rare Presentation. Cureus. 2020;12(5):e8033.
3. Jung SS, Park HS, Kim JO, Kim SY. Incidence and clinical predictors of endobronchial tuberculosis in patients with pulmonary tuberculosis. Respirology. 2015;20(3):488-95.
4. Kashyap S, Solanki A. Challenges in endobronchial tuberculosis: from diagnosis to management. Pulm Med. 2014;2014:594806.
5. Medlar EM. The behavior of pulmonary tuberculous lesions; a pathological study. Am Rev Tuberc. 1955;71(3, Part 2):1-244.
6. Van den Brande PM, Van de Mierop F, Verbeken EK, Demedts M. Clinical spectrum of endobronchial tuberculosis in elderly patients. Arch Intern Med. 1990;150(10):2105-8.
7. Lee JH, Park SS, Lee DH, Shin DH, Yang SC, Yoo BM. Endobronchial tuberculosis. Clinical and bronchoscopic features in 121 cases. Chest. 1992;102(4):990-4.
8. Lee JH, Chung HS. Bronchoscopic, radiologic and pulmonary function evaluation of endobronchial tuberculosis. Respirology. 2000;5(4):411-7.
9. Chung HS, Lee JH. Bronchoscopic assessment of the evolution of endobronchial tuberculosis. Chest. 2000;117(2):385-92.

Cite this article as: Ganesan N, Prasanth, Vadivelu G. Endobronchial tuberculosis simulating a tumor: an interesting case report. Int J Adv Med 2022;9:613-5.