

A rare case of endobronchial tuberculosis with left main bronchial stenosis in a patient with pulmonary tuberculosis

Roshan Bhandari ^{1,*}, Nabin Sapkota ², Rajesh Bahun ³, Ghanashyam Pandey ⁴, Abisekh Chaulagain ⁵, Prava Basnet ⁶, Richa Paudyal ⁷ and Abhigya Paudyal ⁸

¹ Department of Internal Medicine, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University, Kathmandu-44600, Nepal.

² Department of Emergency Medicine, Edmond City Hospital, Butwal-8, Rupandehi-32900, Lumbini, Nepal.

³ Department of Internal Medicine, Shaileshwori Hospital Pvt. Ltd., Doti-10800, Nepal.

⁴ Department of Health Research, Government of Nepal- Nepal Health Research Council, Ramshahpath, Kathmandu-44600, Nepal.

⁵ Department of Internal Medicine, Kritipur Hospital, PHECT-Nepal, Kritipur, Kathmandu-44600, Nepal.

⁶ Department of Internal Medicine, Hebei Medical University, Hebei, Shijiazhuang-050017, China.

⁷ Department of Ophthalmology, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University, Kathmandu-44600, Nepal.

⁸ Department of Internal Medicine, KIST Medical College Teaching Hospital, Gwarko, Lalitpur-44700, Nepal.

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Abstract

Endobronchial tuberculosis (EBTB) is a condition that occurs as a result of pulmonary tuberculosis (TB), where the infection spreads to the inner walls of the bronchial tubes or the trachea. This causes the inner lining and the layer underneath to become inflamed, swollen, ulcerated, or to develop granulated tissue or scar. We discuss a 19-year-old lady with active pulmonary TB who was receiving anti-TB drug treatment. Despite being on anti-TB medications, she had persistent cough, loss of weight and increasing dyspnea. She was diagnosed with EBTB with left main bronchus (LMB) stenosis, based upon a strong clinical suspicion, followed by using a variety of techniques, including lung function testing, a chest and neck CT scan, and a bronchoscopy. Given that EBTB is a rare consequence of TB, it is crucial for clinicians to take it into account when patients present with symptoms that are comparable. This will enable prompt and effective treatment.

Keywords: Bronchial Stenosis; Bronchoscopy; Endobronchial Tuberculosis; Pulmonary Tuberculosis

1. Introduction

Pulmonary tuberculosis (TB) is common worldwide, and many of these patients develop endobronchial tuberculosis (EBTB) [1], which is a tubercular infection of the tracheobronchial tree with histological and microbiological evidence [2]. Chest radiography may have difficulties detecting EBTB because it is not always linked to alveolar disease. Recognizing this form of tuberculosis is crucial since it can lead to underlying bronchial stenosis [3]. Since many individuals with pulmonary tuberculosis do not receive the necessary testing (CT or bronchoscopy to aid in diagnosis), it is difficult to determine the precise incidence of EBTB. The second decade of life is when EBTB incidence usually peaks [4]. Due to the infrequent occurrence of EBTB resulting from TB, it's essential for clinicians to consider it in cases with history of pulmonary TB, presenting with worsening symptoms like dyspnea, cough or weight loss despite being on treatment, ensuring swift and efficient therapeutic measures.

* Corresponding author: Roshan Bhandari

2. Case presentation

A 19-year-old lady patient with shortness of breath, a chronic cough, hoarseness, and significant weight loss presented to the Pulmonology-OPD. Five months ago, after receiving her diagnosis of active pulmonary TB, she had begun treatment with anti-TB drugs: Rifampin, Pyridoxine, Pyrizinamide, Isoniazid, and Ethambutol. Despite being fully compliant with the therapy, she had to visit the emergency rooms and outpatient departments at multiple centers in the past complaining of dyspnea and cough, and was repeatedly given bronchodilators and a brief course of steroids.

On examination, she was afebrile, with stable blood pressure of 130/80 mmHg, a pulse of 86 beats per minute, and a respiratory rate of 18 breaths per minute with a 96% saturation on room air. Respiratory examination showed minor expiratory wheezes, biphasic stridor, reduced breath sounds, more towards left side, and difficult breathing with the usage of accessory muscles. Other laboratory examinations were within normal limit. CXR findings were non-revealing. High Resolution CT (HRCT) chest showed- fibrotic changes with marked narrowing of the proximal segment of the left main bronchus with relatively reduced attenuation involving the left lung predominately in the upper lobe mosaic attenuation in the region- likely air trapping due to bronchial stenosis. Subsequently, she underwent bronchoscopy which showed left main bronchus stenosis (Figure 1).

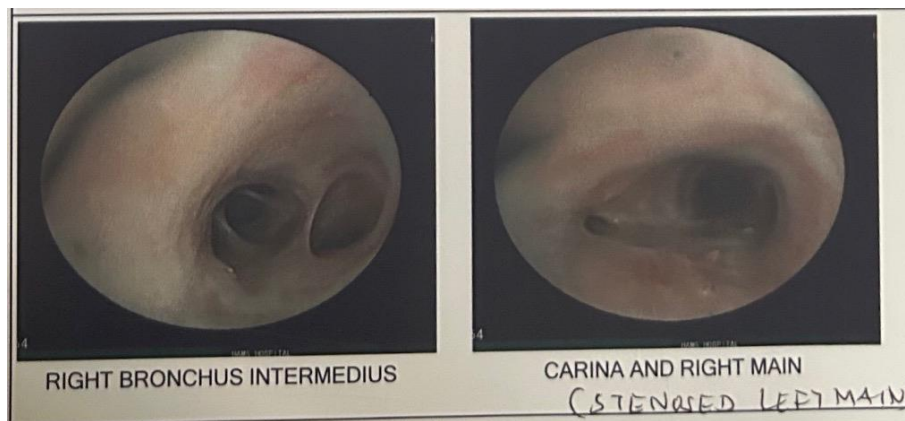


Figure 1 Bronchoscopy showing stenosis left main bronchus

Hence, in the background of her pulmonary tuberculosis, with worsening symptoms like dyspnea, cough or weight loss despite being on treatment, and suggestive bronchoscopic findings, the diagnosis of endobronchial tuberculosis was made. Consequently, she underwent Rigid Bronchoscopic CRE balloon dilatation for left main bronchial stenosis. She remained hemodynamically stable throughout the procedure. She was shifted to pulmonary medicine-ICU after the procedure, and was discharged after 3 days following complete recovery, with recommendation for regular follow-up at the pulmonology-OPD.

3. Discussion

Female gender, longer symptom duration, and no prior tuberculosis history are risk factors for the development of EBTB in individuals with active pulmonary tuberculosis [5]. Given that many patients with pulmonary tuberculosis do not receive the necessary testing for an EBTB diagnosis, this possible long-term consequence is frequently overlooked despite the fact that a high number of patients with pulmonary tuberculosis have EBTB [5]. Treatment options for bronchial stenosis include surgical and bronchoscopic procedures such as balloon dilatation, stent placement, laser surgery, and cryosurgery [6].

Since coughing, expectoration, hemoptysis, wheezing, fever, and shortness of breath are the most frequent primary complaints associated with EBTB, the clinical appearance is not unusual [7]. In our case, the patient had to attend the emergency rooms and outpatient departments at numerous facilities in the past, complaining of dyspnea and cough, and was frequently given bronchodilators and a brief course of steroids, although being perfectly compliant with the therapy. Due to the variability of clinical features associated with the site, extent of involvement, and the stage of the disease, bronchoscopy is the main stay to diagnose and classify the disease [8]. Our patient had marked stenosis of left main bronchus, revealed by bronchoscopy.

Hence, a strong index of suspicion and early bronchoscopy are the single most crucial factors in the diagnosis of EBTB.

4. Conclusion

Bronchial stenosis may result from EBTB in patients with pulmonary tuberculosis. A careful observation of symptomatology in patients with pulmonary tuberculosis, followed by CT imaging and bronchoscopy, is critical in order to promptly diagnose and treat the possibly curable sequelae like bronchial stenosis.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from the patient.

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