

## CASE REPORT

**All that Curves is Not Effusion**

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**Abstract:**

Endobronchial tuberculosis is a peculiar variant of tuberculosis hallmarked by involvement of the tracheobronchial tree and contributes to a sizable proportion to the overall morbidity due to the disease. Bronchostenotic variety is the predominant pattern with clinical spectrum ranging from asymptomatic affection to significant life threatening luminal compromise. The radiological features could be deceptive leading to a diagnostic delay. Awareness of the spectrum of the clinical manifestations and heterogeneity in radiological patterns is therefore vital for an accurate diagnosis. We hereby narrate a case of bronchostenotic variant of endobronchial tuberculosis overtly seeming like a pleural effusion on the basis of a chest radiograph.

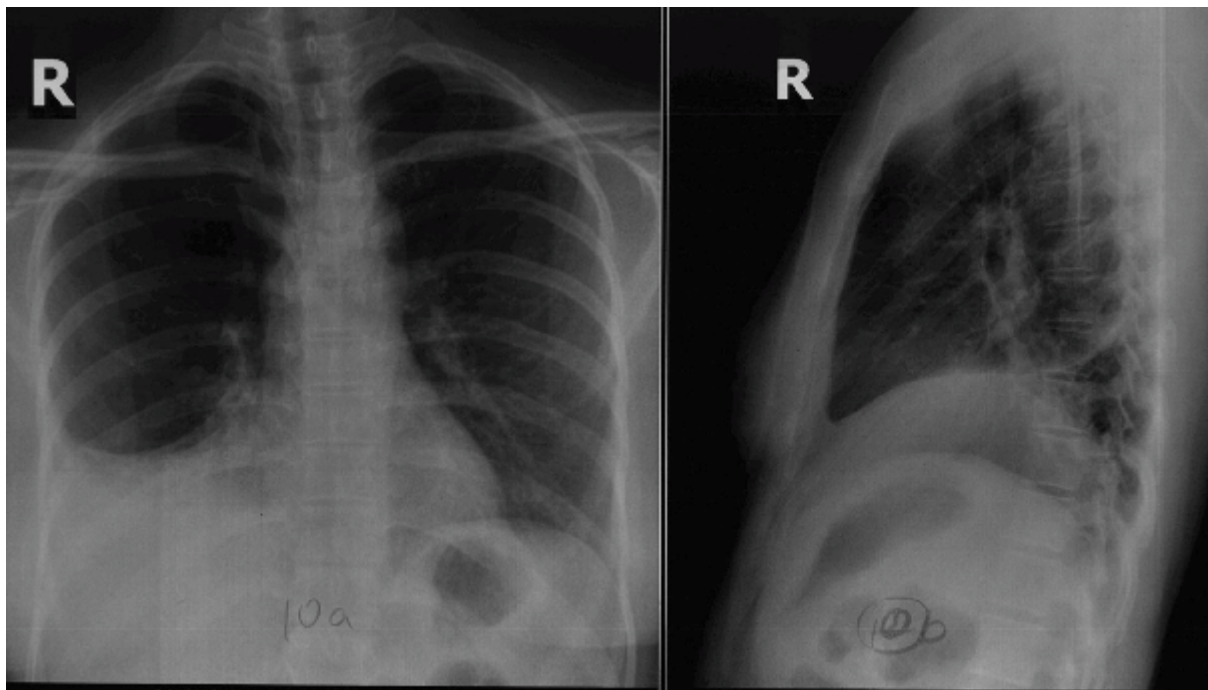
**Keywords:** Endobronchial, Tuberculosis, Bronchostenosis, Collapse

**Introduction:**

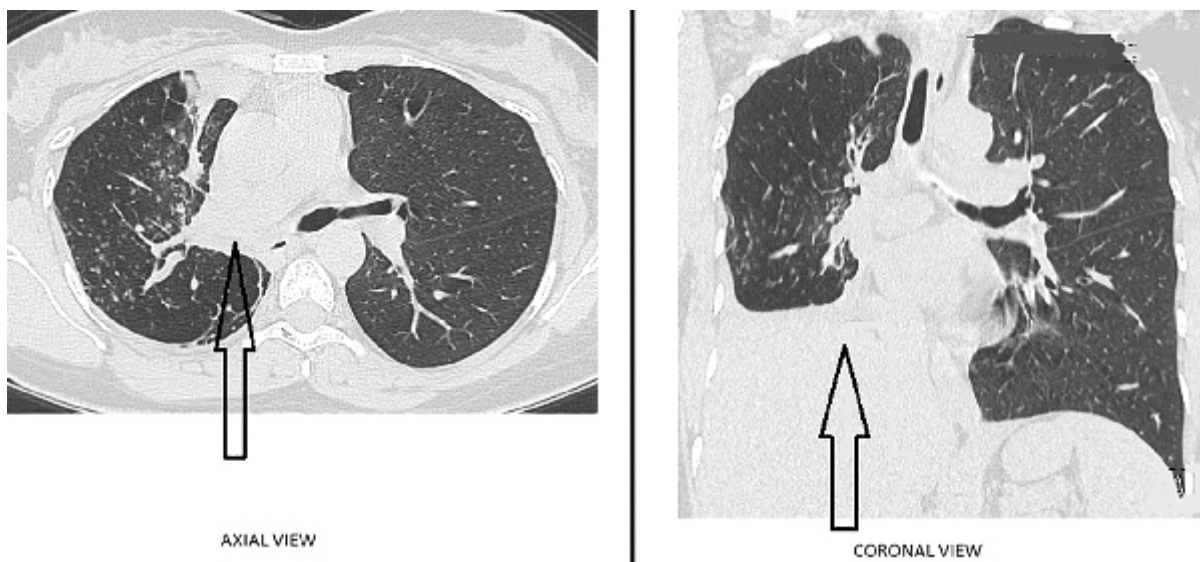
Tuberculosis is a mimicker of various clinical symptomatology, signs, radiological presentations and a differential diagnosis to a spectrum of respiratory illness [1]. Endobronchial tuberculosis is a rare variety. It has an array of manifestations. As against the accustomed radiological findings spotted in cases of parenchymal tuberculosis it can present with a multitude of radiological countenances [2]. This in turn can lead to a deferment in diagnosis causing austere sequelae and complications. We describe a rare case of bronchostenotic sequelae of endobronchial tuberculosis which presented with a very unusual and evasive radiological similitude.

**Case Report:**

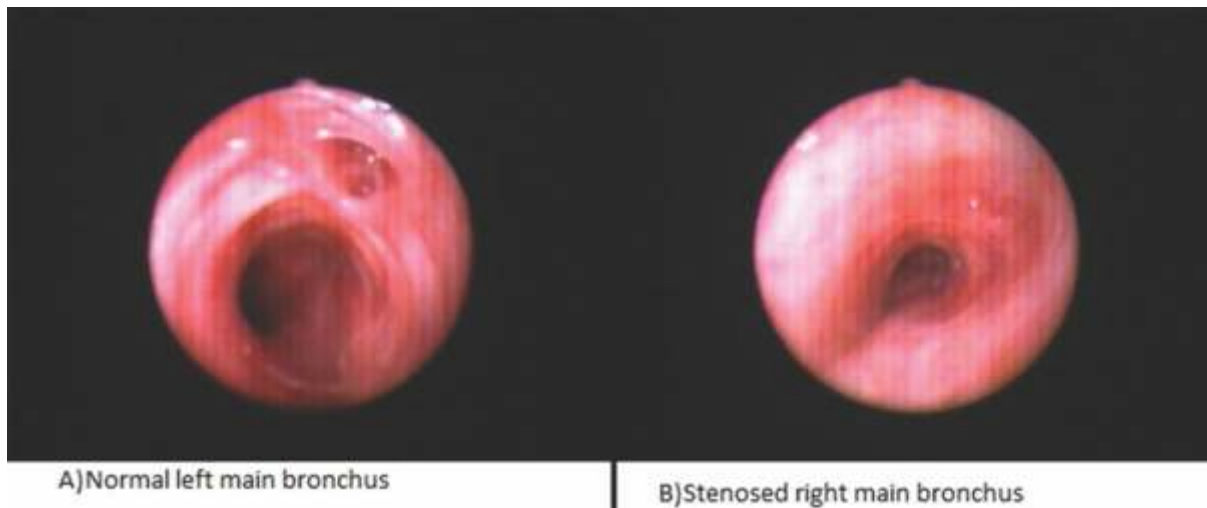
A 42-year-old lady was symptomatic with complaints of cough with expectoration and exertional dyspnoea since 4 years. There was a past history of right sided pleural effusion twice for which the patient had received antituberculosis therapy. On examination of respiratory system; there were signs of volume loss seen on right hemithorax with shift of trachea to right, decreased spinoscapular distance on right with shoulder droop and rib-crowding. There was a dull note on percussion with no shifting dullness and reduced breath sounds in right infrascapular, lower interscapular, infraaxillary and inframammary area. Chest Radiograph (CXR) showed right lower zone opacity with costophrenic angle obliteration and meniscus sign (Fig. 1) suggestive of pleural effusion. Sputum acid fast bacilli and Gene Xpert were negative. Computerised Tomography (CT) of the chest (Fig. 2) revealed complete occlusion of right main bronchus with post obstructive atelectasis of the lower lobe. Bronchoscopy showed stenotic right main bronchus and bronchoscope could not be negotiated beyond the stenotic segment. (Fig. 3) Bronchial washing was negative for tuberculosis. The patient was diagnosed as a case of right lower lobe collapse due to sequelae of endobronchial tuberculosis. Further the patient was referred for endobronchial stenting of the right main bronchus. However as the placement of stent was not feasible due to excessive narrowing of bronchus, patient underwent right lower lobectomy and recovered from it uneventfully.



**Fig. 1: Chest Radiograph Postero-Anterior View Showing a Homogenous Opacity in the Right Lower Zone with Costophrenic Angle Obliteration and Meniscus Sign**



**Fig. 2: Computerised Tomography (CT) of the Chest Showing Complete Occlusion of Right Main Bronchus with Post Obstructive Atelectasis of the Lower Lobe**



**Fig. 3: Bronchoscopy Image showed Stenotic Right Main Bronchus**

#### Discussion:

Endobronchial tuberculosis is defined as tuberculous infection of the tracheobronchial tree. Clinically a case of endobronchial tuberculosis may present with cough with sputum production, fever and haemoptysis. Endobronchial tuberculosis has been classified into seven subtypes as non-specific, granular, stenotic type with fibrosis, stenotic type without fibrosis, actively caseating type, ulceroproliferative and tumorous type [2]. Our patient belonged to the stenotic type. It may present either as an active process or as a sequelae in later life as seen in our case which presented with a main bronchus occlusion. Bronchostenosis can present with gamut of radiological manifestations ranging from emphysema to atelectasis. These in turn depend on the degree of luminal compromise and the pathological aberrancy [3]. Pneumonias, pleurisy and lung infarcts pose as close differentials. In our case, endobronchial tuberculosis presented with a sequelae in form of a lobar collapse. Collapse or atelectasis or is the shrinkage or airlessness of the lung parenchyma. Various pathophysiologic mechanisms of atelectasis include [4, 5]

- 1) Resorption or obstructive atelectasis due to intrinsic or extrinsic airway obstruction,
- 2) Passive atelectasis from diaphragmatic dysfunction and hypoventilation,
- 3) Compressive atelectasis from lung tissue compression and ineffective alveolar expansion from intra or thoracic forces,
- 4) Adhesive atelectasis due to increased surface tension.

Obstructive and non-obstructive collapses constitute the two predominant varieties of collapses based on the underlying mechanisms. Chest radiograph forms a fundamental diagnostic tool for evaluation of innumerable pulmonary pathologies and atelectasis is no exception. Complete collapse of the right lower lobe, as seen above usually presents with features of [5, 6]: Increased opacity (triangular in shape) at the medial base of the right lung, Loss of demarcation of medial aspect of the dome of right hemidiaphragm, depressed right hilum and the descending right lower lobe pulmonary artery is not visualised. Right heart border, which contacts the right middle lobe, remains well seen.

Non-specific signs indicating right sided atelectasis include: elevation of the hemidiaphragm, crowding of the right sided ribs and shift of the mediastinum to the right.

Pleural effusion is another thoracic pathology which is perpetually encountered in clinical practice. A chest radiograph again forms the backbone of diagnosis after a clinical suspicion. A homogenous opacity in the right lower zone with cardio and costophrenic angle obliteration with meniscus sign present is the trademark radiological sign in cases of pleural effusion [7, 8]. This radiological appearance is seldom espied in cases of collapse. The CXR therefore, in our case, impersonated the features of pleural effusion as against the common place radiological signs spotted in cases of lobar collapse. However, we could arrive at a correct diagnosis based on the clinical findings and with bronchoscopy playing a pivotal role. Our patient presented with a chest radiograph which had signature signs of pleural effusion. There was also a background of past history of tuberculous pleural effusion. However

as the patient gave a long standing history we further investigated with a CT which confirmed the collapse. Past episode of tuberculosis might have been associated with endobronchial tuberculosis which might have healed following therapy culminating in stenosis of right main bronchus and later leading to post obstructive collapse of right lower lobe. Hence the aetiology behind collapse in our case was stenosis as sequelae to endobronchial tuberculosis. Our case therefore highlights the fact that though CXR is indispensable and the prime modality of investigation in most of the habitually confronted scenarios it does have its own set of limitations. Also the traditional radiological signs of collapse may not be universally encountered. Knowledge of this fact is essential in making an accurate diagnosis. We hereby highlight the necessity of considering a differential of this entity in instances of unorthodox radiological manifestations in light of an appropriate clinical context.

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