



Case report

Mechanical complication of endobronchial tuberculosis



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ABSTRACT

A 19-year-old Vietnamese lady was diagnosed with culture positive, left upper lobe pulmonary tuberculosis for which medical treatment was initiated. Four months into treatment, she developed a 'rubber-band-like' stretching sensation in her left chest with wheezing and shortness of breath. Decreased respiratory excursion over the left lung was present on physical-examination. Chest-Xray revealed left-upper-lobe collapse with leftward deviation of the trachea and mediastinum. CT thorax revealed a long segment of stenosis in the left mainstem bronchus. FEV1 was 1.26 L (45% predicted), FVC 1.53 L (49% predicted), FEV1/FVC 82% (95% predicted) indicating airway limitation. Ventilation-perfusion scan noted 9.8% ventilation to the left lung and 92.8% to the right lung and 7.6% perfusion to the left lung and 92.4% to the right lung. Bronchoscopy was notable for pin point stenosis of the left mainstem bronchus beyond which was inflamed mucosa and abnormal cartilage rings in the left upper and middle lobe bronchi. Nine months of medical therapy for tuberculosis along with oral steroid taper was completed successfully; however the patient has required six serial bronchoscopies with dilatations without stent placement at four to six week intervals due to partial restenosis, with the last bronchoscopy at four months after completion of tuberculosis therapy.

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A 19-year-old Vietnamese lady was diagnosed with culture positive, left upper lobe pulmonary tuberculosis for which medical treatment was initiated. Four months into treatment, she developed a 'rubber-band-like' stretching sensation in her left chest with wheezing and shortness of breath. Decreased respiratory excursion over the left lung was present on physical-examination. Chest-Xray revealed left-upper-lobe collapse with leftward deviation of the trachea and mediastinum (Fig. 1). CT thorax revealed a long segment of stenosis in the left mainstem bronchus (Fig. 2). FEV1 was 1.26 L (45% predicted), FVC 1.53 L (49% predicted), FEV1/FVC 82% (95% predicted) indicating airway limitation. Ventilation-perfusion scan noted 9.8% ventilation to the left lung and 92.8% to the right lung and 7.6% perfusion to the left lung and 92.4% to the right lung. Bronchoscopy was notable for pin point stenosis of the left mainstem bronchus beyond which was inflamed mucosa and abnormal cartilage rings in the left upper and middle lobe bronchi (Fig. 3). Nine months of medical therapy for tuberculosis along with oral steroid taper was completed successfully; however the patient has required six serial bronchoscopies with dilatations without stent

placement at four to six week intervals due to partial restenosis, with the last bronchoscopy at four months after completion of tuberculosis therapy (Fig. 4).

The diagnosis of EBTB (endobronchial tuberculosis) depends on the presence of specific endobronchial findings and culture of *Mycobacterium tuberculosis* from bronchoscopic samples [1,4,6,8,12–14,19,20,25]. Early diagnosis [17,18,26] and prompt treatment of EBTB [30] is important to minimize or prevent bronchial stenosis which may occur despite effective antituberculous treatment. Treatment should be individualized according to the subtype of EBTB detected on the initial bronchoscopic examination [9,15]. A widely accepted classification of EBTB has the following seven subtypes: (i) actively caseating, (ii) edematous-hyperemic, (iii) fibrostenotic, (iv) tumorous, (v) granular, (vi) ulcerative, and (vii) nonspecific bronchitis [21]. All subtypes may transform or progress into other subtypes during treatment [10,11,16]. The role of steroids in the prevention of bronchostenosis is controversial [7,24,27]. For the treatment [28] of bronchostenosis that has already developed, interventional therapeutic modalities [3,5] such as electrocautery, laser therapy [23] or stent insertion [2,29] should be considered. Drug

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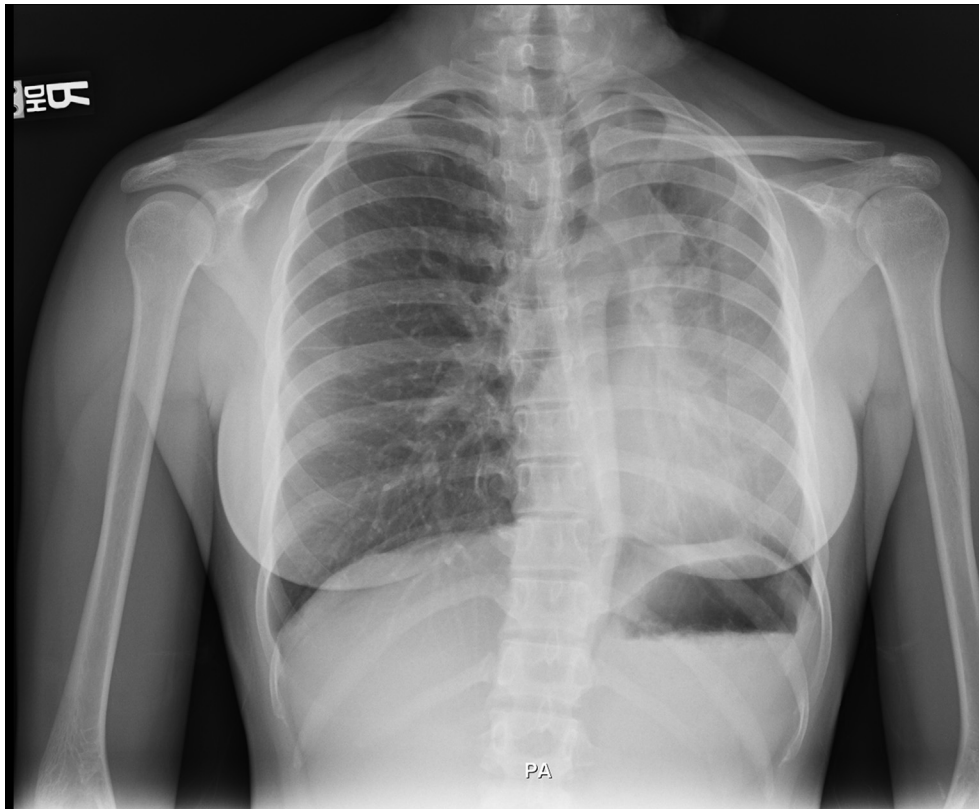


Fig. 1. The chest Xray without arrows.



Fig. 2. The CT thorax.

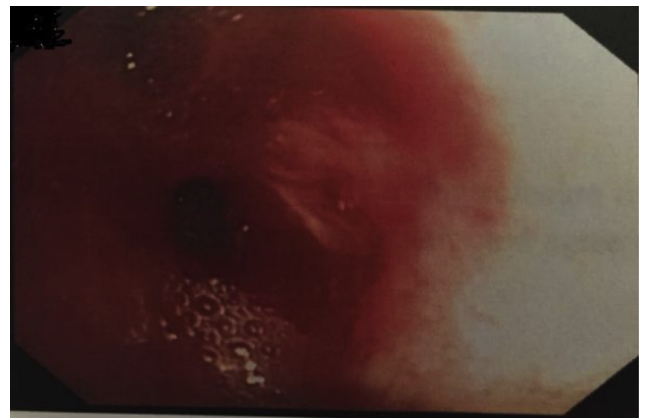


Fig. 3. The initial bronchoscopy, pre dilation.

treatment should be given for active inflammation before interventional procedures and should be continued for a minimum of three months to prevent recurrence. Surgical resection may be indicated in subjects unresponsive to interventional bronchoscopic treatment. Bronchoplastic surgery is performed in order to preserve lung function for tracheal or major bronchial strictures [22]. Appropriate antituberculous treatment should be given for at least nine months to prevent recurrence or restenosis in such patients.

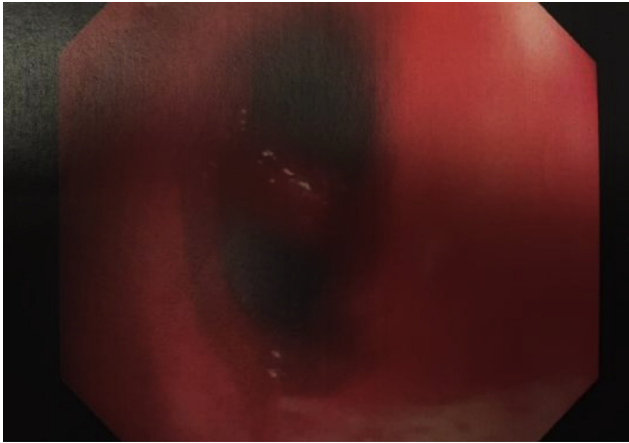


Fig. 4. The last bronchoscopy, post dilation.

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