

Case Report

An unusual cause of bronchial obstruction

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ABSTRACT

We present here a case of bronchial obstruction secondary to late paradoxical reactive enlargement and erosion by mediastinal lymph nodes into the left main bronchus in a 26-year-old woman with tuberculosis lymphadenitis. Bronchial obstruction due to paradoxical reactions, especially in the late phase of treatment, has not been described in adults before.

KEY WORDS: Bronchial obstruction, immune reconstitution inflammatory syndrome, introduction, mediastinal lymphadenopathy, paradoxical reaction, Tuberculosis

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INTRODUCTION

Paradoxical enlargement of lymph nodes in tuberculosis is well established in the early phase of treatment.^[1-3] This is more common in HIV co-infection. Reactive enlargement in the late phase of treatment is unusual and rare. Mediastinal lymphadenopathy resulting in recurrent laryngeal nerve palsy, pulmonary artery occlusion and superior vena caval obstruction has been described.

We report a case of bronchial obstruction in a patient with fully sensitive organism in the late phase of the treatment.

CASE REPORT

A 26-year-old Somalian woman was diagnosed with *Mycobacterium tuberculosis* infection in January 2008. She presented with cervical and mediastinal lymph node enlargement without any obvious lung parenchymal involvement. Acid fast bacilli (AFB) were seen on fine needle aspiration of the cervical lymph node. Culture showed *M. tuberculosis* which was fully sensitive. She was HIV negative.

After initial problems with compliance, full standard quadruple therapy was effectively started in April 2008. Maintenance treatment was commenced in June 2008.

The chest X-ray (CXR) on first presentation did show a narrowed left main bronchus in the absence of any clinical signs or symptoms. Furthermore, she had a normal exercise tolerance.

The only relevant past medical history was of childhood asthma, for which she had no hospitalizations and did not use any regular inhaled therapy.

She presented in August 2008 to the accident and emergency department with a one-week history of worsening shortness of breath. The repeat CXR showed narrowing of the left main bronchus. Inhaled steroids and bronchodilators were started for a possible asthma exacerbation and she was discharged home. Her symptoms deteriorated and when seen in the TB clinic four weeks later, her exercise tolerance was limited to about 100 yards.

On examination, a monophonic wheeze was audible on the left side of the chest. A repeat CXR showed marked narrowing of the left main bronchus, confirmed on CT scan which showed almost complete occlusion of the left main stem bronchus. Spirometry showed FEV₁ - 1.09 L/min (36.3% of predicted), FVC 1.44 (41.7% of predicted) [Table 1a]. The flow-volume loop had a characteristic shape of large airway obstruction [Figure 1].

She was commenced on oral Prednisolone 30 mg once daily. There was no concern with compliance at this time.

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A bronchoscopy also showed complete occlusion of left main bronchus with white necrotic material [Figure 2]. Histology revealed necrotic material with changes consistent with treated TB. Bronchoalveolar lavage was positive for AFB but microbiological culture did not grow any mycobacteria.

Her treatment was continued with both anti-tuberculous therapy and steroids. Two weeks later her symptoms had markedly improved. Three days prior to the clinic visit she said she had coughed up a large lump of white material and her breathing had returned to near normal since. Her wheeze had completely disappeared. Repeat spirometry showed improvement with an FEV₁ - 1.85 (61.5%), FVC - 2.81(81.6%) [Table 1b] with normalization of the flow volume loop [Figure 3a]. Bronchoscopy was repeated and this showed a patent left main bronchus with some necrotic material on the lateral wall [Figure 3b].

She continued with anti-tuberculous treatment for a full one year and steroids were slowly tapered off. Her CXR showed marked improvement in the narrowing of the left main bronchus towards the end of treatment. Spirometry also returned to normal as did her symptoms. One year after stopping treatment she remains healthy.

DISCUSSION

Endobronchial tuberculosis is less common since the advent of effective anti-tuberculous chemotherapy, but mediastinal lymphadenopathy due to mycobacterial infection is still common in developing countries.^[1] Paradoxical enlargement of lymph nodes has been well-documented.^[2] Paradoxical reactions on the whole are more common with HIV co-infection (28%) than without (10%).^[3] Lymph node enlargement is the most common presentation and bronchial obstruction due to mediastinal lymphadenopathy is more common in the pediatric age group.^[4] In adults, bronchial obstruction due to reactive enlargement late into treatment has not been described before.

Table 1a: Spirometry at presentation

Spirometry	Spirometry at presentation		
	Pred. val	Meas	% pred. val
FEV ₁ (L)	3.01	1.09	36.3
FVC (L)	3.45	1.44	41.7
FEV ₁ /FVC (%)	84.1	76.0	90.3
PEF (L/S)	7	3	36.4
MEF (L/S)	4.1	1.0	24.0

Table 1b: Spirometry after treatment

Spirometry	Spirometry after treatment		
	Pred. val	Meas	% pred. val
FEV ₁ (L)	3.01	1.85	61.5
FVC (L)	3.44	2.81	81.6
FEV ₁ /FVC (%)	84.1	65.8	78.2
PEF (L/S)	7	4	56.8
MEF (L/S)	4.1	1.8	44.8

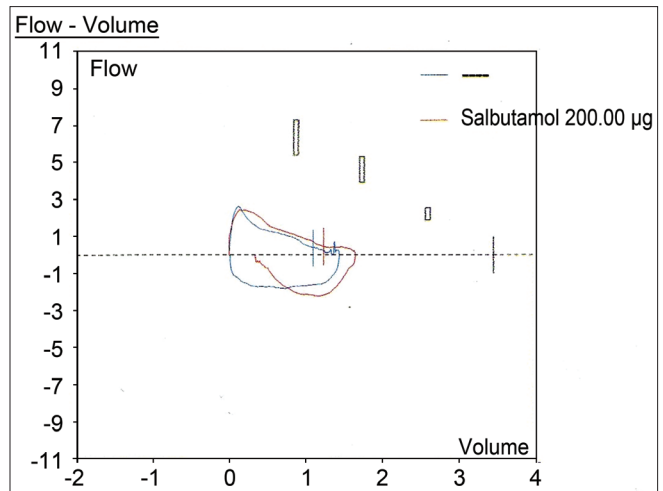


Figure 1: Flow-volume loop of the patient which is characteristic of large airway obstruction



Figure 2: White necrotic matter seen occluding the left main bronchus at bronchoscopy

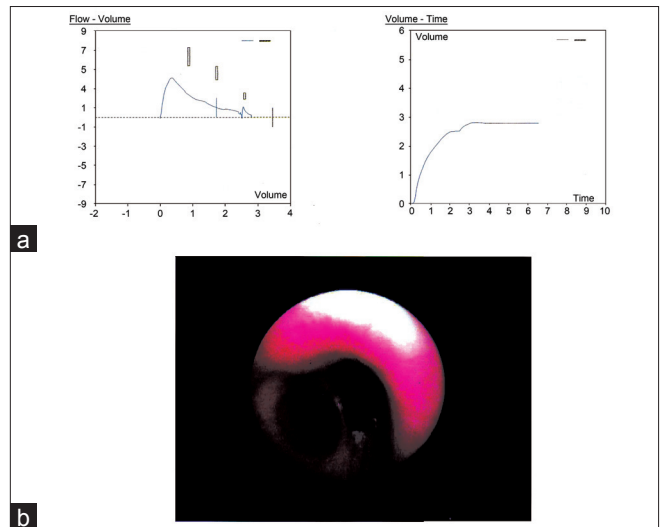


Figure 3: (a) Flow-volume loop improved with less evidence of airway obstruction, (b) Patent left main bronchus with only a small amount of necrotic matter remaining at repeat bronchoscopy

Patients with tuberculous mediastinal lymphadenopathy presenting with recurrent laryngeal nerve palsy,^[1] pulmonary artery occlusion^[5] and superior vena caval obstruction^[6] have been described. These presentations may be due to either external compression or erosion into the surrounding structure. In this particular case, the bronchoscopy showed caseating material eroding into the left main bronchus. Nakvi *et al.*,^[4] described this in children, in whom the obstruction was relieved by either aspiration or surgical excision.

Response to steroids has not been consistent in many series described but generally paradoxical reactions, unlike endobronchial TB, are thought to be more steroids responsive.^[7,8] Our patient responded well to steroids. Even after coughing up necrotic debris and relieving endobronchial obstruction, she still had significant airway obstruction on spirometry and radiology. This further improved with steroids.

Late paradoxical reactions should be considered in any patient on anti-tuberculous chemotherapy presenting with stridor.

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Announcement

Respiratory Update Goa 2012

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