TUBERCULOSIS MASQUERADING AS ENDOBRONCHIAL GROWTH IN YOUNG ADULT FEMALES: TWO CASE REPORTS

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ABSTRACT

Tuberculosis has been described in the past as “The Great Mimic”. Despite its protean manifestations, the presentation of tuberculosis as an endobronchial tumor is rare. We present two cases in young adult females with sessile endobronchial tumours that suggested malignancy but yielded a diagnosis of tuberculosis. Both patients responded well to anti-tuberculous treatment with complete radiological resolution.

KEY WORDS: Tuberculosis, Endobronchial Tumor
BAL: Broncho-Alveolar Lavage
FNA: Fine-Needle Aspiration
ATT: Anti-Tubercular Therapy

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INTRODUCTION

An endobronchial tumor mandates ruling out malignancy. In young and otherwise healthy non-smokers with sessile proximal endobronchial growths, carcinoid tumor need to be considered. It is necessary to retain tuberculosis within the differential diagnosis of such lesions (especially in countries of high-incidence) even though a presentation in this manner is very rare.

CASE 1

A twenty-nine year old female presented to our out-patient department with a history of breathlessness on exertion for three months, productive cough, loss of weight and malaise for two months. She had had no significant health problems in the past. There was a positive family history for tuberculosis, with several members having been successfully treated. Examination revealed diminished breath entry in the left infraclavicular area, but the rest of the systemic examination was normal. A chest radiograph (Fig 1) showed collapse-consolidation of the left upper lobe. A computerized tomographic (CT) scan of the chest (Fig 2) confirmed the consolidation in the left upper lobe, with loss of volume. A slight air bronchogram was noted. There was an enlargement of pre-carinal as well as left hilar lymph nodes.

Figure 1: Patient A. Chest PA view showing collapse consolidation of left upper lobe.

Figure 2: Patient A. Computerized Tomogram of the chest showing the left upper lobe consolidation.

The patient was overtly immunocompetent (non-diabetic, and seronegative to a HIV test by ELISA). Sputum for acid-fast bacilli (AFB) was negative. On bronchoscopy a smooth sessile tumour was seen at the origin of the left upper lobe, with prominent vascularity of the mucosa overlying it (Fig 3).
Bronchoscopic bronchoalveolar lavage (BAL) revealed a low-grade inflammatory smear, with 100% of the white cells being polymorphs, and no malignant cells. Again, no acid-fast bacilli or fungal elements were seen. The fluid did not grow out any pyogenic bacteria on culture.

Endobronchial biopsies showed granulomatous inflammation (Fig 4), but in view of the concerns that too-superficial sampling could have overlooked a coexistent malignancy, a thoracoscopic biopsy of the left upper lobe mass was decided upon.

At thoracotomy, the tissue was firm to touch. Frozen section studies excluded the possibility of malignancy. Permanent paraffin sections showed granulomatous inflammation with necrosis, this time with a few AFB (Fig 5). There was widening of the lamina propria and multiple aggregates of histiocytic epitheloid cells forming granulomas surrounded by lymphocytes, plasma cells and a few eosinophils. A few Langhans type giant cells were seen, with a focal area of caseous necrosis. As well, histopathology of the lymph node tissue showed appearances compatible with tuberculosis. The patient was treated with 6 months course of standard anti tubercular chemotherapy (ATT) and exhibited complete radiological resolution. The chest radiograph after 2 months’ ATT is shown (Fig 6).
CASE 2
A 28 year old female presented with a history of fever of a month’s duration, and a dry cough that had not responded to two courses of antibiotics. She was non-diabetic with a negative HIV serology by ELISA. For chest X-ray that was considered ominous (see below), she had been referred to a local cancer centre where she underwent a trans-thoracic fine needle aspiration (FNA) of the left peri-hilar lesion: the cytopathology report was inconclusive. The chest X-ray showed a hyperdense lesion in the left hilum (Fig 7); the chest CT showed a mass-like lesion in the posterior segment of the left upper lobe (Fig 8).

Bronchoscopy showed a sessile endobronchial lesion partially obstructing the left lower lobe (Fig 9). This tumor was covered with smooth mucosa and bled on contact. In addition there was a pale yellow area on the surface of the lesion (possibly focal necrosis). Bronchial
lavage from the affected segment revealed occasional mixed flora but no fungal elements or AFB. Bronchial biopsies revealed mucosa lined by benign epithelium which was ulcerated and covered with necrotic material in a few places. A moderately dense inflammatory infiltrate was visible in the subepithelial stroma with lymphocytes, plump histiocytes, neutrophils and occasional plasma cells. Well formed granulomas were not seen, and there was no evidence of malignancy (Fig 10). However, single AFB were seen in multiple serial Z-N stained sections.

![Figure 9](image1.png)  
**Figure 9:** Patient B. Bronchoscopic view of the left upper lobe “growth”.

![Figure 10](image2.png)  
**Figure 10:** Patient B. Endobronchial Biopsy showing an infiltrate of lymphocytes, plump histiocytes and polymorphs. Well formed granulomas are not seen (H-E stain, 40x magnification).

In this case as well, there was complete radiological resolution with standard 4-drug antitubercular chemotherapy (Fig 11).

![Figure 11](image3.png)  
**Figure 11**  
*Patient B. Chest radiograph showing complete resolution after treatment for tuberculosis.*
DISCUSSION

Some form of endobronchial involvement occurs in 10-40% of all pulmonary tuberculosis\(^1\), though its presentation as an endobronchial tumor is rare. Pathogenetic mechanisms of the development of endobronchial tuberculosis (EBTB) include direct spread from adjacent pulmonary lesions, erosion of adjacent hilar lymphnodes into the bronchial lumen, lymphatic spread to peribronchial space and haematogenous spread to the bronchus\(^2,3\). EBTB is more common in young females, particularly in third decade\(^4\). The female predisposition has been explained on the grounds of the generally smaller airways in women, and on account of the fact that women in certain cultures were more likely to suppress their cough than men: this is possibly a simplistic explanation. Seven varieties of EBTB have been described by Chung and Lee\(^5\) based on bronchoscopic appearances (actively caseating, edematous-hyperemic, fibrostenotic, granular, ulcerative, nonspecific bronchitic and tumorous). Of these, the actively caseating form seems to be relatively more common. This patient presented with the tumorous variety which is rare, and simulates an adenoma or malignancy on bronchoscopy.

A common manifestation of adult post-primary TB is an apical pulmonary parenchymal infiltrate. Apical infiltrates most usually occur in the posterior segment of the upper lobe of either lung\(^6\). Such an infiltrate, when it is seen in conjunction with an endobronchial tumor, is a clue to tuberculosis; equally, it could represent infective consolidation by pyogenic bacteria distal to the obstructed segment. Although these segments were specifically targeted during the bronchoscopic lavage, they failed to reveal AFB. This is not unusual. Endobronchial biopsies show only nonspecific changes in as many as a third of all biopsies in such cases\(^7\). In both the patients, however, a few AFB did appear on the biopsy samples, though one patient required thoracoscopic sampling to unequivocally prove the diagnosis. Treatment of EBTB is identical to the other usual forms of pulmonary tuberculosis\(^8\), and the response to treatment is also usually no different\(^9,10\). Occasionally, endobronchial stenosis may complicate the process of resolution and may require intervention. Although there is no firm evidence that adjunctive corticosteroid therapy might help prevent this, the argument that a vigorous inflammation underlies the pathogenesis might support the use of systemic steroids\(^11\), although guidelines such as the Revised National TB Programme in India does not advocate steroids as adjuncts to TB treatment\(^12,13\).

CONCLUSION

Non-neoplastic pathologies should be given due consideration in the differential diagnosis of endobronchial tumors. When seen in young patients who have no obvious risk factors for malignancy, associated fever weight loss and night-sweats, an apical pulmonary parenchymal infiltrate, should raise the possibility of this common granulomatous infection, even though bronchoscopic appearances alone might suggest otherwise. BAL, FNA and cytology-based investigations can be unrewarding, and an adequate tissue specimen should always be secured.

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