

## Pulmonary tuberculosis presenting as suspected foreign body aspiration

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### Abstract

Tuberculosis is a disease of protean manifestations, and despite a falling incidence is still prevalent in our society.

We present a case of a child whose history and preoperative chest radiograph suggested the presence of a foreign body, but subsequent examination of the material removed at endoscopy revealed a diagnosis of tuberculosis. We suggest that all friable material removed from the lower respiratory tract be submitted for microscopy, culture and histopathology with this diagnosis in mind.

### Introduction

Although the incidence of childhood pulmonary tuberculosis has been falling in the UK over the past 20 years (Dinwiddie, 1990) cases still occur, particularly in immigrants, low socioeconomic groups, the malnourished and the immunocompromised, and the diagnosis must not be overlooked.

Foreign body aspiration occurs in young children, 77 per cent of them aged one to three years. It is more common in males, M:F 2:1 (Rothman and Boeckman, 1980), and is not witnessed in a third of cases (Moscowitz *et al.*, 1982). Food or food products account for 70 per cent of cases (Rothman and Boeckman, 1980).

In the majority of cases the diagnosis is not in doubt, the witnessed event being followed by an attack of choking, coughing, gagging, or wheeze, rarely with stridor or acute respiratory distress. Recurrent pneumonia (Healy, 1990) or specific radiographic changes are often powerful indicators of foreign body aspiration, but may be misleading.

We present a case of pulmonary tuberculosis which was treated as a foreign body aspiration by two successive teams, leading to delay in diagnosis.

### Case report

A 17-month-old girl, the only child of Caucasian parents, was referred from her local hospital with a diagnosis of a foreign body in the right lower lobe bronchus complicated by segmental atelectasis in the right lower zone.

She presented with a one month's history of persistent cough following a choking spell associated with violent coughing and a small vomit. Examination revealed that she was afebrile, there was no respiratory distress, wheezing or rhonchi, although there was decreased air entry to the right base. A chest X-ray revealed segmental collapse of the right lower lobe with unilateral emphysema more marked on the expiratory film in the right lower zone. Bronchoscopy was performed at her local hospital and a foreign body was visualized in the right lower bronchus, it was however only partially removed due to technical difficulty.

Post-operatively she was commenced on Augmentin and given chest physiotherapy. A repeat chest X-ray showed persistent right lower lobe consolidation (Fig. 1). She was then referred to Great Ormond Street for repeat bronchoscopy.

At repeat bronchoscopy, granulations and white fibrous

material were found in the right lower lobe bronchus. Adrenaline 1 in 100,000 was applied topically to shrink the surrounding mucosa and decrease bleeding during extraction. Friable white material was removed with foreign body forceps, and pus was aspirated from the right lower lobe once the lumen was patent. The material was believed to be vegetable matter and was sent both for culture and histological analysis.

She remained systemically well apart from a 24 hour pyrexia on the third post-operative day, and continued to receive Augmentin and regular chest physiotherapy. On the sixth post-operative day examination of material sent for histological analysis revealed areas of caseation necrosis, and a Ziehl-Neelson stain demonstrated acid-fast bacilli. A Mantoux test and fasting gastric washings were performed, the former was strongly positive and the latter negative, anti-tuberculous chemotherapy was then commenced.

Her subsequent recovery was unremarkable, and to date no obvious contact has been traced.

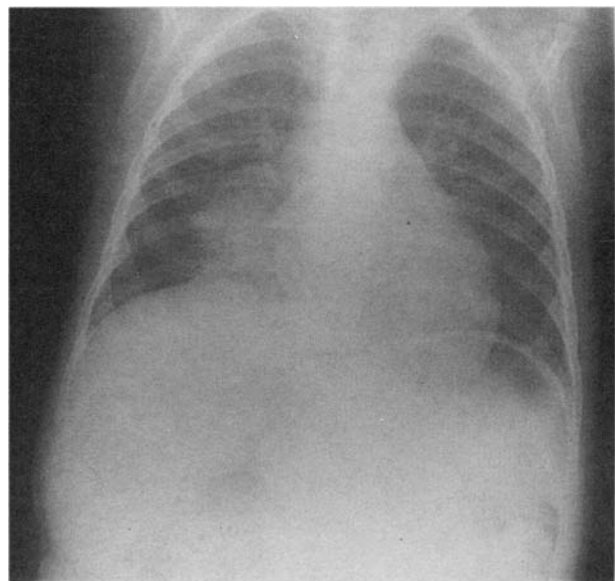


FIG. 1

Chest X-ray taken immediately prior to the second bronchoscopy, demonstrating consolidation of the right lower lobe.

### Discussion

Foreign body aspiration causes the death of 500 children per year in the USA (Black *et al.*, 1984), and when suspected a complete endoscopic examination of the upper aerodigestive tract must be undertaken without delay. We believe this dictum must be adhered to at all times, however, where relevant, other diagnoses should be considered.

Tuberculosis and foreign body aspiration can both present with coughing, haemoptosis and unilateral wheeze, with little constitutional upset. Radiographic changes including obstructive emphysema, mediastinal shift, atelectasis, and lung abscess, are also common to both conditions. In young children, as opposed to adolescents and adults, tuberculosis more frequently occurs in the lower lobes, which is also the commonest site of an aspirated foreign body.

Pulmonary tuberculosis invariably involves regional nodes in children; this involvement is usually asymptomatic but may give rise to partial or complete bronchial obstruction complicated by air trapping, hyperinflation, and subsequent collapse behind the obstruction. Caseation and abscess formation may occur within infected nodes, and rarely rupture into an adjacent bronchus can occur.

The most likely pathogenesis for the case presented is rupture of a caseous lymph node into the right lower lobe bronchus, resulting in a bout of coughing, with subsequent bronchial obstruction and pneumonia. The caseous material removed at bronchoscopy was then mistaken twice for necrotic vegetable matter. Vegetable material is usually hygroscopic, and may be extremely friable if it has been present for any length of time. It also excites an intense foreign body reaction with mucosal swelling and granulation tissue; characteristics of any chronic inflammatory condition.

**Key words:** Tuberculosis; Foreign body, Bronchoscopy

It is surprising that even with the vast overlap between these two not uncommon conditions this confusion has never previously been described.

We advocate that all suspected foreign bodies undergo bronchoscopy without delay, and that any friable material removed be sent for microscopy and culture as well as histological analysis.

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