Pleural effusion and fever in a middle-aged Asian man

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A 66-year-old retired Asian steelworker was admitted with a 2-month history of breathlessness, productive cough and fever following a recent trip to India. He was an ex-smoker who denied previous exposure to tuberculosis or asbestos. On examination he had a fever of 38°C but no finger clubbing or lymphadenopathy. Clinically, he had signs consistent with a large right pleural effusion.

Investigations revealed an elevated plasma viscosity of 2.02 mPa (normal 1.5–1.72), with a leucocytosis of $20.6 \times 10^9/l$ (91% neutrophils). Malaria screen was negative. *Haemophilus influenzae* was cultured from the sputum. Ziehl Neelsen stain was negative, as was cytology for malignant cells. The pleural fluid was a sterile exudate. Histology from pleural biopsy revealed inflammatory material, mainly neutrophils and fibrin. No granulomata or malignancy were identified. His chest X-ray, thoracic computed tomography (CT) scan, and bronchoscopy are shown in figures 1, 2 and 3, respectively.³

Figure 1 Chest X-ray

Figure 2 Thoracic CT scan

Figure 3 Bronchoscopic appearance

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Questions

- 1 What do the chest X-ray and CT scan show?
- 2 What is the differential diagnosis?
- 3 What is seen at bronchoscopy and what is the final diagnosis?

Answers

QUESTION 1

The chest X-ray shows a large right pleural effusion. The CT scan shows thickening of the parietal pleura in the lower right chest and a loculated pleural effusion. There is also narrowing of the right lower lobe bronchus and one enlarged tracheal lymph node.

QUESTION 2

In this case the main differential diagnosis lies between pulmonary tuberculosis and bronchial carcinoma. However, a *Haemophilus influenzae* pneumonia with a parapneumonic effusion could also produce a similar picture, although the history is rather prolonged for this. Neoplastic causes other than carcinoma should be excluded, such as lymphoma and mesothelioma, as should chronic inflammatory disorders such as connective tissue disease and sarcoidosis. Finally, even though there is no history of choking, this clinical picture can be seen following foreign body aspiration.

QUESTION 3

The bronchoscopic appearance is that of a foreign body in the right lower lobe bronchus. This was removed and identified as a cardamom pod (*Elettaria cardamomum*). The diagnosis was therefore confirmed as silent tracheobronchial foreign body aspiration resulting in bronchial obstruction, distal pneumonitis and pleural effusion.

Six months later he had made a complete recovery and his chest X-ray had returned to normal.

Discussion

Inhalation of foreign bodies into the bronchial tree is well recognised as a cause of both acute and chronic respiratory symptoms in children, but less so in adults.¹ Those at particular risk include the elderly and alcoholics. Aspiration is also more likely to occur in those patients with neurological disease associated with an im-

Learning points

- silent foreign body aspiration can occur in all patients, not just those with an impaired swallowing reflex
- presentation can be wide and varied therefore foreign body aspiration should be considered as a potential cause of subacute or chronic respiratory symptoms
- bronchoscopy usually allows both diagnosis and treatment

paired swallowing or cough reflex, but it can still occur in people without these problems, for example, rapid or careless eaters.² Food items are most commonly aspirated and they tend to cause more irritation to the bronchial mucosa than inorganic matter because of the oils they release.¹

Presenting features of unrecognised aspiration can include persistent pneumonia, asthma, chronic cough with haemoptysis, lung abscess, bronchiectasis and pleural effusion.³ There are no previous reports of this condition mimicking pulmonary tuberculosis as in our case. Diagnosis can be difficult as the patient is often unaware of aspiration or unable to give a clear history. Delay in diagnosis can therefore be considerable and previously it has been reported to have taken as long as 40 years.⁴

Once the diagnosis of foreign body aspiration is considered, it can usually be confirmed and removal performed by fibre-optic bronchoscopy. If this method is unsuccessful then rigid bronchoscopy or thoracotomy may be required.

Final diagnosis

Silent tracheobronchial foreign body aspiration resulting in bronchial obstruction, distal pneumonitis and pleural effusion.

Keywords: foreign body aspiration; tracheobronchial tree

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