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Repeated insertion of foreign bodies into the tracheobronchial tree via tracheostomy

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Abstract
A case of persistent pneumonia in a depressed adult woman occurring as a complication of the repeated insertion of foreign bodies into the trachea via a tracheostomy is presented. This is an unusual complication of tracheostomy but should be considered in cases of persistent or unusual pulmonary infection in tracheostomy patients.

Key words: Foreign bodies; Tracheostomy

Introduction

Foreign bodies in the bronchial tree are unusual in adults. We report here a case of persistent pneumonia complicating multiple unusual foreign bodies in a patient with a tracheostomy in which it appears that deliberate insertion or inhalation of the foreign bodies occurred.

Case report

A 33-year-old lady with severe idiopathic generalized dystonia presented in August 1989 with a history of worsening dyspnoea and a cough productive of purulent sputum. In 1987 she had required a permanent tracheostomy for recurrent severe stridor due to laryngeal dystonia. She had a long history of mild depressive illness and had taken several overdoses, the last one being in June 1988. Shortly after this she had sought medical advice claiming to have inadvertently inhaled a 'cotton wool bud' whilst attending to her tracheostomy, but extensive investigation including chest radiographs and fibre optic bronchoscopy failed to locate any foreign body.

In August 1989, she presented with breathlessness, fever and a cough productive of purulent sputum. Clinical and radiographic examination of the chest confirmed a right upper lobe pneumonia and *E. coli* was isolated from her sputum. She was treated with intravenous antibiotics but her clinical condition failed to improve. A repeat fibreoptic bronchoscopy was performed and on this occasion a 10 cm length of pipe cleaner was extracted from the right upper lobe bronchus. Her chest radiographs revealed two smaller metallic objects, presumably also lengths of pipe cleaner, but these were beyond the reach of the bronchoscope. Upon review of earlier chest radiographs it was apparent that her chest films were clear in January 1989 (Fig. 1a) but that two small radiopaque objects were present in June 1989 (Fig. 1b) and a further abnormal structure had appeared by August 1989 (Fig. 1c). These had all been confused with 'metallic sutures' in reports and this had not been questioned until the last radiograph was reviewed. Following removal of the pipe cleaner, the pneumonia resolved but she refused further surgical intervention to retrieve the other foreign bodies. She neither confirmed nor denied deliberately inhaling the pipe cleaners, but their appearance coincided with a documented period of prolonged depression and occasional expression of suicidal ideas.

Discussion

Idiopathic generalized dystonia (or dystonia musculorum deformans) is a neurological syndrome in which sustained involuntary muscle contractions cause twisting and repetitive movements or abnormal postures (Fahn *et al.*, 1987). The cause is unknown but there is good evidence of basal ganglia dysfunction in these patients. In addition, the dystonic movements may affect the laryngeal musculature causing stridor and dysphonia but rarely as severely as in our patient (Marsden and Harrison, 1974). As with many neurological conditions depression is a common complication but there is no excess of psychosis and the condition itself is not of psychological origin.

Tracheal foreign bodies are rare in adults, and deliberate self-inhalation is very rare indeed. Weissberg and Schwartz (1987) reported a case of a mentally retarded adult who chewed and inhaled a mercury thermometer, commenting that an occasional psychotic patient may aspirate a foreign body intentionally. Our patient was depressed but not psychotic or retarded, and so as far as we are aware this is the first reported case of repeated insertion of foreign bodies into the tracheobronchial tree (as shown by their sequential appearance on successive chest films) and of apparent attempted self harm by deliberate aspiration. The presence of a tracheostomy obviously bypasses the normal protective pharyngeal reflexes making foreign body insertion easier. Accidental inhalation of tracheostomy tubes, plugs and stomal buttons (Mohan *et al.*, 1983; Osborne and Osborne, 1985; Lawton and Abadee, 1987) is also facilitated by this mechanism. We cannot exclude the possibility that the pipe cleaners were accidentally inhaled, or that the patient had some other strange reason for inserting them, but their appearance over a number of months despite the extra advice on tracheostomy care that she received after the apparent inhalation of the 'cotton wool bud' one year previously suggests that the act of insertion was deliberate.

Conclusions

The presence of a tracheostomy facilitates the insertion of foreign bodies into the tracheobronchial tree. In tracheostomy patients who are depressed or otherwise disturbed the possibility of deliberate self-inhalation should be considered in cases of unusual or persistent pulmonary infections.

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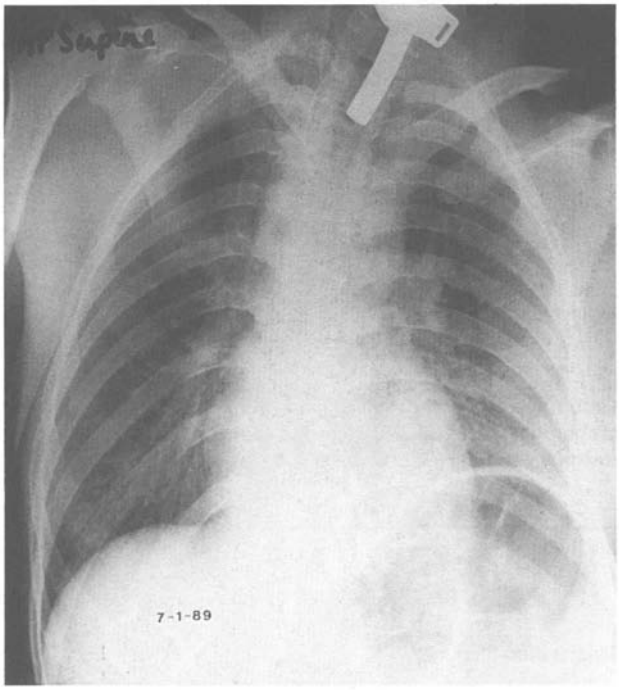

FIG. 1a

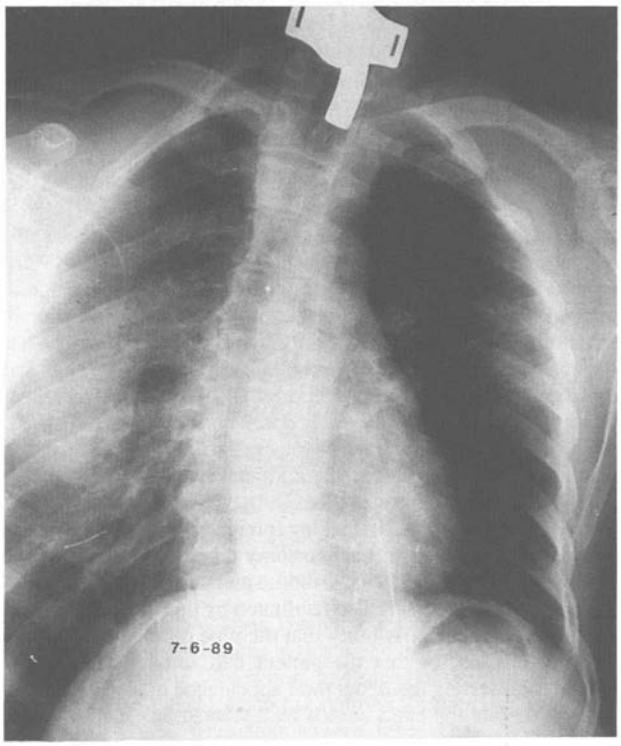

FIG. 1b

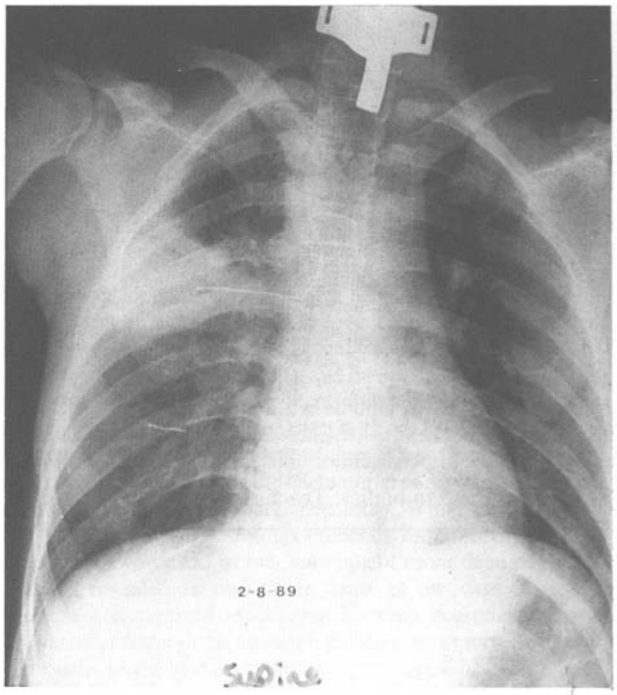

FIG. 1c

FIG. 1

Sequential chest radiographs from the period January 1989 to August 1989. (a) January. No radiopaque foreign bodies are visible. (b) June. Two small linear radiopaque objects are present in the lower lung fields. (c) August. The two previous objects have moved and a longer object is present at the level of the carina and projecting into the right upper lobe bronchus.

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