CASE REPORT

Airway foreign body aspiration: common, yet easily overlooked! Two interesting cases

Janne Møller,¹ Finn Rasmussen,² Ole Hilberg,³ Anders Løkke³¹Department of Respiratory Medicine and Allergology, Aarhus University Hospital, Aarhus, Denmark²Department of Radiology, Aarhus University Hospital, Aarhus, Denmark³Department of Pulmonary Medicine, Aarhus University Hospital, Aarhus, Denmark

Correspondence to

Dr Janne Møller, jannmoel@rm.dk

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SUMMARY

Two cases: A 66-year-old woman was referred to the hospital due to dyspnoea and cough. Seven months prior to referral, the patient had choked on a chunk of nut and grain-filled bread. She had daily cough and dyspnoea. The patient was convinced of an airway foreign body and she contacted her general practitioner and the emergency service several times; they all found this unlikely. Fibre optic bronchoscopy revealed two obstructing nut-like foreign bodies in the right upper and lower lobe, respectively.

A 77-year-old man with sarcoidosis developed increased dyspnoea and sputum production. Three weeks earlier, the patient had choked on a magnesium tablet. Everyone was convinced that the tablet had dissolved. Infection was suspected. Chest CT scan was performed showing no obvious signs of infection or progression in sarcoidosis. After the CT scan, the patient coughed up the remains of the tablet and his symptoms resolved. Retrospective evaluation of the CT scan revealed the tablet.

BACKGROUND

Foreign body aspiration is a potentially life-threatening event; it is more common in children and only 20% of registered events occur in adults.

The type of aspirated objects vary considerably, ranging from organic to inorganic material. Food such as meat, nuts and fishbones are frequent; other objects can be tablets, glass, dental appliances and metal objects.^{1 2}

The type of foreign body aspirated will significantly impact on the degree of tissue reaction in the airways. Some inorganic materials such as metal or glass may cause little tissue inflammation but can result in direct airway injury. In contrast, some organic materials such as nuts can cause significant inflammation and granulation tissue formation resulting in stenosis. Aspiration of tablets such as iron tablets can cause severe airway inflammation and ulceration.³

Risk factors for aspiration are loss of consciousness due to trauma, drug or alcohol intoxication and anaesthesia. In older adults, other risk factors include age-related slowing in the swallowing mechanism, use of medication impairing coughing, stroke-related dysphagia and degenerative neurological diseases such as Parkinson's disease.²

The most frequent location of foreign bodies is on the right due to the airway anatomy.^{1 2}

Unlike children, adults rarely present with acute life-threatening asphyxia. Instead, adults often present with a more silent picture with chronic

cough, less haemoptysis, sputum production, wheezing chest pain and dyspnoea.¹

The majority of the aspirated foreign bodies are radiolucent and not easily detected on chest X-rays;⁴ thus, a CT scan should be considered if aspiration is suspected. A CT scan is more likely to reveal complications to aspiration such as pneumonia, bronchiectasis, lung abscess, emphysema and pneumothorax.⁵

The diagnosis of aspiration is confirmed by bronchoscopy.

Intervention in non-life-threatening airway obstruction of a foreign body is endoscopic removal with a flexible bronchoscope.^{1 6} Antibiotics and steroids are not routinely administered.

Foreign body aspiration is common; however, it is underdiagnosed and diagnostic delay is typical.

Since our findings are unique and also relevant in everyday clinical work, they are likely to be of great interest to a broad readership including researchers, clinicians and trainees with interest in respiratory medicine, bronchoscopy and radiology.

Both cases and the literature highlight the need for increased clinical suspicion and early bronchoscopy on wider indications in patients with persistent symptoms without an obvious diagnosis or with insufficient response to treatment.

CASE PRESENTATION

Case 1

A 66-year-old woman, a former smoker, with a medical history of hypertension and schizoaffective disorder, was referred by her general practitioner (GP) to the Department of Respiratory Diseases and Allergy at Aarhus University Hospital due to dyspnoea and cough.

Seven months prior to referral, the patient had choked on a chunk of nut and grain-filled bread,

Figure 1 Bronchial mucosa with inflammation and nut.

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Figure 2 Tablet remains.

resulting in severe cough and a feeling of an obstructing element in her airways.

In the following months, she had daily cough, dyspnoea and wheezing.

The patient was fully convinced that her symptoms were due to an obstruction of a foreign body and she contacted her GP and the emergency service several times; they all found this unlikely.

She was treated by her GP with a variety of different medication starting with antibiotics, then inhaled corticosteroids, β 2 agonists and anticholinergics, without any relief of symptoms.

Lung function was obstructive (index 60%) with a forced expiratory volume in 1 s 61% and no reversibility for β -2

agonists. The flow volume loop resembled that of chronic obstructive pulmonary disease (COPD).

Chest X-ray showed emphysematic chest shape and subsegmentary atelectasis near the hilus, on the right.

Fibreoptic bronchoscopy revealed and removed two obstructing nut-like foreign bodies in the right upper and lower lobe, respectively accompanied by chronic inflammation (figure 1).

At hospital follow-up visit 6 days later, the dyspnoea had resolved. The patient was still coughing, but after a short course of oral corticosteroids there were no further pulmonary symptoms. Lung function was not repeated.

Case 2

A 77-year-old man with a medical history of stable sarcoidosis, bronchiectasis and former pulmonary hypertension, was admitted to the Department of Respiratory Disease and Allergy at Aarhus University Hospital with increased dyspnoea and sputum production.

The symptoms had started 3 weeks before admission, when the patient had choked on a magnesium tablet. Everyone, including the patient, was convinced that the tablet had dissolved. As the symptoms increased over time, infection was suspected.

The patient was treated for a couple of days with antibiotics and continuous positive airway pressure, with no effect. Chest X-ray was without infiltration and a chest CT scan was performed showing no obvious signs of infection or progression of sarcoidosis.

Figure 3 CT scan (bone window). Tablet remains in the left upper lobe and CT scan after disappearance.

The patient was then treated with inhaled, sterile saline and the day after the CT scan he coughed up the remains of the magnesium tablet (figure 2). Subsequently, his symptoms resolved almost instantaneously.

Retrospective evaluation of the CT scan clearly revealed the tablet, located in the left upper lobe, and a control CT scan was conducted to verify that it had disappeared (figure 3).

DISCUSSION

Although very common, aspiration is rarely considered in absence of an acute clinical presentation.

Many patients do not recall an episode of choking and aspiration, and diagnosis therefore often requires a high degree of clinical suspicion.^{1 2} Often, patients are examined and treated for other lung diseases such as asthma or infections; this often delays confirmation of the right diagnosis.

Case 1 illustrates the opposite way of presenting this. Here, the patient was convinced of aspiration and presented with

rather typical symptoms. Nevertheless, the diagnosis was not confirmed until 7 months later. One could speculate that her medical history of schizoaffective disorder contributed to this delay.

Lung function indicated an undiagnosed COPD. If the foreign body caused the obstruction, the flow volume loop would more likely have been flatter.

In case 2, coughing up the well-preserved tablet after weeks is surprising, and in contrast to cases describing dissolved tablets with remaining severe, local injury and inflammation in the lungs.^{3 7}

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Learning points

- Both cases and the literature highlight the need for increased clinical suspicion and early bronchoscopy on wider indications in patients with persistent symptoms without an obvious diagnosis or with insufficient response to treatment.
- Most certainly, if aspiration is suspected, it should result in prompt bronchoscopy.
- Foreign body aspiration is common; however, it is underdiagnosed and diagnostic delay is typical.

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