Foreign body aspiration in the elderly
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Section: Chest imaging
Area of Interest: Respiratory system
Procedure: Endoscopy
Imaging Technique: CT
Special Focus: Foreign bodies
Case Type: Clinical Cases
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Workplace:

Patient: 74 years, male

Clinical History:
A 74-year-old male patient with a background history of asthma presented with acute shortness of breath immediately after his lunch, dry cough and pleuritic chest pain. He was treated as an infective exacerbation of asthma but responded poorly to therapy. Given concerns with an underlying malignancy, further imaging was performed.

Imaging Findings:
Chest X-ray on admission was clear.
CT thorax revealed an aspirate substance in the left lower bronchus with distal atelectasis.
The patient underwent flexible bronchoscopy and the foreign object was retrieved successfully. This was identified as a piece of carrot.

Discussion:
Aspiration pneumonia is common in older persons and can often be fatal. Risk factors include age-related impairment in swallowing reflex, altered level of consciousness due to sedative use, stroke-related dysphagia and degenerative neurological diseases such as Parkinson's disease [1].

The presenting symptoms of foreign body aspiration would depend on the degree, size and location of obstruction. It can present as life-threatening asphyxiation if obstructing the oropharynx or trachea. It can also present subacutely with a cough, haemoptysis, chest pain or wheeze if obstructing the lower airways. Bacterial superinfection is a common complication and the common pathogens include anaerobic bacteria which are the dominant organisms in the upper airways [2].

The usual objects recovered from the lower airways are peanuts, vegetable particles, inorganic materials and teeth [3-5]. Bronchoscopy remains the cornerstone of both the diagnosis and treatment of patients with suspected foreign body aspirations. In cases where the presentation is subtle, imaging may be more ideal. The majority of foreign bodies are radiolucent and not easily identified on plain film[6]. As such, further investigation with imaging (e.g. computed tomography) can be considered if there is a high index of suspicion in the setting of negative radiographs.
Once a diagnosis of foreign body aspiration is made, the foreign body should be removed as soon as possible to prevent development of granulation tissue. Flexible bronchoscopy is preferable but occasionally rigid bronchoscopy may be indicated for the extraction of large or complex foreign bodies[7]. Antibiotics are indicated when there is evidence of post-obstruction pneumonia.

Foreign body aspiration in adults commonly presents silently due to the distal wedging of foreign bodies in the lower lobe bronchi. A high index of suspicion is needed to provide an early diagnosis. Food particles are commonly radiolucent on plain films and hence CT or direct visualisation via bronchoscopy is required.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Aspiration pneumonia, Asthma exacerbation, Community-acquired pneumonia, Anaphylaxis

**Final Diagnosis:** Aspiration pneumonia

**References:**

Bartlett JG (2013) How important are anaerobic bacteria in aspiration pneumonia: when should they be treated and what is optimal therapy. Infect Dis Clin North Am 27:149 (PMID: [23398871](#))  
Description: Chest X-ray on admission was clear. Origin: Department of Radiology, University Hospital of Limerick, Ireland, 2018
Description: Axial CT thorax showed foreign body in left lower bronchus with distal mucus plugging.
Origin: Department of Radiology, University Hospital of Limerick, Ireland, 2018
Description: Sagittal CT thorax showed foreign body in left lower bronchus. Origin: Department of Radiology, University Hospital of Limerick, Ireland, 2018

Description: Coronal CT thorax showed foreign body in left lower bronchus with distal atelactasis. Origin: Department of Radiology, University Hospital of Limerick, Ireland, 2018
Description: Axial CT thorax showed post-obstructive atelectasis distal to the foreign body. Origin: Department of Radiology, University Hospital of Limerick, Ireland, 2018
Description: A piece of carrot retrieved by flexible bronchoscopy. Origin: Department of Respiratory Medicine, University Hospital of Limerick, Ireland, 2018