

Overlooked foreign body aspiration mimicking chronic disease

Published on 14.07.2018

DOI: 10.1594/EURORAD/CASE.15581

ISSN: 1563-4086

Section: Chest imaging

Area of Interest: Lung Abdomen

Procedure: Diagnostic procedure

Procedure: Intraoperative

Imaging Technique: Conventional radiography

Imaging Technique: CT-High Resolution

Imaging Technique: CT

Imaging Technique: Experimental

Special Focus: Foreign bodies Atelectasis Cavitation

Dilatation Case Type: Clinical Cases

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Patient: 72 years, male

Clinical History:

A 72-years-old man without previous history of smoking was referred to the hospital with prolonged cough and repetitive pneumonia during the past 8 years. There were also episodes of haemoptysis until the past few years. The patient also had left-sided hemiparesis due to previous intracranial haemorrhage 8-9 years before.

Imaging Findings:

Initially chest radiographs were performed which revealed no infiltrates or heart failure (Fig. 1). The patient underwent a series of examinations and was given symptomatic treatment over time and was considered to have a restrictive type of lung problem.

Many years after the onset of symptoms a high resolution computed tomography (HRCT) was obtained and it was interpreted as blockage and atelectasis of right inferior lobe caused by mucous plug with calcification. No interstitial changes were seen (Fig. 2).

After the first chest CT numerous chest radiographs were obtained showing progression of atelectasis (Fig. 3)

In second chest CT one year after the first one, enlarged lymph nodes in mediastinum and further progression in atelectasis in right lower lobe was observed, and it was considered to be caused by a foreign body, probably a tooth (Fig. 4).

Eventually a flexible bronchoscopy procedure was performed and a plastic cap was removed from the right intermediate bronchus (Fig. 5).

Discussion:

BACKGROUND

Although foreign body (FB) aspiration is more common in children, there is an increase in prevalence of FB aspiration in patients > 60 years of age [1]. In elderly patients such problems as unclear history of FB, unspecific symptoms, false negative radiological results can lead to late diagnosis and extraction with bronchoscopy [1, 2]. Moreover, any condition as head trauma, intracranial haemorrhage, Alzheimer disease, swallowing disorder etc. that impairs the neurological status may predispose to FB aspiration [3, 4].

CLINICAL PERSPECTIVE

According to many case series in the literature, cough is the most common symptom, when it comes to FB aspiration. Other symptoms can be sputum, dyspnoea, chest pain, wheezing, haemoptysis and recurrent pneumonia depending on the size and location of the FB [1, 2, 3, 4]. A minority of patients, especially geriatric patients, with FB may be asymptomatic and mistaken for another diagnoses [1, 3].

IMAGING PERSPECTIVE

Radiological features of FB aspiration rely on type and location of aspired material. Only a low percentage of foreign bodies are radiopaque and can be identified on plain films. Although chest X-rays have limited use, they can demonstrate indirect findings such as atelectasis, hyperinflation, bronchiectasis, lobar consolidation, focal hyperinflation [2, 4]. In a minority of patients chest X-ray may be normal or with irrelevant findings as in our case (Fig. 1). Chest CT is more sensitive and specific for identification of FB aspiration, and demonstration of the aspirated FB [2]. Moreover, indirect findings and complications of FB such as atelectasis, bronchiectasis, pneumonic patch, lobar consolidation, tree-in-bud infiltrates, ipsilateral pleural effusion, ipsilateral hilar adenopathy and thickened bronchial wall can also be detected by CT imaging [1, 2].

TEACHING POINTS

Foreign body aspiration is seen more often in geriatric patients than in other adult patients, especially when they are known with predisposing factors such as neurological problems. In this patient group careful and detailed history taking is of greater importance, however, it is not always possible to hear the critical informations giving rise to suspicion of possible FB aspiration as seen in our case. At this point it must be remembered that a prolonged cough anamnesis may be consequence of an occult FB in the airways.

From the radiological perspective, this case points out the importance and value of knowing detailed clinical information such as disposing factors, the patient's symptoms etc. for a faster diagnosis and treatment.

Written informed patient consent for publication has been obtained.

Differential Diagnosis List: Foreign body aspiration, plastic cap, Asthma, Lung cancer

Final Diagnosis: Foreign body aspiration, plastic cap

References:

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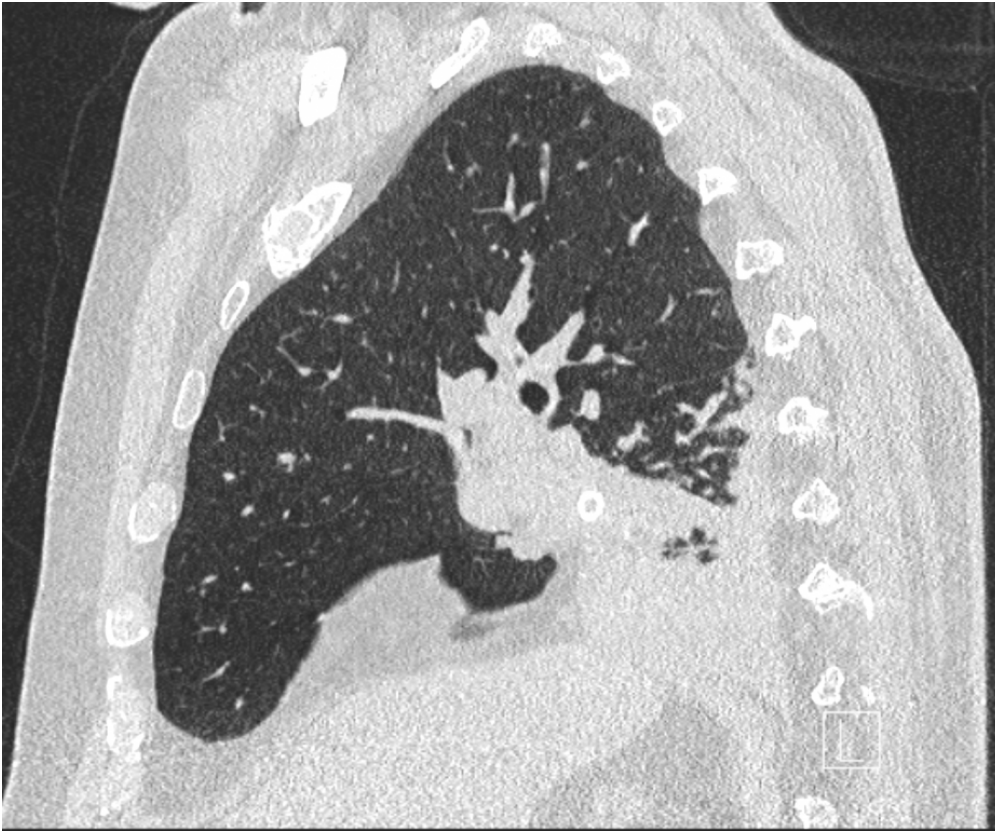
Figure 1

a



Description: The first chest CT was interpreted as having mucous plug with calcification blocking the right inferior lobe. **Origin:** Department of Radiology, Hvidovre Hospital, Copenhagen, Denmark

b



Description: On this sagittal plane, atelectasis is seen clearly. **Origin:** Department of Radiology, Hvidovre Hospital, Copenhagen, Denmark

Figure 2

a



Description: During flexible bronchoscopy procedure, a blue foreign body and polypoid granulation tissue were seen in the right intermediate bronchus. **Origin:** Department of Thorax Surgery, Hvidovre Hospital, Copenhagen, Denmark.

b



Description: During flexible bronchoscopy procedure, a blue-coloured plastic cap was removed. **Origin:** Department of Thorax surgery, Hvidovre Hospital, Copenhagen, Denmark.

Figure 3

a



Description: Progression in atelectasis in right lower lobe which was considered to be caused by foreign body. **Origin:** Department of Radiology, Hvidovre Hospital, Copenhagen, Denmark.

b



Description: Progression in atelectasis in right lower lobe which was considered to be caused by foreign body. **Origin:** Department of Radiology, Hvidovre Hospital, Copenhagen, Denmark.

c



Description: Progression in atelectasis in right lower lobe which was considered to be caused by foreign body. **Origin:** Department of Radiology, Hvidovre Hospital, Copenhagen, Denmark.

Figure 4



Description: An early chest radiography shows no infiltrates or cordial incompensation. **Origin:** Department of Radiology, Hvidovre hospital, Copenhagen, Denmark.

Figure 5

a



Description: An example of AP chest radiographs after the first chest CT showing further atelectasis on the right side. **Origin:** Department of Radiology, Hvidovre hospital, Copenhagen, Denmark.