

CASE FOR DIAGNOSIS

A persistent unilateral lung infiltrate

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Case report

A 78 year old man was admitted due to a persistent right lower lobe infiltrate, associated with pleural effusion, during the previous 6 months. The patient complained of chronic productive cough with purulent sputum, and chest pain at the lower region of the right hemithorax, which increased with inspiration. Temporary clinical improvements were noted following several treatments with oral antibiotics (cefaclor 500 mg *t.i.d.*, doxycycline 100 mg *b.i.d.*) but the chest X-ray remained unchanged. No haemoptysis was present. The patient had never smoked.

Physical examination revealed dullness, decreased breath sounds and ronchi at the lower right side of the thorax. The results of laboratory studies were normal. The chest roentgenogram and computerized axial tomography (CT)-scan are shown in figures 1 and 2, respectively.

Fibreoptic bronchoscopy demonstrated a mass with tumour-like appearance, virtually occluding the right bronchus intermedius. The bronchial aspirate showed *Pasteurella multocida*. The cytological smears of the bronchial aspirate revealed Papanicolaou-class II. The bronchial biopsies revealed only chronic inflammation of the submucosa and squamous metaplasia.

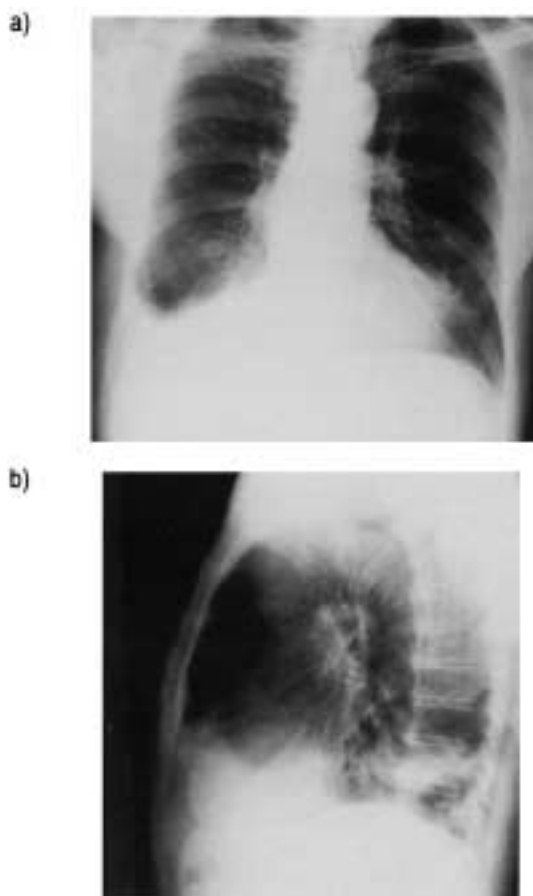


Fig. 1 – a) Anteroposterior chest roentgenogram. b) Lateral chest roentgenogram.

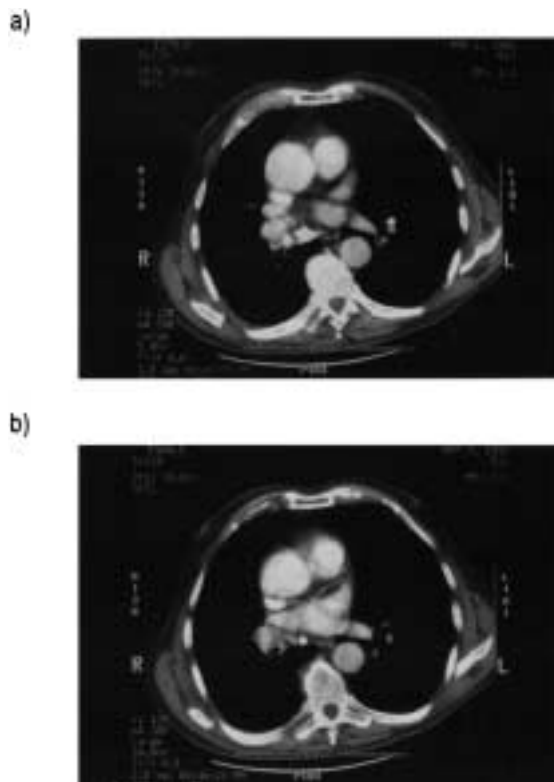


Fig. 2. – Computed tomographic (CT)-scan of the chest : a) level of the proximal part of the bronchus intermedius. b) lower level of the bronchus intermedius.

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TURN TO NEXT PAGE FOR INTERPRETATION OF THE RADIOLOGICAL FINDINGS AND THE BRONCHOSCOPY, AND FOR DIAGNOSIS.

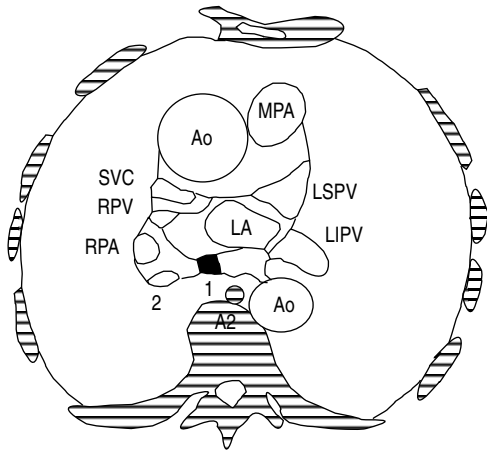
Interpretation of the chest X-rays

On the anteroposterior (AP) view of the X-ray, an infiltrate associated with pleural effusion in the right lower lung field is present. On the lateral view, only one diaphragm is visible, confirming that there is an infiltration above the right hemidiaphragm.

Interpretation of the CT findings

On figure 2b and the corresponding diagram figure 3b two calcified opacities are present. A large opacity immediately adjacent to the oesophagus, corresponding to a calcified mediastinal lymph node. A smaller opacity in the bronchus intermedias, which is a calcified foreign body (a piece of chicken bone). Notice the proximal

a)



b)

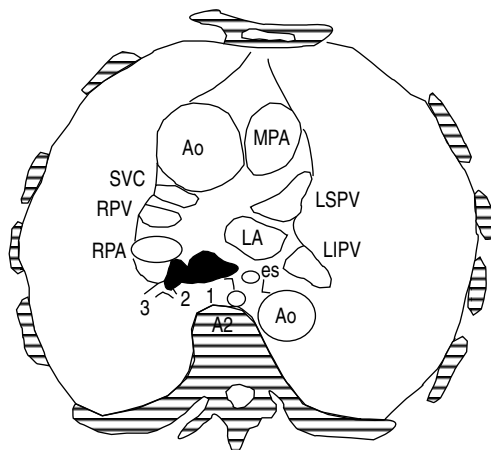


Fig. 3. – Diagram of the computed tomographic (CT)-scan of the chest (sections a and b, figure 2). a) 1: calcified lymph node; 2: the proximal narrowed part of the bronchus intermedias; b) 1: calcified lymph node; 2: foreign body; 3: the proximal part of the apical segmental bronchus of the right lower lobe posterior to the foreign body. Ao: aorta; AZ: azygous vein; es: oesophagus; LA: left atrium; LIPV: left inferior pulmonary vein; LSPV: left superior pulmonary vein; MPA: main pulmonary artery; RPA: right pulmonary artery; RPV: right pulmonary vein; SVC: superior vein cava.

part of the apical segmental bronchus of the right lower lobe posterior to the foreign body. Figure 2a, the more cranial section, and figure 3a the corresponding diagram, show only the cranial part of the calcified mediastinal lymph node and the proximal narrowed part of the bronchus intermedias. The foreign body is not seen on this section.

Interpretation of a control bronchoscopy

During control bronchoscopy, one week later, a piece of chicken bone (7×6×10 mm) was found in a friable mass in the right bronchus intermedias.

DIAGNOSIS: Intrabronchial aspiration of a chicken bone

The foreign body was successfully removed by means of the flexible bronchofibroscope and four-pronged forceps, under topical anaesthesia. The condition of our patient improved and the chest roentgenogram progressively cleared. In retrospect, the patient could recall an episode of choking whilst eating chicken soup several months previously.

Discussion

Tracheobronchial aspiration of foreign bodies [1, 2] in adults is often caused by underlying conditions, such as primary neurological disorders (seizures, brain tumour, mental retardation, cerebral palsy and cerebrovascular accidents), episodes of diminished or lost consciousness (trauma, drunkenness, sedative use), dental procedures, and some medical procedures (manipulating tracheostomy or endotracheal tubes) [2]. Sometimes the aspiration is seen without any predisposing factor.

The impaction of foreign bodies is more frequent in the right than in the left bronchial tree and in the lower than in the upper lobes [2].

The nature of the aspirated foreign body is variable and may be classified into three groups. The most important group consists of food particles, with peanuts leading the list in Western countries. The second group involves iatrogenic aspiration during dental and medical procedures. The third group includes miscellaneous items, such as pins, coins, teeth, *etc.* [1].

The clinical picture is frequently associated with a history of an acute episode of choking and cough, which is highly suggestive of an inhalation of a foreign body [1, 2]. Pneumothorax, laryngeal oedema or cardiac arrest may complicate the acute episode. Sometimes, the patient remains asymptomatic after an acute episode of choking and cough. This symptom-free interval can last from several hours to months, or even years. It is, therefore, important for physicians to suspect foreign body aspiration in patients with unexplained pulmonary symptoms and signs, such as unilateral wheeze, haemoptysis, bronchiectasis, pneumothorax, empyema, recurrent pneumonia occurring in the same lung, or an isolated lung abscess, despite absence of a history of aspiration [1, 2].

The chest roentgenogram will only show the aspirated body if it is radiopaque and of sufficient size. Some additional radiographic findings, such as volume loss, atelectasis, postobstructive infiltrates, or isolated obstructive emphysema may be suggestive [1, 2]. A CT scan of the chest, or a radionuclide lung scan, can give some additional information about the exact position [3].

Bronchoscopy is often diagnostic, unless the foreign body is too peripheral or is surrounded by inflammatory tissue. Friable granulation tissue with tumour-like appearance, which shows only inflammatory reaction on histology, or the finding of a meat fibre or bone should suggest aspiration. However, a negative bronchoscopy does not rule out foreign bodies [2, 4, 5]. The therapy is a bronchial removal under general or topical anaesthesia. According to experience and circumstances, the flexible bronchofibrescope and/or the rigid bronchoscope together with special removal devices may be used [4, 5]. Thoracotomy with bronchotomy or segmental resection is performed only when the aspirated foreign bodies are encrusted in the bronchial wall, penetrate the wall, or when they are of considerable size. Attempts to remove the foreign bodies by inhalation therapy and postural drainage are usually less successful [6] than bronchoscopic removal, and there is no opportunity to visualize the bronchial tree. In acute life-threatening situations a Heimlich manoeuvre may be life-saving.

The present case demonstrates that an aspirated foreign body can mimic a bronchogenic carcinoma. An exact diagnosis, primarily by bronchoscopy, is very important, because it has significant repercussions for the prognosis and therapeutic approach.

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ABSTRACT: We describe the case of an intrabronchial aspirated foreign body that caused a persistent right lower lobe infiltrate.

A first fibreoptic bronchoscopy demonstrated a mass with tumour-like appearance in the right bronchus intermedius, but the bronchial biopsies and the cytological smears of the bronchial aspirate failed to reveal any malignancy. During a control fibreoptic bronchoscopy, we found a chicken bone in this friable granulation tissue. It was subsequently removed with a flexible bronchofibrescope and a four-pronged forceps under topical anaesthesia.

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Keywords: Aspiration, foreign body, pseudotumour.

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