Left main bronchus foreign body masquerading as diaphragmatic hernia in an adult patient

George E. Philippakis*, Marios P. Moustadas
Department of Thoracic Surgery, General Hospital of Chania, Chania, Greece

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ABSTRACT

OBJECTIVE: Foreign body aspiration is quite uncommon in the adults. It can be a life-threatening situation and it often requires a high index of suspicion, because the diagnosis can be obscure.

PRESENTATION OF CASE: We present a case of food aspiration by a 31-year old female patient, masquerading as diaphragmatic hernia, for the first time in the literature.

DISCUSSION: Foreign body aspiration may escape diagnosis, especially if there is no recollection of the episode.

CONCLUSION: The thoracic surgeon may be suspicious of this condition, even if the patient history and imaging obscure the clinical picture.

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1. Objective

Foreign body aspiration can be a life-threatening situation in case an aspirated solid or semisolid object lodges in the larynx or trachea. If the object is large enough to cause nearly complete obstruction of the airway, asphyxia ensues and may cause death. In case of incomplete obstruction or passage of the foreign object beyond the carina and into the bronchi, less severe signs and symptoms manifest. Chronic debilitating symptoms with recurrent infections may occur when the patient cannot recollect an episode of aspiration with resulting delayed diagnosis and extraction, or the patient may even have no symptoms. The aspiration event can usually be identified, although it is often not immediately appreciated. The aspirated object might even escape detection. Most often, the aspirated object is food. Young children and toddlers are at highest risk for foreign body aspiration. Adults who undergo oropharyngeal procedures, have oral appliances or poor dentition, become intoxicated, receive sedatives, have neurological or psychiatric disorders or are mentally retarded are at increased risk of aspirating foreign bodies. On posteroanterior inspiratory and expiratory chest radiography, unilateral hyperinflation, usually in children, lobar or segmental atelectasis, usually in adults and in cases of delayed presentation, and mediastinal shift, or pneumomediastinum may be evident. On chest CT scan the same findings are usually expected.

Bronchoscopy can be both diagnostic and therapeutic. Foreign body aspiration may mimic several other situations, including lung cancer or bronchial tumors. We present a case of food aspiration by a 31-year old female patient, masquerading as diaphragmatic hernia, for the first time in the literature.

2. Case presentation

A 31-year old female patient presented at the emergency department with shortness of breath of abrupt onset. Her past history was unremarkable. The chest X-ray demonstrated total collapse of the left lung and herniation of the stomach and large intestine into the left pleural cavity [Figs. 1 and 2]. Chest CT scan demonstrated the presence of stomach and large bowel in the left chest [Fig. 3], suggesting a posterolateral diaphragmatic hernia. Chest X-ray of the patient one month ago was quite normal [Fig. 4]. The patient was subjected to an urgent left posterolateral thoracotomy. The operative findings were total collapse of the left lung, but there was no diaphragmatic hernia. Instead, there was only a local evagination of the left hemidiaphragm at its posterolateral portion. Therefore we called for an intraoperative bronchoscopy. Intraoperative flexible bronchoscopy demonstrated the presence of large quantity of mucus at the origin of the left main bronchus, surrounding a soft mass adhered at the wall of the bronchus, which looked like consisted of thick mucus. Mucus was aspirated, the atelectasis of the left lung resolved and local plication of the diaphragm was performed. The patient had an unremarkable postoperative course. Ten days after surgery flexible bronchoscopy was performed because of persistent atelectasis of the left lower lobe.
Fig. 1. Total collapse of the left lung is obvious in the chest X-ray.

[Fig. 5] and showed the presence of a foreign body at the origin of the left lower lobe bronchus. Rigid bronchoscopy was performed the following day and a piece of meat was extracted.

3. Discussion

Foreign body aspiration is unusual in adults, except those who are debilitated or have neuropsychiatric disorders. After foreign body lodgement, local inflammation, edema, cellular infiltration and granulation tissue formation may contribute to airway obstruction while making bronchoscopic identification and removal of the object difficult. Bronchoscopically, the object may appear as a tumor, or mucus may obscure the bronchoscopic image. The object was obscured by mucus during the initial operative flexible bronchoscopy, and obviously it was forced lower into the left bronchial tree unintentionally. It was only a high index of suspicion, despite the negative history, and the presence of persistent atelectasis of the left lower lobe that led to the correct diagnosis. In the case we present it was initially thought that the patient had a posterolateral diaphragmatic hernia. In our case the patient had a partial eventration of the left hemidiaphragm, which was of recent origin and radiologically it was diagnosed as a posterolateral diaphragmatic hernia, which was supposed to be the cause of left lung atelectasis. Of the diseases that partial evetration of the diaphragm has to be differentiated, hernia is the most frequent. From the review of the literature it is obvious that in most cases of partial evetration, operation has been carried out for a preoperative diagnosis of diaphragmatic hernia. Radiologically distinguishing between the two forementioned conditions is more difficult when atelectasis of the lung is present, as is the case in

Fig. 2. Herniation of the stomach and large intestine into the left pleural cavity is seen on the lateral chest X-ray.

Fig. 3. Chest CT scan demonstrates the presence of stomach and large bowel in the left chest, suggesting a posterolateral diaphragmatic hernia.
with the atelectasis of the left lung, as acquired eventration of the diaphragm is sometimes correlated with several benign conditions, like pneumonia and tuberculosis, among others.5

4. Conclusion

Foreign body aspiration in the adult is a rare, but potentially lethal condition, and the thoracic surgeon must be suspicious of this condition, even if the patient history and imaging obscure the clinical picture. One should not rely on symptoms, because the patient may be asymptomatic if he presents at the second stage or asymptomatic interval of foreign body aspiration, when the foreign body becomes lodged, reflexes fatigue and the initial symptoms subside.6 One should not hesitate to perform a preoperative bronchoscopy in case there is a strong suspicion of an airway foreign body, even though the clinical situation and radiologic evaluation obscure the correct diagnosis, in order to avoid an unnecessary thoracotomy.

Conflict of interest statement

None.

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Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author’s contributions

Study design: G. Philippakis, M. Moustardas. Data collections: G. Philippakis. Data analysis: G. Philippakis, M. Moustardas. Writing: G. Philippakis, M. Moustardas. No other contributors.

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