

Interesting cases of aspirated foreign bodies: Review articles

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Abstract

Five cases of rare and interesting foreign bodies are reported. Their presentation, difficulties in diagnosis, management and possible complications are discussed. These cases were seen in Al-Ain Hospital, ENT Department, UAE. All were diagnosed and managed by the author of this paper at variable dates. The aim of this publication is to report on rare inhaled foreign bodies, which is not seen often and to report on the difficulty in diagnoses of certain foreign bodies. It is advisable that rigid bronchoscopy be performed under general anaesthesia for all cases of highly suspicious for aspirated foreign bodies, for cases with chronic long lasting cough and in children with wheezy chest of unclear causes who do not response to medical therapy.

Keywords: Inhaled foreign bodies, Foreign bodies in bronchus.

Introduction

Foreign bodies (FBs) inhalation is life threatening emergency. This condition is common in children, commonly under age of 5 years.¹ The commonest FB found to be inhaled is portion of nut, seeds and food particles.^{1,2} Definite history of choking followed by paroxysmal coughing which then ceases is highly suspicious for foreign body inhalation. Ninety percent of patients with FB inhalation have one symptom of triad – coughing, choking, and wheeze in the chest.^{3,4} However, history of choking may have been forgotten and the inhaled FB may be symptom free and discovered during routine bronchoscopy for diagnosis and therapy for other conditions or patients may present with chronic cough with lasting lower respiratory tract infection which resist treatment.⁵ To inhale an object, the FB must be in the mouth or nasal cavity and an inhalation occur with the intake of a sharp and deep inspiration after coughing, crying or laughing. FB lodge in the larynx if they are too large to pass through glottis, if they are of an irregular in shape and or if they are sharp and pointed. Once the FB passes through the larynx, it descends into the trachea or into one of the main

bronchi.^{6,7} Common presentation of inhaled FB is a sudden choking sensation followed by paroxysmal coughing which then ceases. Sudden onset of wheezes in a child not known to have asthma, especially if the wheeze is predominantly unilateral highly indicates of an inhaled FB.¹ FB must be excluded also in unexplained persistent fever associated with respiratory symptoms of cough, wheezing, etc, or recurrent lobar pneumonia.² The aim of this publication is to report on rare inhaled foreign bodies, which does not seen often and to stress on difficulties in diagnosis of certain foreign bodies and how to avoid possible complications during their management.

Cases in interest:

Inhaled foreign bodies 1

Inhalation of a needle:

A 13 years old girl while adjusting her veil (حجاب) holding a metallic pin between her teeth, she started laughing as she heard a joke and suddenly inhaled the needle in to her throat. She started coughing for few minutes but this subsided latter. She consulted the clinic without any respiratory distress, no cough and no pain on swallowing. Clinical examination was

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unremarkable. A chest x-ray revealed a needle in left lung field. It was difficult to decide clinically and on the plain x-ray if the FB is in bronchus or esophagus. Therefore, a barium swallow ordered which clearly showed that the needle was not in the oesophagus. While waiting for this investigation, the position and direction of the needle was changed from downward pointing to upward pointing (Figure 1). One thought that the FB has penetrated through oesophagus to the mediastinum,

but clinically the patient had no chest pain, no shortness of breath and no constitutional symptoms. CT chest with thin section done and this clearly revealed that the needle is in upper left bronchus. Rigid bronchoscopy was done and the needle removed without complications taking great care not to push the sharp end of the FB into pericardium. The round plastic end was pushed into lower main bronchus and the sharp pointed end grasped, then the needle was removed.

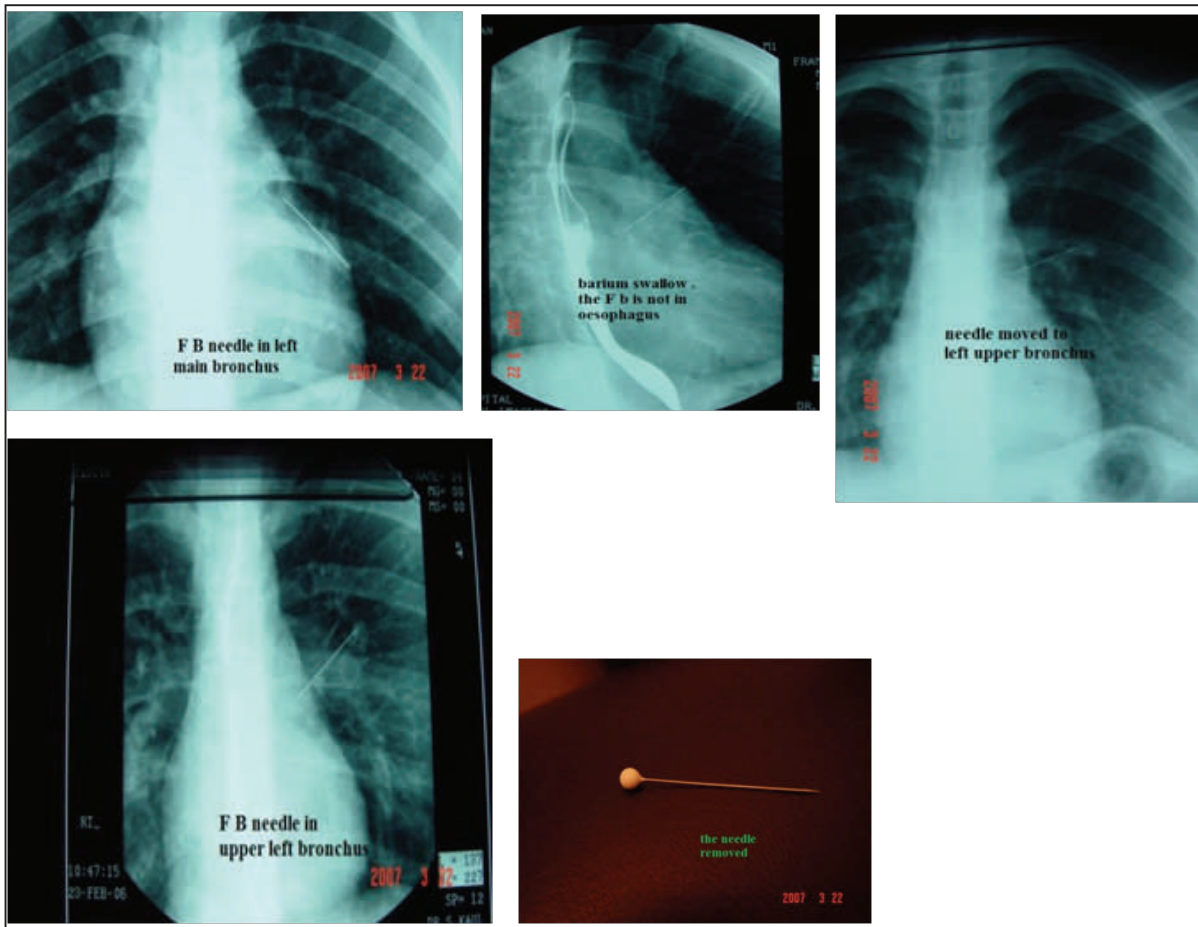


Figure 1: Inhaled Needle , Al-Ain hospital ENT Department , UAE
Author is publisher of the case

A sharp opened safety pin in the larynx:

A 15 years female patient presented with pain in throat on swallowing and husky voice started suddenly after swallowing a safety pin. Indirect laryngoscopy showed a pin imbedded in posterior pharyngeal wall with part (the head) seen in the larynx between arytenoid cartilages. Plain x-ray confirmed the finding and position of the FB (Figure 2). The foreign body was removed endoscopically under general anaesthesia.

Inhaled foreign bodies 3: inhaled peanut

A 4 year boy attended clinic with dyspnea, cough and fever for 2 weeks. He was treated with antibiotic with no improvement. The mother gave definite history of choking while the child was eating peanut with his sister. Clinically there was diminished breathing sound and air entry in the left lung. A chest x-ray was done showing collapsed left lung but no opaque

FB (Figure 3). Bronchoscopy was done under general anaesthesia and a peanut was removed in the left main bronchus. The child discharged with antibiotic cover for 10 days. He was brought back after 2 weeks with partial improvement. He had still cough and dyspnea. Clinically there was rhonchi and diminished breathing sound in the left lung. A new chest x ray revealed incomplete resolution of left lung infection. The child was prepared for a second bronchoscopy. While waiting for the procedure the child coughed up another piece of peanut. The procedure was aborted and infection resolved with a course of antibiotics. Lesson to learn: once a FB is removed enter again in tracheobroncheal tree to make sure you have not missed a second FB or a part of the FB is left in bronchus.

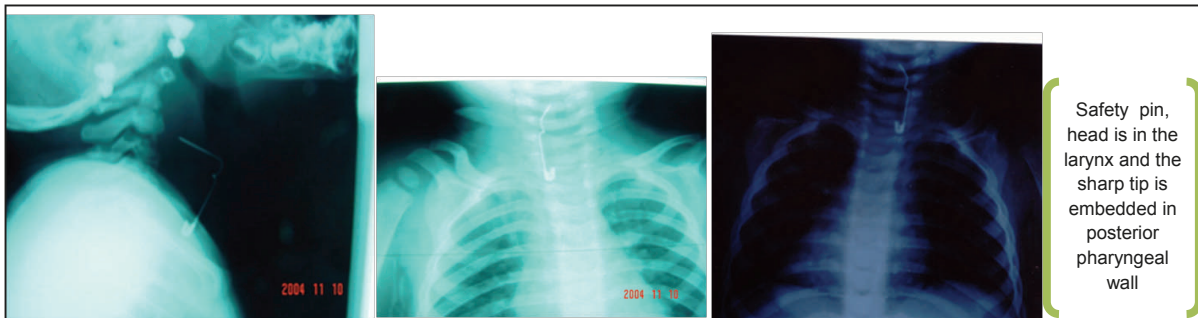


Figure 2: Inhaled safety pin , Al-Ain hospital, ENT department, UAE.
Author is publisher of the case

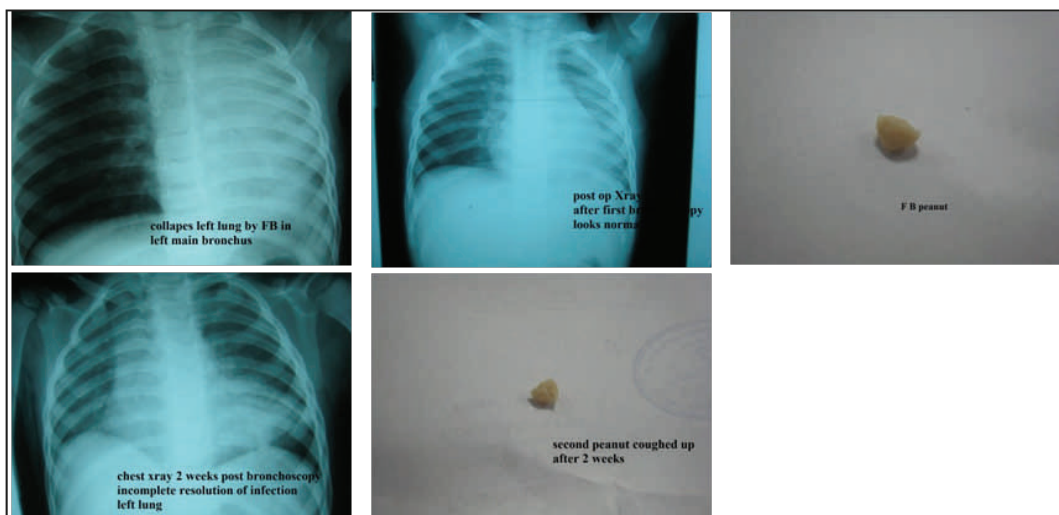


Figure 3: Inhaled pea nut, Al-Ain Hospital, ENT Department, UAE.
Author is publisher of the case

Inhaled foreign bodies 4: Inhaled metal clips

A 3 year old girl attended ENT clinic for chronic cough and haemoptysis. She was treated for chest infection for several weeks with no improvement. Although chest x-ray was taken but it was reported to be normal! On auscultation there was diminished breathing sound in the left lung and unilateral wheezing and rhonchi. On reviewing her chest x-ray, a metallic FB was seen in left main bronchus which was missed as it was covered by the heart shadow (Figure 4). Rigid bronchoscopy was done and a sharp metallic FB (clips) was removed from the left main bronchus.

Inhaled Foreign bodies 5

Inhaled rosary pearl

A 14 year old boy attended the Accident and Emergency Department with shortness of breath, continues cough and tachypnea

of few hours duration. His parent thought that the boy has inhaled a piece of toy? pearl. He was not cyanotic but was in a marked respiratory distress and tachypnea. He had tachycardia but regular rhythm. He had no fever. Chest auscultation revealed an audible click on both inspiration and expiration. Chest x-ray was normal showing no radiopaque FB. An inhaled FB was highly suspected. Under general anaesthesia rigid bronchoscopy was done, a plastic rosary pearl was seen moving up and down in the trachea with breathing creating an audible click! It was difficult to grasp the FB with forceps; therefore a Fogerty balloon was used. The balloon was threaded through the hole in the pearl inside the trachea and inflated distally. The FB was successfully removed by this technique (Figure 5).

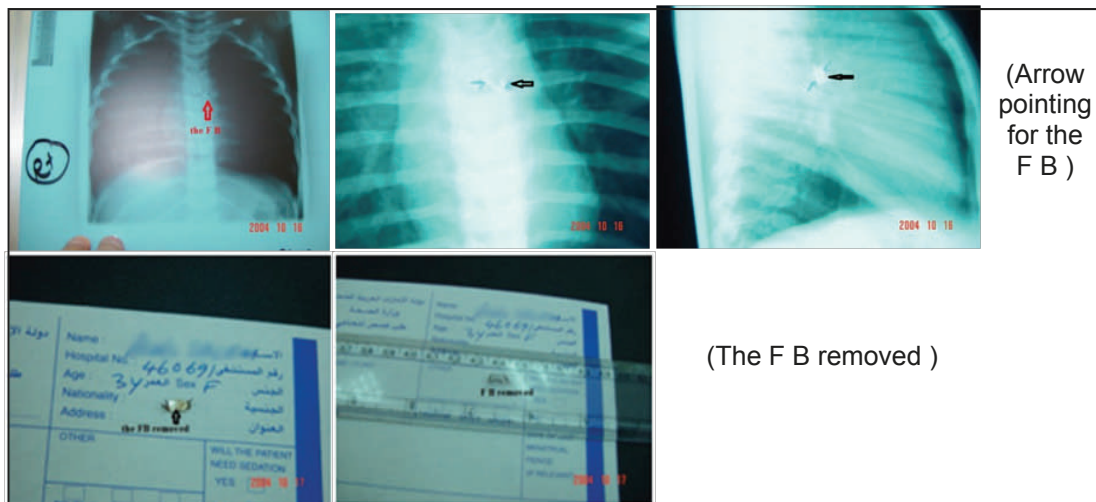


Figure 4: Inhaled metal clips, Al-Ainhospital, ENT Department, UAE
Author is publisher of the case.

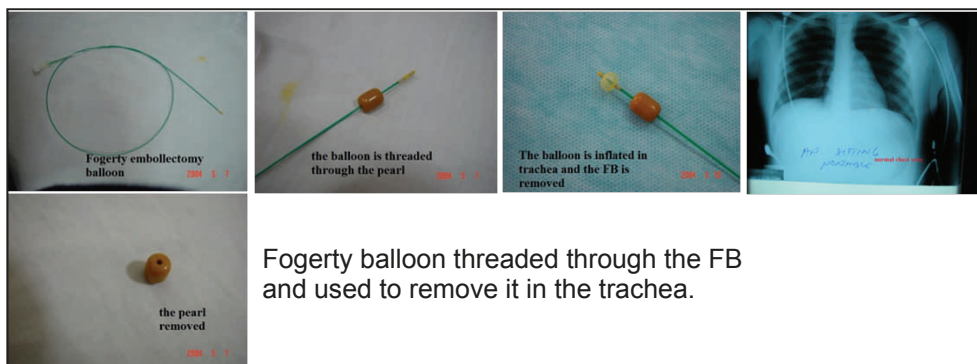


Figure 5: Inhaled Rosary pearl, Al Ain Hospital, UAE. Author is publisher of the case.

Discussion

Foreign body aspiration can be a life-threatening emergency. An aspirated solid or semisolid object may lodge in the larynx or trachea. If the object is large enough to cause nearly complete obstruction of the airway, asphyxia may rapidly cause death.⁸ Lesser degrees of obstruction or should the object passes beyond the subglottic region, its location would depend on the patient's age and physical position at the time of the aspiration. Because the angles made by the main stem bronchi with the trachea are identical until age 15 years, FBs therefore, are found on either side with equal frequency in persons in this age group. In older age group majority of FBs will lodge in the right main bronchus as the inclination of right main bronchus is more than the left.⁹ Many aspirated FBs are unexpectedly discovered, go undetected, or are misdiagnosed. This was the case with our case number 4 as the child was treated for lung infection for long period before establishing diagnosis. Young children chew their food incompletely by incisors before their molar teeth eruption. Therefore, objects or fragments may be propelled posteriorly and triggering process of inhalation.^{8,9} Adults who undergo oropharyngeal procedures have various oral appliances, become intoxicated, receive sedatives, or may have neurological or psychiatric disorders are at increased risk of aspirating foreign bodies. Occupation of patients plays a role and increasing risk of inhalation of material they use, such as carpenter or tailor whom are at risk of inhalation of nail, screw or pins.¹⁰ In our case number 1, the foreign body was put in the mouth while she adjusted her veil, the same may happen with certain occupations when their hands are used during working, they put screw and or nail in their mouth putting them at risk of inhalation. Inhaled FB may be present and does not show on radiological investigations, as majority of FBs are radio translucent such as pea nut as in case 3. However, here other radiological signs

might be seen on plain x-ray such as lung collapse, emphysema or mediastinum shift.^{7,4} Rigid bronchoscopy is the treatment of choice in these cases, as current flexible fiberoptics has limited use for extraction of FBs.¹¹ Foreign body may be sharp and lodges in the larynx and put the patient at risk of suffocation. In case 2 the patient had severe sore throat and stridor on presentation. Foreign body may be sharp or pointed and may lodge in the lower bronchioles. These FBs require a skilled surgeon to manage them and remove them endoscopically or by open surgery to avoid serious complications. In case 1 the FB was removed endoscopically successfully, however; there was risk of penetration of the FB into pericardium and this was explained to the patient.

Conclusion

Inhalation of foreign bodies is common in children in the first decade of life. Clinical history of choking and paroxysm of cough is present in majority of cases. On clinical examination of chest, some positive findings can be detected such as diminished unilateral breathing sounds and unilateral wheezing. Chest plain x-ray is essential, however normal chest imaging does not exclude presence of FB, as majority of inhaled FBs are radiolucent. Rigid bronchoscopy must be done for diagnosis and treatment of all suspected cases. Endoscopy for removal of sharp and irregular FB must be performed by high skilled surgeon. It is recommended that after endoscopic removal of the FB that the surgeon must have a second endoscopic look to make sure he has not left behind a second FB or part of the removed FB in the bronchus.

Conflicts of interest

The author reports no conflicts of interest.

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