Spontaneous Expulsion of Inhaled Foreign Body: One Ingested and Two Out

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Inhaled foreign body (FB) is one of the most problematic conditions, especially in childhood. Rapid and safe bronchoscopy removal of inhaled foreign bodies is the treatment of choice in these cases. Spontaneous expulsion of inhaled FB bronchus is rarely mentioned in the literature. We present three cases of expelled foreign bodies of which two were coughed out, and the third one went into the gastrointestinal tract. Spontaneous expulsion of inhaled FB though is rare, can save the patient and relieves the condition, but it carries a high risk of possible FB entrapment in the larynx that may lead to patient’s death.

Keywords: Bronchoscopy, Death, Foreign bodies, Gastrointestinal tract, Larynx

INTRODUCTION

Foreign body (FB) inhalation is one of the most common, yet dangerous incidents that might lead to serious and eventually lethal consequences.1 Because of the laryngeal sphincteric protective functions, laryngeal foreign bodies are so rare and most of the inhaled foreign bodies pass into the bronchus or the other lower airways.2 Spontaneous expulsion of inhaled foreign bodies from the lungs has been mentioned to be difficult and rare as suggested by Jackson in 1921 and immediate removal should be done to avoid further complications.3 Spontaneous expulsion of FB bronchus had been also mentioned to be rare with very few reports in the literature as the two cases reviewed by Gupta and Sood,4 and the two cases mentioned by Ryndin and Octavio.5 Here, we present three cases of spontaneous expulsion of inhaled FB bronchus; two were expelled out, and the third one went into the digestive tract.

CASE REPORT

Case 1
A 7-month-old girl presented to our accident and emergency room accompanied by her mother. The mother reported seeing her daughter during the episode of ingestion of FB, immediately after which the child had severe choking, coughing, and became cyanosed for a short time, then became all right.

On examination, the child was active, not in distress, respiratory rate was 30 min, and O2 saturation was 97% in the room air. Diminished air entry was found in the left side of the chest. X-ray neck and chest lateral and anteroposterior (AP) views showed the evidence of radio-opaque shadow suggestive of FB inhalation in the left main bronchus (Figure 1).

Decision was then made for removal of the FB. Rigid bronchoscopy using size 3.5 mm bronchoscope, under general anesthesia, was done, but due to severe spasm, before reaching the carina, oxygen saturation dropped to <30%. After three attempts, the procedure was aborted, and the patient was returned to the ward. The plan was to refer the patient to another hospital where pediatric pulmonologist and cardiothoracic departments are

![Figure 1: (a and b) Anteroposterior and lateral views of the chest X-ray showing the foreign body](image)
available, but next day, in the early morning, the child had a severe attack of coughing as mentioned by the mother where the FB (a lamp from a toy) (Figure 2) had been expelled out, and the mother showed us the FB. The child looked not in distress, and the oxygen saturation was 100%. Chest auscultation revealed bilateral equal normal air entry. Chest X-ray done after this coughing episode showed no evidence of FB in the airways.

Case 2
An 18-year-old female patient presented at 2 am to our accident and emergency with a typical episode of choking and spasmodic cough after inhalation of a scarf pin that she was holding between her teeth. Air entry was normal in both lungs. X-ray chest AP and lateral views were done and showed a radio-opaque shadow in the right main bronchus. Decision had been taken for bronchoscopy and removal of the FB at 7 am, but the patient coughed it out at around 5.40 am. First on call was called to see the patient, and he got urgent chest X-ray done which showed no FB. Unfortunately, the X-rays were not recorded as the patient signed and left against medical advice.

Case 3
A 1-year-old boy presented with his parents who mentioned an episode of coughing, choking, and cyanosis which happened in the previous night after inhalation of a small stone. Chest X-ray was done at the local health center, showed FB left main bronchus with the collapse of left lung. So, the urgent referral was made to us, but due to transport problem, they came to our hospital next day morning. The chest X-ray, they brought with showed the same findings that mentioned earlier (Figure 3) and a referral note mentioning diminished air entry over the left side of the chest. Assessment of the patient showed an active child with no cyanosis and no signs of respiratory distress. Chest auscultation revealed bilateral equal air entry. We repeated chest X-ray in the accident, and emergency department showed the radio-opaque shadow in the digestive tract (Figure 4). Mother asked to look for the stone when the child passes stool. Next day she brought the stone; therefore, X-ray was not repeated to reduce un-necessary radiation to the baby.

DISCUSSION

Inhalation of tracheobronchial foreign bodies occurs more commonly in children, but it also can occur in adults, it mainly symptomatize by choking followed by a protracted cough.6

Initial treatment is airway support if there is any acute endangering of life. Bronchoscope removal of the FB is necessary to avoid long-term sequelae.7

Spontaneous expulsion of FB bronchus is unimaginable and quite rare. It has been mentioned by Chevalier Jackson to vary between 2% and 4% in the literature.8-10
Spontaneous expulsion of inhaled cycle tube metallic valve from the right main bronchus had been mentioned. Furthermore, spontaneous expulsion of the inhaled iron nail had been mentioned from the left main bronchus, from the right lower lobe bronchus and a case of spontaneous expulsion of metallic sewing machine needle from the right middle lobe bronchus.

In our three cases, the diagnosis of FB inhalation was clear depending on the typical clinical history of seeing the ingestion of FB by one of the parents in cases number 1 and 3 or history of the patient herself in case number 2. Furthermore, the history of choking, coughing, and spontaneous relief was a common finding in the three cases.

The clinical history is so important in diagnosis of FB inhalation which is matching with the literature.

In our three cases, radiological examination using the X-ray was a pillar in the establishment of the accurate diagnosis of the case as it showed a proof of the FB inhalation and also offered help in determining the site of the FB.

In the literature, it is mandatory to do X-ray neck and chest for any patient with history of FB inhalation for the above reasons and also to detect any possible complications.

For anatomical reasons, inhaled foreign bodies are easier to lodge in the right bronchial system than in the left one. In our three cases, this had been met in case number two making it easier for spontaneous expulsion to occur but, in cases 1 and 3 it was more strange that foreign bodies got out despite that the FB lodged in the left bronchial system.

In case number 3, it was also strange for the FB to be coughed out then to lodge again in the digestive tract. A similar condition had not been encountered in the literature.

Because the subglottic region is the narrowest, it is considered unwise to leave the ingested FB for the chances of spontaneous expulsion as it may lead to a serious episode of respiratory distress and even death and it should be put in mind to closely observe the patients after any episode of the cough while preparing for endoscopic removal of the inhaled FB.

Spontaneous expulsion of inhaled foreign bodies is rare. Bronchoscope removal of the FB should be arranged rapidly to avoid any complications or difficulty in its removal.

**CONCLUSION**

Spontaneous expulsion of inhaled foreign bodies is extremely rare. Early bronchoscope removal should be arranged to avoid complications. After every cough episode, the patient should be observed closely as the FB might dislodge in the subglottic region leading to serious respiratory distress or even mortality.

**REFERENCES**


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