

CASE REPORT

An Interesting Journey of an Endobronchial Foreign Body - A Case Report

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Abstract:

Reported incidence of spontaneous expulsion of chronically impacted foreign body from a segmental bronchiole is very less. We report a rare and fascinating journey of an iron nail which was accidentally inhaled two years back and was there in the right lateral basal segmental bronchiole. During bronchoscopy with severe bout of cough, the foreign body was expelled out through the bronchus and it was found to lie at unusual location i.e. in the rectum. In most of the reported cases of foreign body inhalation and their expulsion, the foreign bodies were in right or left main bronchus, however in our case it is in the segmental bronchiole. Duration of the history in our case is two years, however duration in most of the reported cases is maximum of 11 months, and this makes our case exceptional. Route of expulsion of foreign body in our case is per rectal which is not mentioned in the literature. Imaging played a vital role in our case to locate the impacted as well as expelled endo-bronchial foreign body.

Keywords: Computed Tomography (CT), Endobronchial Foreign Body, Spontaneous Expulsion.

Introduction:

Though there are cases of inhaled foreign bodies, spontaneous expulsion of foreign bodies from the bronchi, it is quite rare and very few case reports are available in the literature [1]. Negus (1948) mentioned an incidence of spontaneous expulsion of endobronchial foreign body as 2%, while an incidence given by Chevalier Jackson (1959) is 2-4% [2]. Incidence of 2% of spontaneous expectoration of inhaled foreign bodies is also reported by Chatterji *et al* [3].

In most of the reported cases, foreign bodies in the bronchi were expelled out through oral route. To

the best of our knowledge, long duration of the impacted endobronchial foreign body, i.e., almost two years and per rectal expulsion of it, has not been reported in the literature.

Case Report:

A 35 year old male, carpenter by occupation, came with complaints of pain in chest on right side associated with fever. Patient gave past history of accidental inhalation of a nail 2 years back and repeated lower respiratory tract infections during this period. Unsuccessful attempt of bronchoscopic removal of nail was made twice. On examination chest revealed decreased air entry on right infra-axillary area with crepitations.

Chest radiograph (Fig.1) revealed a radio-opaque, long, linear foreign body resembling a nail in the right lower lobe bronchus with patchy consolidation in adjacent right lower zone, in paracardiac region.



Fig. 1: Radiograph of Chest PA View, Arrow Showing Long Radio-Opaque Foreign Body in Line With Right Lower Lobe Bronchus with Few Consolidatory Changes in the Right Middle Lobe

On Computed Tomography (CT) of Chest (Fig. 2) the position of the foreign body was confirmed which was of approximate size 21x3mm in the right lateral basal segmental bronchiole approximately 4cm away from division of the right lower lobe bronchus and partially obstructing the airway lumen associated with surrounding consolidation. A loculated pneumothorax was seen in the major fissure on the right side.

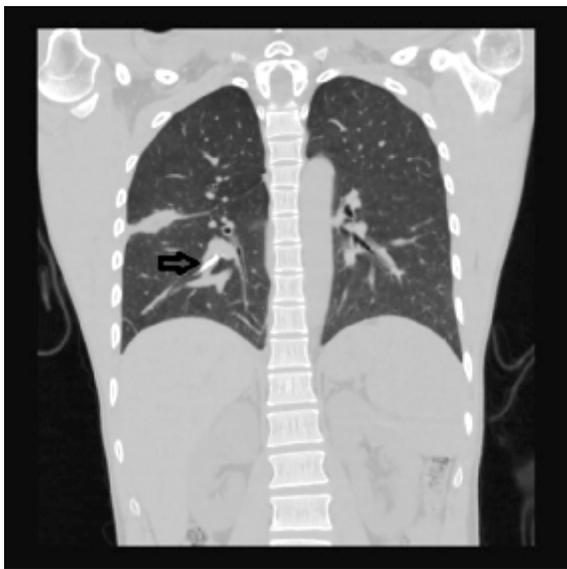


Fig.2: Plain CT Chest Lung Window Revealed the Location of Inhaled Iron Nail (Shown By Arrow) In Right Lateral Basal Segmental Bronchiole with Fibrotic Changes and a Loculated Pneumothorax in the Right Major Fissure

Patient was kept on broad spectrum antibiotics and non steroidal anti-inflammatory drugs.

After confirming the position of endobronchial foreign body, bronchoscopic removal of foreign body was planned. At the initiation of the procedure patient had severe bout of cough. During bronchoscopy, only rusty, purulent secretions from right lateral basal bronchiole were aspirated. No foreign body was identified in the segmental bronchiole.

Chest radiograph & computed tomography taken after bronchoscopy did not show the foreign body

in the chest. Screening CT scan of abdomen (Fig. 3) and abdominal radiograph done after one day showed dislodged foreign body in the rectum. A small air pocket is seen adjacent to distal sigmoid colon may represent sealed off perforation. Patient gave history of passage of foreign body during defecation. Subsequently air entry on right side improved and resolution of consolidation was seen on chest radiograph.

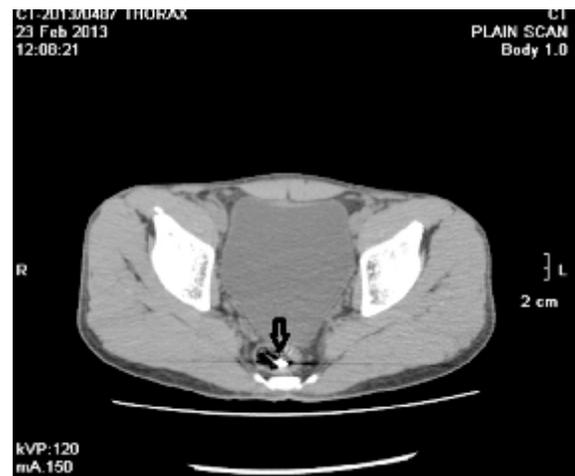


Fig.3: Plain CT Abdomen Revealed Foreign Body in Rectum As Shown by Arrow

Discussion:

Aspiration of foreign bodies is commoner in paediatric age group than adult [4]. On aspiration, most of the foreign bodies lodge in right main bronchus due to lesser angle of convergence. The lodgement of foreign body in the segmental bronchiole is rare and most of the time results from a failed bronchoscopy guided removal as in our case (previous two attempts had failed).

Most of the patients present acutely with choking, coughing and wheezing and require immediate intervention and not as a chronic case, as our patient, presenting with recurrent pneumonia and bronchiectasis [5]. It is unusual for the impacted endobronchial foreign body to remain for long duration (two years in our case). The maximum duration a foreign body remained in the bronchus has been reported to be 11 months in literature [1].

The metallic foreign bodies, like nail, are large in size with irregular surface. They cause obstruction of airways and chemical bronchiolitis resulting in mucosal edema and impaction of the foreign body [4]. This is the most likely etiopathogenesis in our case. Organic foreign bodies are more hazardous than metallic and plastic material due to chemical irritation and allergic reaction as a result of local absorption of antigenic protein material [6]. This explains the long stay of foreign body in our case.

Though metallic foreign body was identified on radiograph, computed tomography played important role in diagnosing exact site of the foreign body [7]. In our case, correct localization of foreign body was possible only with CT.

Treatment option for impacted foreign body is bronchoscopic removal. Removal of foreign body from segmental bronchiole is difficult with bronchoscope.

Reported cases of spontaneous expulsion of bronchial foreign bodies, are very few. More over in most of the cases and so in our case, impacted foreign bodies were expelled out from segmental bronchiole by a forceful bout of cough from the lung whose capacity was already compromised due to consolidation, which is a rare outcome [4].

Explanation for this was given by Gupta et al that combination of antibiotics and steroids would have been responsible for reduction in mucosal edema and dislodgement of foreign body due to cough and its movement within the bronchus stimulated more severe bout of cough strong enough to cause the foreign body to be expelled out [4]. In most of the reported cases spontaneous expulsion of foreign body was through oral route. However in our case it was through rectal route, which, to the best of our knowledge, has not been reported in the literature.

Ileo-cecal junction is the narrowest part of the gastrointestinal tract and most of the ingested foreign bodies lodge in this segment of the bowel. Another complication is perforation of the bowel by the sharp foreign body which is seen in our case (sealed off perforation at distal sigmoid colon).

Conclusion:

Spontaneous expulsion of impacted endobronchial foreign body is rare but established outcome irrespective of nature, site and duration of impaction of foreign body. However, per rectal expulsion of an impacted foreign body in a bronchiole is also possible and is being reported for the first time.

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