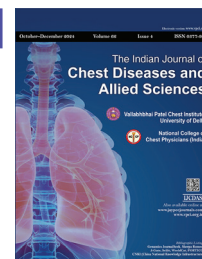


A Case of Complex Airway Foreign Body: Areca Nut

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ABSTRACT

Tracheobronchial foreign body (FB) aspiration to date has been described in terms of types of FB, their myriad of presentations, diagnostic evaluation, tools, and techniques for their management in various case reports and systematic reviews. However, FB extraction in some cases may be difficult due to the nature of FB, the clinical state of the patient, the unavailability of adequate tools, and the surrounding tissue response to FB. We would like to bring out the terminology of complex FB to describe the above-mentioned scenarios. In the following paper, we have enumerated one such case of complex FB based on its nature and its subsequent management.

Keywords: Case report, Flexible bronchoscopy, Foreign body, Surgery.

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ABBREVIATIONS USED IN THIS ARTICLE

CT = Computed tomography; FB = Foreign body.

CASE DESCRIPTION

A middle-aged man with uncontrolled type 2 diabetes mellitus was referred to our pulmonology clinic due to ongoing dry cough and low-grade fever for the last six months. The patient's vital signs were stable, but a notable finding during the physical examination was the presence of coarse crepitations at the base of the right lung. A chest radiograph done for further evaluation showed right lower lung zone opacity. High-resolution computed tomography (CT) of the chest showed consolidation of the right middle lobe (Fig. 1). A flexible bronchoscopy examination performed to evaluate the patient's lung consolidation found a narrowed middle lobe bronchus with pus oozing out from the orifice. Once the pus was suctioned out, we noticed a foreign body in the medial subsegment of the right middle lobe (Fig. 2). Efforts to remove the foreign body (FB) using endoscopic instruments were unsuccessful. Due to its deep location, fragile nature, the presence of granulation tissue surrounding the FB, distal bronchiectatic changes, and the risk of pushing it further down during retrieval attempts, a decision was made to perform a right middle lobe lobectomy. In the lobectomy specimen, there was a foreign body consistent with areca nut (Fig. 3), along with bronchiectatic changes in the distal segments. After a thorough interrogation, the patient confessed to choking on an areca nut while under the influence of alcohol. The time when the patient's symptoms began overlapped with the aspiration event. The patient was discharged on postoperative day 4 without any complications.

DISCUSSION

Foreign body aspiration is rare in adults in comparison to children.¹ It can present as an immediate life-threatening emergency if FB is large enough to occlude the airway. On the other hand, the small non-asphyxiating foreign body may go unnoticed and can present as a persistent cough mimicking chronic diseases such as

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Fig. 1: Axial cuts of high-resolution CT of the chest showing right middle lobe consolidation

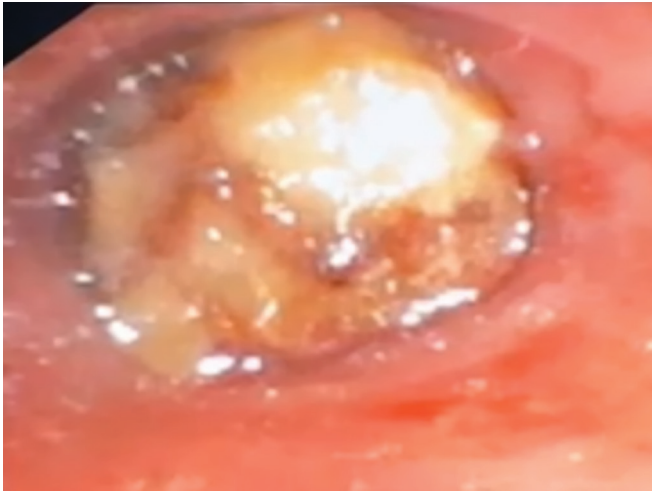


Fig. 2: Flexible bronchoscopy showing impacted foreign body in right middle lobe medial subsegment

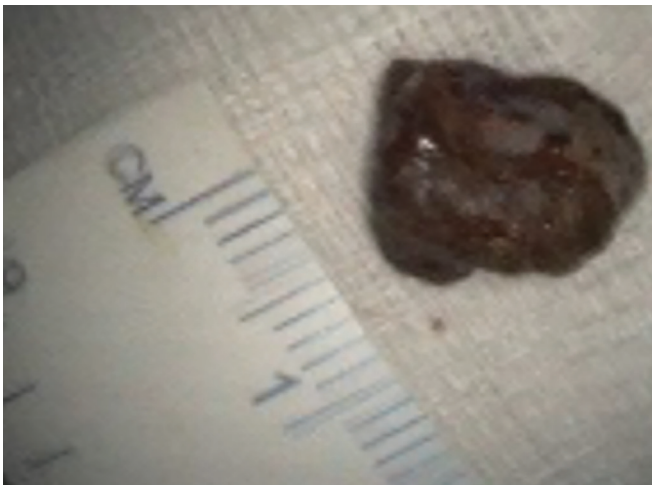


Fig. 3: Foreign body retrieved from lobectomy specimen—areca nut piece 0.5 cm in size

asthma, bronchiectasis, or obstructive pneumonia. Standard chest radiographs identify FB directly in only 25% of patients since most aspirated FBs are organic and radiolucent. Hence, performing CT of the chest is essential.² Bronchoscopy is the gold standard for confirmation and retrieval of FB. Flexible bronchoscopy has emerged as an initial go-to modality following an episode of FB aspiration barring some clinical settings.^{3,4} Various tools are available for the extraction of FB in the armamentarium of intervention pulmonologists ranging from simple forceps

to cryoprobes. Despite all the advancements the three steps of FB removal—dislodgment, securing, and retrieval have withstood the test of time. The removal of FB is not always simple, sometimes retrieval process may be complex or complicated secondary to a multitude of factors. One such factor is the physical and chemical attributes of FB as seen in our case. Areca nut is a complex FB on account of its friable physical nature which makes it difficult to grasp with forceps plus it has a tendency to fragment and get displaced farther on attempts of retrieval. Areca nut also contains alkaloids which can incite granulation tissue formation around it. The process of granulation tissue formation leads to firm impaction of FB plus leads to bleeding on attempts of dislodging the FB. Later on, fibrosis can set in leading to airway stenosis eventually making it difficult to reach and retrieve the FB.⁵ Overall areca nut is a complex and unique airway FB on account of the above features. The use of a controlled radial expansion balloon to dilate the stenotic segment followed by the use of accessories like forceps or cryoprobe to grasp and retrieve this FB have been described in the literature. If initial bronchoscopic procedures are unfruitful surgery remains the last option for relief. A similar approach was taken in our patient which was unsuccessful and finally lobectomy was required.

CONCLUSION

Each case of FB aspiration is different and some cases may not be straightforward. A multitude of factors needs to be considered while planning for FB retrieval. Complex FB represents a distinct subset of airway FB due to these factors which pose a unique challenge. Identification and address of these factors which may entail an FB retrieval situation to be complex will help yield optimal outcomes.

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