

What The Tooth Fairy Missed: An Unusual Cause of Recurrent Pneumonia and Successful Management with Fiberoptic Bronchoscopy

KG Lynrah¹, V Nongpiur², S Warjri¹, S Tariang¹

¹Department of Medicine, North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong, India;

²Department of Pulmonary Medicine, All India Institute of Health and Medical Sciences (AIIMS), New Delhi, India.

Corresponding Author:

Dr. KG Lynrah

Email: rilawa23@rediffmail.com

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (creativecommons.org/licenses/by/3.0).

Received : November 18, 2016

Accepted : January 10, 2017

Published : January 30, 2017

Abstract

Background: Tracheobronchial aspiration is uncommon in adults. The non-asphyxiating nature of such lesions usually leads to chronicity and an obscure clinical presentation that is often confused with chronic respiratory disorders such as asthma, recurrent pneumonia. A high index of clinical suspicion is imperative in the diagnosis. **Case Report:** We present a case of an aspirated tooth that masqueraded as recurrent pneumonia for more than two years prior to its successful removal by fiberoptic bronchoscopy. **Conclusion:** Adult tracheobronchial aspirations can present with chronic respiratory symptoms, high index of suspicion is needed and prompt bronchoscopic removal is the treatment of choice.

Keywords: Asthma, Bronchoscopy, Foreign Bodies, Pneumonia, Respiratory Disorders.

Introduction

Tracheobronchial foreign body aspirations can occur at any age but are usually more common in children or in the elderly [1]. Multiple factors predispose the risk of tracheobronchial aspirations in adults like central nervous system disorders, neuromuscular and swallowing disorders [2,3]. In children, aspirated foreign bodies are usually, though not exclusively, lodged in the central airways (trachea and mainstem bronchi). As a result the clinical picture is one of an acute, dramatic onset of respiratory distress with a clear history of aspiration. The diagnosis is often not difficult. Adults, on the other hand, tend to have non asphyxiating aspirations, with objects lodged in the more peripheral airways. A clear history of aspiration of foreign bodies in adults is often negative. The presentation is also varied and often presents a diagnostic challenge to the treating physician.

Endobronchial management of aspirated foreign bodies is the norm. Though rigid

bronchoscopy is the mainstay in foreign body removal from the airways, removal by flexible fiberoptic bronchoscopy is becoming increasingly popular. In our report, we present a case of an aspirated tooth in a healthy individual presenting as recurrent pneumonia which eluded diagnosis for more than two years, and its successful management by flexible fiberoptic bronchoscopy.

Case Report

A 39 year old male presented to the medical outpatient department of a tertiary care centre in north-east India with the chief complaints of fever on and off for the last two years. The episodes of fever were accompanied with cough, occasionally dry but at times with a mucoid expectorate. He had been treated for pneumonia multiple times prior to his visit and had also completed a course of anti-tubercular therapy of six months duration.

On clinical evaluation, he was febrile. Respiratory system examination revealed a decreased intensity of breath sounds in the right

lung base with the presence of crackles. A clinical diagnosis of recurrent pneumonia was kept and he was admitted for further evaluation. His baseline investigations were significant only for an elevated erythrocyte sedimentation rate. Sputum cultures and acid fast stain were negative. Blood cultures were negative. His chest X-ray (CXR) [Fig.1] showed reticular infiltrates in the right lower zone and a prominent opacity in the right hilar region that was suspicious of a foreign body in the airways. He was questioned further and revealed that about two years prior he was involved in an accident while working in a sawmill where he sustained significant facial trauma and lost consciousness. The trauma he sustained had dislodged multiple teeth from his left upper jaw, of which not all were recovered.

A fiberoptic flexible bronchoscopy (FOB) (Karl StorzEndoskope, Karl StorzGmbH & Co. KG. 78532 Tuttlingen, Germany) was performed under local anesthesia (2% xylocaine, intra-tracheal) through the trans-oral route. The bronchoscopy revealed a near complete obstruction of the right intermediate bronchus by a lesion covered with white, slough like material with granulation tissue surrounding the obstruction [Fig.2a,b]. The scope could not be negotiated beyond the obstruction. The granulation tissue surrounding the obstructed area was initially removed piece-meal using biopsy forceps. The area was then flushed with saline and the tooth was identified. The tooth was grasped with a rat-tooth grasping forceps and the bronchoscope was withdrawn together with the forceps en masse [Fig.2c-d and 3]. Following the removal of the tooth the area was reassessed and there was no major bleeding or trauma to the respiratory tract. The patient withstood the procedure well.

The patient was subsequently discharged on oral antibiotics. On the last follow up visit two weeks after discharge, the patient was doing well and was asymptomatic.

Discussion

Tracheobronchial foreign body aspirations in adults are not common [4-6], and tend to be

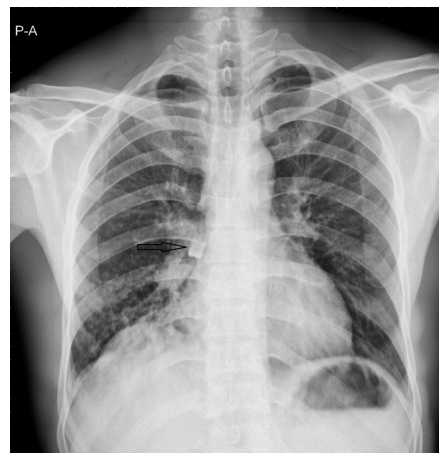


Fig.1: Chest X-ray before bronchoscopy, the tooth is marked with an arrow.

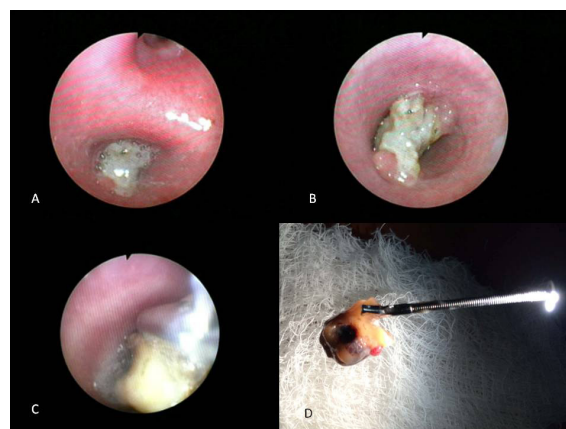


Fig.2 (a,b): Tooth in the lumen of the bronchus, (c): Forceps holding the tooth and withdrawal of the tooth, (d): Tooth out of the bronchus.



Fig.3: Chest X-ray after bronchoscopy.

non-asphyxiating in nature. There is usually an underlying factor such as loss of the swallowing reflex either due to an abnormality in the reflex or a bypass of the reflex in the oropharynx. Central nervous system dysfunction (stroke, encephalopathy, neuromuscular disorders) sedatives, general anaesthesia, alcohol and other intoxications are examples of the former while dental extractions and manipulations, intubation, facial trauma reflect a bypass of the swallowing reflex. Limper and Prakash [2], in their series at the Mayo Clinic reported that dental procedures and primary neurological disorders were the most common predisposing factors and Chen *et al.*[7] noted that intubation was another important risk factor.

A possible explanation for the non-asphyxiating nature of foreign body aspirations in adults could be the larger size of the airways wherein the foreign body tend to reach the more peripheral airways before it gets lodged. Baharloo *et al.*[1], reported that 74% of the foreign bodies in children were in the proximal airways (the larynx, trachea and mainstem bronchi) compared to only 43% in the adult population. The right bronchial tree was the most common site of lodgement [2,5] due to its relatively straight and shorter anatomy from the carina; however the position of the patient at the time of aspiration could also determine the eventual site of lodgement. The nature of foreign bodies reported in literature is quite variable. While Limper and Prakash [2] reported vegetable matter as the most common foreign body recovered in their series, others [5-7] have reported bone as most common. Baharloo *et al.*[1], reported that a majority of the foreign bodies recovered in both children and adults were organic in nature. Aspirated tooth is seen predominantly in dental extraction procedures and traumatic intubations.

The non-asphyxiating nature of foreign body aspirations in adults lends to a clinical presentation that is usually vague, non-specific and more often chronic rather than acute in nature.

A high index of suspicion is therefore required in the diagnosis especially when there is no clear history of aspiration. Symptoms that have been most commonly reported include chronic cough and wheeze, recurrent pneumonia and haemoptysis [1-3]. Lan *et al.*, reported that 70% of their patients were chronic (defined as presence of the foreign bodies in the airways for more than one month prior to removal), with a mean duration was 20.6 months [8]. In a CxR, the diagnosis and localization of opaque foreign bodies is more straightforward compared to organic foreign bodies which tend to be radiolucent and hence does not show up on CxR. In such cases, indirect signs on CxR such as atelectasis, pneumonic consolidation and air trapping can provide valuable clues. However the CxR may also be entirely normal, as was seen in 24.4% of the patients in the study by Mise *et al.* [3].

The definitive treatment of foreign body aspiration is removal. Endobronchial removal, either by rigid or flexible fiberoptic bronchoscopy is the standard of care. Surgical intervention may be needed in deep seated foreign bodies or following failed bronchoscopic attempts. The introduction of the flexible fiberoptic bronchoscope (FOB) not only improved visualization and access to the distal airways, but also resulted in a reduction in morbidity and mortality rates compared to the rigid bronchoscope [9]. With the increase in popularity of the FOB, the question invariably arises: is FOB now the standard of care in foreign body retrieval? The rigid bronchoscope has a large array of ancillary instruments designed specifically for removal of almost any type of foreign body. This is in contrast to the FOB where the only instruments available are forceps and baskets that can pass through its working channel. The rigid bronchoscope also comes in various sizes depending on the airway diameter. However it requires general anaesthesia. The popularity of FOB stems from the fact that it is versatile and is especially advantageous in adults where objects

tend to be lodged in the more peripheral bronchi, at times out of reach of the rigid bronchoscope. The procedure is usually done under local anaesthesia or if needed, conscious sedation, which greatly improves patient compliance. Probably the biggest advantage of FOB is the widespread availability and ease in training, whereas rigid bronchoscopy requires specialist training which is available only in a few institutions.

Conclusion

Tracheobronchial foreign bodies in adults may present a diagnostic challenge for the clinician. Foreign body aspiration should be considered, especially with the aetiology of recurrent lung diseases and presence of risk factors for aspiration. Bronchoscopic evaluation and removal should be performed as soon as the diagnosis is suspected.

Contributors: KGL and VN: Bronchoscopy and case management. SW and ST: Case management. KGL will act as guarantor. All authors approved the final version of manuscript.

Funding: None; *Competing interests:* None stated.

References

1. Baharloo F, Veyckemans F, Francis C, Bietlot MP, Rodenstein DO. Tracheobronchial foreign bodies: presentation and management in children and adults. *Chest*. 1999;115(5):1357-1362.
2. Limper AH, Prakash UB. Tracheobronchial foreign bodies in adults. *Ann Intern Med*. 1990;112(8):604-609.
3. Mise K, Jurcev Savicevic A, Pavlov N, Jankovic S. Removal of tracheobronchial foreign bodies in adults using flexible bronchoscopy: experience 1995-2006. *Surg Endosc*. 2009;23(6):1360-1364.
4. Nakhosteen JA. Tracheobronchial foreign bodies. *Eur Respir J*. 1994;7(3):429-430.
5. Lan RS. Non-asphyxiating tracheobronchial foreign bodies in adults. *Eur Respir J*. 1994;7(3):510-514.
6. Debeljak A, Sorli J, Music E, Kecelj P. Bronchoscopic removal of foreign bodies in adults: experience with 62 patients from 1974-1998. *Eur Respir J*. 1999;14(4):792-795.
7. Chen CH, Lai CL, Tsai TT, Lee YC, Perng RP. Foreign body aspiration into the lower airway in Chinese adults. *Chest*. 1997;112(1):129-133.
8. Lan RS, Lee CH, Chiang YC, Wang WJ. Use of fiberoptic bronchoscopy to retrieve bronchial foreign bodies in adults. *Am Rev Respir Dis*. 1989;140(6):1734-1737.
9. Cunanan OS. The flexible fiberoptic bronchoscope in foreign body removal. Experience in 300 cases. *Chest*. 1978;73(5 Suppl):725-726.