

Case Report

Long Standing Foreign Body lodged in the Right Bronchial Tree – A Case Report

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Received: 10.07.2022

Accepted: 16.08.2022

Published: 14.09.2022

Journal homepage:<https://www.easpublisher.com>**Quick Response Code**

Abstract: Foreign body inhalation is a life threatening emergency condition that commonly occur in children. A foreign body (FB) can be lodged in either the upper or lower airway or cause either a partial or complete airway obstruction. Complete obstruction of upper airway is a potentially life-threatening situation that causes severe respiratory distress and suffocation. Lower airway FB typically manifests with sudden-onset coughing and choking, followed by wheezing and dyspnea. We are presenting a case report of 3years old female child with a foreign body in the right bronchus intermediacy over one year. Patient was managed by performing thoracotomy after failed rigid bronchoscopy. This case is importance as to reduce the frequency of prescribing without throughout investigations.

Keywords: foreign body, upper and lower airway, bronchoscopy.

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INTRODUCTION

Foreign body inhalation is one of the leading causes of emergencies in the otorhinolaryngology Department of Bugando Medical Centre (BMC). Patients presenting with inhaled foreign body differ in their clinical presentation depending on the site where the foreign body is lodged. Factors affecting their clinical presentation are; the type of object inhaled, the location of the inhaled object stay, whether the incident was witnessed, the age of the patient, and the time of the incident occurred.

Acute proximal upper airway obstruction may present with classic symptoms of choking, significant respiratory distress, while a more distal obstruction may present with chronic wheezing, characteristic dry cough (may be productive if secondarily infected), chest discomfort or general shortness of breath, and may mimic asthma or other respiratory illnesses. The gold standard for treatment of foreign body aspiration is rigid bronchoscopy with forceps removal even though flexible bronchoscopy is quite useful in certain conditions [11]. However, in cases of failed rigid bronchoscopy, the surgical options available for retrieving the foreign body may be including tracheostomy, bronchotomy, and thoracotomy [4, 8,

14]. The mortality rate following surgery varies, ranging from 0 to 2.6% [5, 9, 15].

CASE PRESENTATION

A three (3) year old female child presented at our Emergency Department of BMC with the complain of productive cough for one year. Had episodes of recurrent fever of on and off despite treatment. Parent (father) reported the child to have been treated for pneumonia without significant improvement and recently, the child was splitting saliva containing pus. Several weeks before reporting to the hospital the child presented with history of expectorating purulent sputum. Neither history of open tuberculosis contact nor history of FB inhalation reported. On general examination, she was neither dyspnoeic nor jaundiced. On auscultation patient had decreased air entry on the right infra-mammary area associated with coarse crackles in the right supra-mammary area. An Antero-Posterior (AP) and Lateral (LAT) Chest X-ray was done (Figure 1) and demonstrated a linear opacity with a configuration of an inverted nail (yellow arrows) lying within the distal trachea, right main bronchus and the bronchus intermedius extending into right lower lobe bronchus with associated volume loss and heterogeneous airspace opacification and bronchiectatic changes in the right lower lobe.

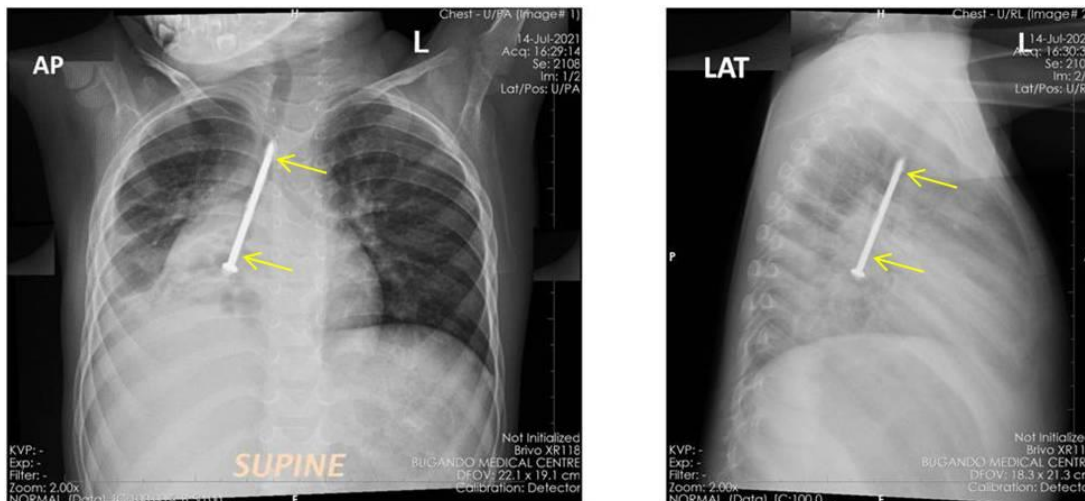


Figure 1: Antero-Posterior (AP) and Lateral (LAT) Chest X-ray

Diagnosis of foreign body inhalation was made. The child was started on broad spectrum antibiotics and steroids, intravenous ceftriaxone 500gram 12 hourly for 72 hours, intravenous dexamethasone 4mg 8 hourly for 72 hours and then she was kept on oral amoxicillin/clavulanate 375mg 12 hourly for 7 days and rigid bronchoscopy was planned. Intraoperatively, the trachea was found to contain pus and gentle suctioning was done. Following suctioning, a nail was observed and removal attempts were unsuccessful due to granulation tissues surrounding the foreign body. Following the unsuccessful attempts to remove the foreign body, cardiothoracic team was consulted and decided to perform thoracotomy and ended up removing an 8-inch nail (Figure 2). The child had uneventful postoperative recovery and was prescribed the following postoperative medications paracetamol 500mg iv tds 2/7 then diclofenac 50mg po tds 5/7, DNS<->R/L 1L for 24hrs and ampiclox 250mg iv tds 3/7 to continual with oral antibiotics amoxicillin/clavulanate. The child was discharged seventh day post thoracotomy and was kept under strict postoperative visits for about 6-months

DISCUSSION

In this case report, the father brought her daughter to the hospital with no clue of the child that has inhaled a foreign body. This became evident after the chest radiography which showed the FB [13]. Around 88% of the parents or guardians have the capability of suspecting FB but 12% are not capable as illustrated by this case presentation. As the child is still very young makes it difficult for her to recall or inform the parent of the FB inhalation incident [9]. The child was 3 years old similar to other studies [1-5, 7, 12]. Acute Foreign Bodies (AFBs) have very unique demography; 80% of cases are below 3 years, of which the peak frequency occurs in 1–2 years age group [1]. Reilly *et al.*, highlighted that ≤ 4 years pediatrics are more prone to inhale bodies as they are driven by oral explorative behavior using their molar-free mouths and they lack well-coordinated swallowing reflex [2]. The smaller diameter of their airways allows the inhaled body to obstruct the tract [3]. Male sex predominance is another characteristic feature of this condition [6]. Their adventurous and impulsive behavior may justify that [7].

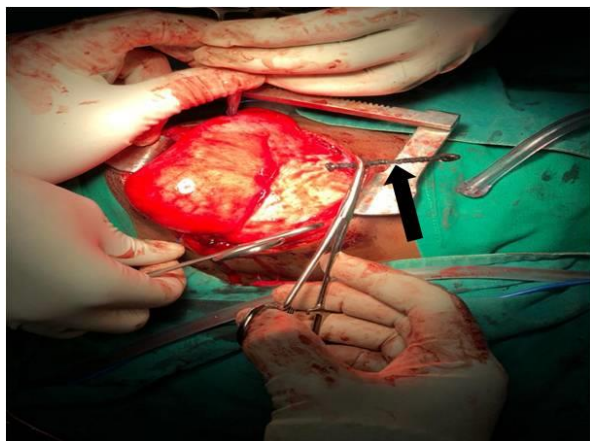


Figure 2: Showing the nail upon removal by thoracotomy

The clinical presentation of recurrent respiratory infections by the child non-responsive to treatment was the alarming feature to the parent that contributed to seeking medical referral.

The foreign body was lodged on the right bronchial tree with the distal tip pointing cranially and there was no complete bronchial lumen occlusion that is why the patient breathing cycle was normal in room air. Right bronchus is the common location of the foreign bodies due to its vertical orientation similar to our case presentation [13].

Rigid bronchoscopy is the modality of choice in extracting of foreign bodies in the airway and flexible fibre optic is the gold standard for diagnosis

[6]. It offers wide area of visualization making it advantageous over flexible ones by being dual-purpose, diagnosis and management. There are specially-designed bronchoscopes that enable administration oxygen and inhalational anesthetic agents through the side arms. We initially managed our patient by using rigid bronchoscopy but the procedure was unsuccessful due to the fibrosis around the foreign body as it has stayed there over one year. In literature most of the foreign bodies encountered in practice are acute or of short duration [7, 12]. Several attempts were made to removal the foreign body via rigid bronchoscopy but failed. Patient was returned to the ward and cardiothoracic surgeons were consulted. Two days later thoracotomy was done, the nail was removed successfully, granulation tissue was also dissected and removed. Longstanding inhaled foreign bodies is a rare encounter in clinical and research practice and when encountered, most cases are managed successfully by rigid bronchoscopy (Abraham *et al.*, 2021) though upon failure of such main stay of treatment modality, then other techniques like tracheostomy (Abraham *et al.*, 2020 or thoracotomy may be applied [14]. Patient stayed in the hospital for 7 days post thoracotomy then discharged and followed up at the clinic after 2 weeks.

CONCLUSION AND RECOMMENDATION

Foreign body inhalation should always be considered in children presenting with chronic or recurrent respiratory tract infections that do not respond to medical treatment. Imaging remains to be an important diagnostic work up in suspected cases of FB inhalation. Unusual longstanding foreign bodies may not be amenable to rigid bronchoscopy due to chronic inflammatory changes example fibrosis around such foreign bodies

Conflicts of interest: The authors reports no conflict of interest.

Sources of funding: CUHAS.

Ethical approval: Ethical standards were reviewed and approved by the Catholic University of Health and Allied Sciences

Consent

Written informed consent was obtained from the father for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

OMK-Conceptualization, methodology, writing original draft

PN-Conceptualization and reviewing the prepared original draft of the manuscript

ZSA-Conceptualization, methodology and reviewing the prepared original draft of the manuscript

AAK- Conceptualization, methodology and reviewing the prepared original draft of the manuscript

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Cite This Article: Olivia Michael Kimario, Patrick S. Ngoya, Zephania Saitabau Abraham, Aveline Aloyce Kahinga, Alicia Massenga (2022). Long Standing Foreign Body lodged in the Right Bronchial Tree – A Case Report. *East African Scholars J Med Surg*, 4(9), 185-188.