Case Report

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Whistle Aspiration A Diagnostic Puzzle

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Abstract

Foreign-body aspiration is commonly seen in infants and toddlers. Older children are less likely to aspirate a foreign body due to well-developed oro-pharyngeal reflexes. Our case a 6 year old female child presented with history of cough, fever and hemoptysis. History of aspiration of a plastic whistle was present but chest radiograms were not confirmatory. Due to a high index of suspicion, bronchoscopy was done. A cylindrical plastic whistle was removed. Thus underscoring the importance of history in determining bronchoscopy in suspected cases of foreign-body aspiration.

Keywords: Foreign Body; Whistle; Virtual Bronchoscopy; Rigid Bronchoscopy.

Introduction

Foreign-body aspirations is commonly seen in the age group less than 4 years [1,2]. Older children aspirate objects like pin, coin and jewellery or organic objects like peanut or beetle nut put in their oral cavity [3]. Though older children have good neuromuscular coordination as well as involuntary reflexes like cough, gag and closure of glottis can protect them from aspiration still they are susceptible for aspiration [1, 4]. Our case reiterates the importance of suspicion of history of foreign-body aspiration as a strong indication for bronchoscopy despite imaging studies are not suggestive of a foreign body.

Case History

A 6 year old female child presented with cough since one month, intermittent fever since one month. The child had one episode of hemoptysis with blood streaked sputum. On enquiry the child had history suggestive of foreign body aspiration while playing with a plastic whistle at the onset of symptoms a month ago. Though no one had seen her aspirating, the mother claimed that she heard whistle sound all of a sudden when child was playing. Also the whistle was missing from one of her baby shoe. She was breathing normally though. She had cough at rest but no tachypnea or signs of increased work of breathing. There was decreased vocal resonance and decreased air entry on the left side infra axillary area on auscultation of chest with no adventitious sounds. Rest of the systemic examination was normal. Chest x-ray did not show any air bronchogram, features of consolidation or foreign body (Figure 1), though there was bilateral hyperinflation as seen in bronchiolitis. HRCT thorax with virtual bronchoscopy was suggestive of patchy consolidation with air bronchogram in left lower lobe suggestive of infective etiology but failed to note any foreign body in airways. Total leucocyte count was 9700/cumm. The child was started on Amoxicillin-Clavulinic acid (100 mg/kg/d i.v.). But in keeping with a clue from history a rigid bronchoscopy under general anaesthesia was

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performed. A 15 mm long and 8 mm wide plastic whistle was removed. Post bronchoscopy air entry was bilaterally equal. The child tolerated the procedure well. Was discharged and is doing well on follow up.

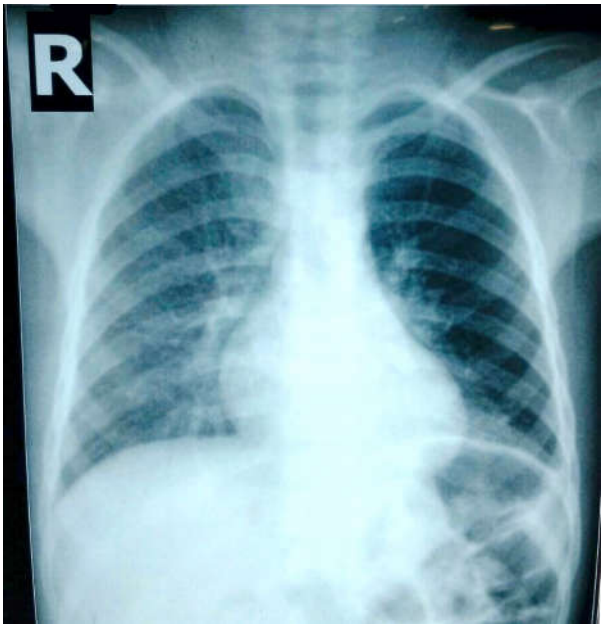

Fig. 1: Chest X-ray: Hyperinflation

Fig. 2: Foreign body: Whistle from baby shoe

Discussion

Prediction of foreign body aspiration has been described by Heyer et al as having three individual factors, firstly being a chest radiograph demonstrating a focal hyperinflation, secondly a documented choking episode and thirdly white blood counts being more than $10.0x10^9$/L. Bronchoscopy was advised if at least two of the factors were present. In our case all three factors were not present. Thus increasing the dilemma [5].

In our case there was no history of acute respiratory distress.The whistle did not cause complete obstruction as it was like "a lumen within a lumen" allowing air to pass in and out without major obstruction. Hence no complete obstruction signs were seen. It's known that even otherwise 15-30% patients can have no symptoms as well as have a normal chest x-ray [2]. They was no air trapping due to ball-valve mechanism causing obstructive emphysema or atelectasis or consolidation or shift of mediastinum on chest X-ray [6-8]. The HRCT with virtual bronchoscopy is not only non-invasive but also can help us define even a radiolucent foreign body with respect shape size and position, but in our case no foreign body was detected. This highlights the limitation as the sensitivity of computed tomography with virtual bronchoscopy 80% whereas that of HRCT varies from 90 to 100% [9].

It will be apt to restate that a high index of suspicion, history teamed with physical examination despite normal imaging studies warrants a bronchoscopy. History becomes an indispensable factor in deciding for bronchoscopy as radiological imaging lack sensitivity. Heyer et al had also shown that 76% of decisions based on only clinical findings for doing bronchoscopy had accurately detected foreign body [5]. A child with chronic cough and hemoptysis should also raise a suspicion of foreign body in the airway. Complications of foreign body depends on not only site, dimensions, shape, nature and time interval from day of aspiration of foreign body [10]. In our case the shape being cylindrical, non organic had not caused complete obstruction nor any bronchiectatic changes but did lead to pneumonic consolidation in left lower lobe. The gold standard investigation for this child was rigid bronchoscopy under general anaesthesia which was not only a diagnostic but also proved therapeutic. Increased awareness among parents and guardians is also important to prevent aspiration and recall eventful history. The earlier the bronchoscopy done the better the chance of reducing morbidity in children.

Rigid bronchoscopy the golden standard investigation for diagnostic cum therapeutic importance is often given a second thought in view of non-invasive virtual bronchoscopy [11]. Rigid bronchoscopy does have major risks of procedure and anaesthesia; but has promising life saving results in skilled hands. This case reiterates importance of check bronchoscopy with rigid bronchoscope in a suspected case when virtual bronchoscopy was not conclusive. Rather, virtual bronchoscopy in a suspected foreign body aspiration case may delay the check bronchoscopy and delay the cure by diverting the diagnosis; hence it should not be insisted for.

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