

An Unusual Presentation of Foreign Body Bronchus

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Abstract

Foreign body aspiration (FBA) is one of leading causes of death in children, especially among those younger than 3 years of age. The inhalation of a foreign body may cause a wide variety of symptoms, and early diagnosis is highly associated with the successful removal of the inhaled foreign material. It may manifest with acute respiratory difficulty, choking and wheeze acutely or may be asymptomatic. Surgical emphysema is an unusual presentation of bronchial foreign body aspiration in young children [1]. We describe a child with bronchial foreign body aspiration that manifested as surgical emphysema.

Keywords: Bronchial Foreign Body; Aspiration; Surgical Emphysema; Bronchoscopy

Introduction

Foreign body aspiration is common in children from 1 to 3 years of age. Commonly vegetable matters such as seeds are accidentally inhaled into the airway. If foreign body lodges in the region of larynx immediate stridor or choking results; impaction lower down in the bronchial lumen may be less dramatic or even asymptomatic [2]. An asymptomatic case may present only later, when the child develops complications secondary to foreign body aspiration.

Case Report

A 2 year old boy, who was previously apparently normal, presented to the casualty with complaints of wet cough since 3 days, low grade fever and difficulty in breathing since 2 days and swelling in the neck and chest since 1 day. On detailed history, there was a history of ground nut intake 3 days back and cough following it. Past history of occasional wheezing episodes present.

On Examination, The child was irritable, oxygen saturation was maintained in room air, tachypneic, chest retractions +, there was decreased air entry on the left side of chest and B/L wheeze. Surgical emphysema was present in the left side of chest above the level of nipple extending upwards, including the left periorbital region. Chest x ray showed hyperlucency in the left side.



Figure 1: Chest x ray showing hyperlucency on Left side.

A Virtual Bronchoscopy was done which showed narrowing of the left lower lobe bronchus (? due to radiolucent foreign body) with collapse consolidation. There was extensive soft tissue emphysema involving anterior, left lateral and left posterolateral chest wall extending onto neck.

The child underwent emergency bronchoscopy under GA the same day. On Bronchoscopy, multiple pieces of peanut were removed from B/L main bronchi. There was oedema and mucopurulent discharge in both bronchus, minimal clot was present in Left bronchus.

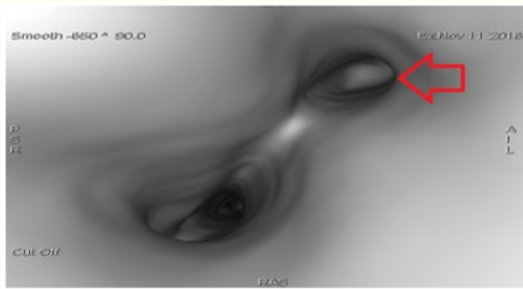


Figure 2: Virtual Bronchoscopy of the child.

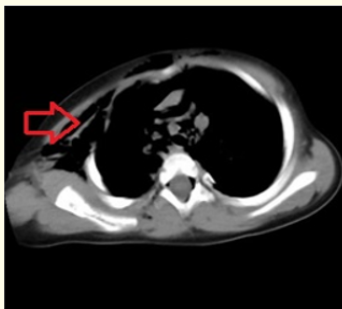


Figure 3: CT chest showing subcutaneous emphysema.



Figure 4: Peanut pieces removed from the child's bronchus.

There was mild increase in the subcutaneous emphysema during ventilation intra-operatively. No obvious defect in the airway could be identified. The procedure lasted for 15 minutes and the child was extubated immediately.

Post operatively air entry improved on the left side. The child was post operatively treated with IV antibiotics and steroids. He improved symptomatically. Surgical emphysema gradually subsided by post op day 4.

Discussion

Foreign body aspiration is more common in young children than adults since they explore the world with their hands and mouth, and have incomplete dentition, limited oromotor control

and immature judgement. In contrast to adults, where objects tend to lodge in the distal bronchi or right main bronchus, in children they tend to lie more centrally within the trachea (53 percent) or just distal to the carina (47 percent) [3]. Bronchial foreign bodies may present with the classical triad of cough, unilateral wheezing and decreased breath sounds [4]. In general, aspiration of foreign bodies produces the following 3 phases:

- **Initial phase:** Choking and gasping, coughing, or airway obstruction at the time of aspiration
- **Asymptomatic phase:** Subsequent lodging of the object with relaxation of reflexes that often results in a reduction or cessation of symptoms, lasting hours to weeks.
- **Complications phase:** Foreign body producing erosion or obstruction leading to pneumonia, atelectasis, or abscess.

Rarer presentations include – Bronchial stenosis, lung abscess, Bronchiectasis, Pneumothorax, Pneumomediastinum, Hydropneumothorax and Subcutaneous Emphysema.

There are two mechanisms of development of Subcutaneous Emphysema following FB aspiration [5].

- FB acts as a one way valve of the affected part of lung causing trapping of air, gradually increasing the distal volume and pressure resulting in rupture of alveolar membrane through which air travels along the blood vessels to mediastinum
- Due to mechanical disruption of the mucosal membrane of bronchus or airway through which air enters in the tissue under pressure. When cough or respiratory distress produces a high pressure gradient, this will push the air through disrupted membrane which travel along perivascular and peribronchial interstitial tissue and reach the mediastinum.

Endoscopy is indicated if there is a suggestive history despite a lack of radiographic findings, if there is a suggestive radiographic finding despite a lack of supportive history, or if pulmonary disease follows an atypical course [6].

In a case of Subcutaneous Emphysema; during intubation, when the muscle tone drops as a result of anaesthesia induction, the surrounding air in the neck (due to subcutaneous emphysema) may press upon the trachea causing tracheal collapse and intubation difficulty. During the procedure, if positive pressure ventilation is given; it may increase the air leak through existing defect and may cause worsening of the subcutaneous emphysema and even may result in mediastinal shift due to the air. Hence care must be taken during the procedure to avoid these complications.

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