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Subcutaneous emphysema: A rare presentation of bronchial foreign body overlooked by Paediatricians

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Abstract:

Purpose: This study aims to understand clinical manifestations and radiologic findings of foreign body inhalation in infant and children and features that differentiate it from other common respiratory problems

Methods and material: We reported a case of an unusual presentation of bronchial foreign body (BFB) in children that led to severe spontaneous subcutaneous emphysema, and present review of the literature on the unusual clinical features of bronchial foreign body (BFBs).

Results: This case characterized by the spontaneous subcutaneous emphysema, illustrates that subcutaneous emphysema should be considered as a clinical feature of BFBs.

Conclusions: One should suspect foreign body inhalation in a previously well child presenting with sudden onset of severe bouts of cough refractory to medical treatment and with sudden onset subcutaneous emphysema. Radiologic findings such as obstructive emphysema and aeration within an area of atelectasis confirm the diagnosis of BFB. Early intervention in the form of bronchoscopy should be performed to arrest the progressive nature of the condition.

Keywords: Spontaneous subcutaneous emphysema, bronchial foreign body, sudden onset cough

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Introduction

Foreign body aspiration is a common problem in children due to incomplete laryngeal closure and inadequate swallowing reflex, particularly older infants and toddlers younger than 3 yr of age, which account for 73% of cases. The most common objects that children choke on are food, seeds, coins, balloons, hard candy, chewing gum, small toys or toy parts. One-third of aspirated objects are nuts, particularly peanuts. [1]. More than half of the cases involve right bronchus [15].

Bronchial foreign bodies clinically presents with sudden bouts of severe coughing, choking, hoarseness, cyanosis, stridor, and/or dyspnea, depending on the site of occlusion and the size of the foreign body [2,3]. It can be asymptomatic or silent or it may manifest with acute respiratory difficulty, choking and wheeze usually in absence of fever. Subcutaneous emphysema is an unusual presentation of bronchial foreign body resulting from prolonged entrapment of foreign materials.

If there is no index of suspicion of bronchial foreign body as well as the absence of a history suggestive of an aspiration event, such complications can lead to misdiagnosis, mismanagement and delay in appropriate care [4].

In this article, we are reporting a case of gross subcutaneous emphysema of face, neck, chest and abdomen secondary to an unusual foreign body (betel nut) at an unusual site (left main bronchus) and unusual age (> 3 yr).

Case Report

A previously well four-year-old girl presented in our Emergency Department with complain of intermittent high grade fever and sudden onset bouts of severe violent cough for four days and sudden onset progressive bilateral facial swelling for 2 days. She was already on intravenous antibiotics initiated by a secondary care hospital, where she was diagnosed as a case of pneumonia with suspicion of mumps parotitis and remained hospitalized for 1 day but condition did not improved. Parents were not satisfied so

they left the treatment and brought child to our hospital. When she was admitted, parents initially did not provide history of inhalation of a foreign body or injury. On examination child was afebrile, mildly tachypneic, upon local examination swelling was diffuse, soft, painless swelling spread bilaterally on face reaching to neck and chest bilaterally with characteristic crackling and rasping feel to the touch. Respiratory and cardiovascular examination was unremarkable except mildly reduced air entry on left, and rest of systemic examination was unremarkable. Her labs including white cell count were all within normal ranges and in her blood culture there was no bacterial growth. Chest Radiograph revealed free air in subcutaneous tissues extending from face, involving neck and extending up to lower chest wall, concluding subcutaneous emphysema involving areas of head, neck and chest. As shown in the image below (Figure 1). On the next day, radiograph revealed free subcutaneous air spread low down to abdomen (Figure 2).

Paediatric Surgical team was also called to review the patient and here for the first time upon deep inquiry parents recall that child had taken few betel nuts five days back. Bronchoscopy was performed by endoscopic team where they found a single betel nut impacted in the left main bronchus. It was successfully retrieved and suctioning done. After removal of bronchial foreign body child was kept admitted for observation, she remain stable and after 24 hours she was discharged.

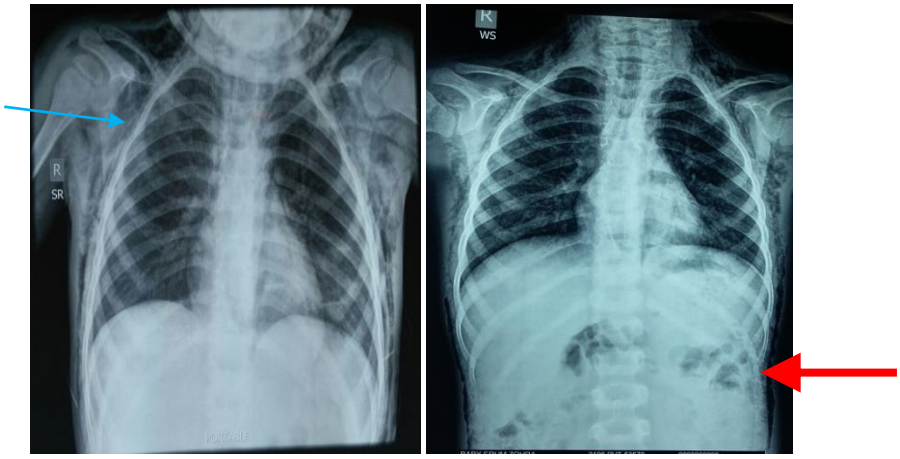

Figure 1. Chest x-ray revealed the widespread subcutaneous emphysema(small blue arrow). Figure 2. Emphysema spread to abdominal wall subcutaneous space on next day (thick red arrow).

Discussion

Children of toddler age group tend to place objects in their mouth more frequently and are at an increased risk of inhaling foreign bodies. This incident could be life threatening particularly in infants due to small caliber of the airway. Initially an incident of chocking or gagging is reported followed by cough and wheezing when foreign body crosses the larynx and enters trachea and bronchi [19]. Diagnosis of a foreign body inhalation may be delayed for days, weeks or even month [5]. A witnessed choking event may pinpoints an early diagnosis (within 24 hours) of foreign body inhalation. [6] However, in paediatric population a positive history suggestive of a foreign body may be totally absent even in later confirmed cases [7]. This happens especially when parents have not witnessed or remember a choking episode, and

children do not discloses a history of choking or of inhaling foreign bodies because of limited speech, embarrassment or fear, it can also happen if the child has no symptoms at presentation or presents with prolonged or atypical symptoms and has a normal physical examination and chest radiograph findings In such cases clinicians may fail to consider the diagnosis of an inhaled foreign body [8] which may result in increased morbidity, frequent hospital admissions, increase expense of treatment and more long term complications like chronic persistent cough [9], recurrent pneumonia, lung abscesses, and bronchiectasis[10].

Being a paediatrician, one must suspect a foreign body in a previously well child less than 4 years presenting with sudden onset violent coughing occurring in bouts each lasting for hours or atypical findings such as subcutaneous emphysema. Clinically most of children (57%) had classic triad of coughing or choking, wheezing, and unilateral reduced breath sounds [8]. However if diagnosis is delayed for more than one month then patient may have nonspecific symptoms like persistent cough, wheeze, sputum production, and dyspnea [11].

Laboratory studies can be completely normal in early and even at a later stage. Chest radiograph may be helpful as radio opaque material will be pointed out in one-fourth of the cases but majority FBs are radiolucent and may not be visible on CXR. Nonspecific radiographic findings compatible with an inhaled foreign body include air trapping, atelectasis, and pneumothorax but none of these findings are pathognomic of inhaled FB [12] [13] [15].

Cross-sectional imaging with computed tomography (CT) helps in evaluation lungs, bronchi and mediastinum. Three dimensional reconstructions with endoluminal navigation is possible with recently developed multidetector-row CT (MDCT) which gives endoscopic view of trachea and bronchi.[18,21] This enhances the diagnosis of intraluminal obstructing lesions noninvasively and planning of definitive intervention.[18]

Definitive diagnosis of foreign body inhalation is by endoscopic evaluation. The most appropriate first line procedure depends on the likelihood of a foreign body being present. Where there is near certainty, rigid bronchoscopy under general anaesthesia is the investigation of choice as the object can be detected and removed in one procedure [14].

Conclusion :

[19] Subcutaneous emphysema due to bronchial foreign body demonstrated by multidetector-row computed tomography Nisar Ahmad Wani, Umar A. Qureshi,Tasleem Kosar, and Mushtaq A. Iaway

[20] Haliloglu M, Ciftci AO, Oto A, Gumus B, Tanyel FC, Senocak ME, et al. CT virtual bronchoscopy in the evaluation of children with suspected foreign body aspiration. Eur J Radiol. 2003;48:188–92. [PubMed]

[21]Burke AJ, Vining DJ, McGuirt WF, Jr, Postma G, Browne JD. Evaluation of airway obstruction using virtual endoscopy. Laryngoscope. 2000;110:23–9
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