

Case Report

Hidden foreign body in an unexplained asthma

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Abstract:

Foreign body aspiration (FBA) is a common condition with potential to cause significant morbidity and mortality. In children, highest incidence is within the first 3 years of life. Without witnessed aspiration or acute symptoms such as choking, coughing or respiratory distress, it may go unnoticed as clinical presentation and radiological investigations generally have low diagnostic value. Delay in diagnosis increases the risk of developing severe complications. Unexplained recurring or persistent lung pathologies in this age group should raise suspicion of FBA, and early bronchoscopy is warranted for confirmation of diagnosis. We report a case of FBA in a 2-year-old boy whom had been symptomatic for 3 months and was treated as bronchial asthma prior to diagnosis of foreign body in the left bronchus.

Key words: Foreign body; bronchus; asthma; bronchoscopy

Introduction:

Foreign body aspiration is a common and potentially fatal accident. According to the National Safety Council, it is the fourth leading cause of death due to unintentional injury in the United States in 2004, and the mortality rate was estimated to be 1.5 per 100,000 population¹. Classical history consists of choking episode followed by coughing, wheezing, stridor, or acute respiratory distress². Especially in children, the acute event may go unnoticed, and foreign body aspiration may be mimicked as other illness

such as bronchial asthma, bronchitis, or pneumonia. The delay of making an accurate diagnosis may lead to dangerous consequences for the patient⁴.

Case report:

A 2-year-old boy presented with history of persistent non-productive cough for 3 months, followed by fever in past 1 week associated with occasional noisy breathing. He was brought to emergency department due to progressive dyspnea. Prior to this, he has been seen by several primary care practitioners and the diagnosis of bronchial asthma has been made. However the treatment given failed to control his symptoms. There was no history of witnessed foreign body aspiration. He was otherwise well and active at home. Examination revealed a febrile boy but not in respiratory distress. He was not cyanosed and there was no stridor. Wheeze was heard on auscultation at the middle and lower zone of the left lung.

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Breath sound was equal bilaterally. Baseline blood investigation was normal, including the white blood cell count. Chest X-ray showed a radiopaque spring-like foreign body situated in the left main bronchus. No other significant finding was noted in the x-ray.



Figure 1: Erect PA chest x-ray showing radiopaque material in the region of left main bronchus.



Figure 2: A metal spring removed from the left main bronchus.

Rigid bronchoscopy was done under general anesthesia, revealed a small metal spring in the left main bronchus. It was removed completely without difficulty by using the rigid optical forceps. The left main bronchus noted to be mildly inflamed without any laceration, slough or pus. No other foreign body was found.

He had an uneventful recovery, and was discharged home a day after the bronchoscopy.

Discussion:

In children, FBA most commonly occurs within the first 3 years of life^{3,5-7}. This can be attributed to several factors: tendencies of putting things in their mouth for exploration; incomplete molar reducing effective chewing; and incomplete swallowing reflex³. Male to female ratio is 2:1, reflecting the more adventurous games and impulsive nature of the boys^{3, 5, 6}. Majority of the aspirated material is organic, seeds and nuts being the most common, comprising between 50 to 78% of all foreign body found in the reviewed studies^{3,5,7}. Size, shape, and surface of the aspirated foreign body, and anatomical condition of the patient determine the lodgement location. Preferential of the foreign bodies to be located in right bronchus can be explained by the wider and more in-line right bronchus with the trachea as compared to the angulated left bronchus.

Positive history of aspiration noticed by a witness is the most important clue for FBA, which unfortunately is not always available². Most common presentation of FBA is persistent cough⁵⁻⁷ as in this case. Other sign and symptom includes dyspnea, wheezing, stridor, or cyanosis. Fever is suggestive of contaminated or chemically irritating foreign body, or patient has developed infective complications such as pneumonia or lung abscess². Clinical triad of cough, localized

wheezing and localized decreased breath sound has been reported to be present in 15-40% of patients. About 5% of patients with positive FBA were asymptomatic on presentation^{3,6}.

The value of chest X-ray (CXR) in diagnosing FBA remains controversial. Radiopaque foreign body is only present in 2-15% of cases, and CXR was reported as normal in 16-61%^{3,5-7}. However it is useful in detecting indirect signs of FBA such as obstructive emphysema, atelectasis, consolidation, or other chronic pulmonary changes which should raise the suspicion of FBA despite not being pathognomonic.

The duration between initial symptoms to the diagnosis ranges from within an hour to several months, the delay is especially common in cases without positive history of witnessed FBA. Patients may also present with symptoms of complication of FBA which mimics bronchial asthma or bronchiolitis as in our case, or other unexplained lung pathologies such as persistent pulmonary infection, bronchiectasis, pneumothorax, perforation of the bronchial tree and fistula formation².

Diagnostic bronchoscopy is vital in all suspected foreign body aspiration cases. The best technique for removal of foreign body remains debatable. Most authors recommend rigid bronchoscopy under general anesthesia for extraction of the foreign body. Some suggest usage of flexible bronchoscopy for diagnosis purposes, followed by rigid scope for extraction. Other suggests the combination of both³. However, it is agreeable that the removal of foreign body should be done in a hospital equipped with expert medical staff with experience in flexible and rigid bronchoscopy. The technique used

depends on the type of foreign body and the ability of the individual operator⁶.

Conclusion:

In summary, FBA is a common accident in children with potential to cause significant morbidity and mortality. High index of suspicion is needed in cases with atypical presentation or unexplained persistent bronchial asthma.

References:

1. National Safety Council, Research and Statistics Department. Injury Facts 2008 Edition. Itasca, Ill: National Safety Council 2008; 8:14-15.
2. Rovin JD, Rodgers BM. Pediatric foreign body aspiration. *Pediatrics in Review* 2000; 21:86-89.
3. Schmidt H, Manegold BC. Foreign body aspiration in children. *Surg Endosc* 2000; 14: 644-648.
4. Karakoc F, Cakir E, Ersu R, Uyan ZS, Colak B, Karadaq B, et al. Late diagnosis of foreign body aspiration in children with chronic respiratory symptoms. *Int J Pediatr Otorhinolaryngol* 2007; 71(2): 241-246.
5. Saki N, Nikakhlagh S, Rahim F, Abshirini H. Foreign body aspiration in infancy: a 20-year experience. *Int J Med Sci* 2009; 6(6): 322-328.
6. Midulla F, Guidi R, Barbato A, Capocaccia P, Forenza N, Marseglia G, et al. Foreign body aspiration in children. *Pediatrics International* 2005; 47: 663-668.
7. Eren S, Balci AE, Dikici B, Doblun M, Eren MN. Foreign body aspiration in children: experience of 1160 cases. *Annals of Tropical Paediatrics* 2003; 23: 31-37.