

Air way foreign body aspiration with normal Chest X-ray and CT scan

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ABSTRACT

Air way foreign body Aspiration (AFA) is not an unusual event in young children. Unfortunately a choking episode is not always present or remembered by parents and normal imaging doesn't rule out foreign body aspiration. We report a 9 month old male with laryngeal foreign body aspiration, normal CXR and chest CT, misdiagnosed as respiratory infection and bronchial asthma.

KEY WORDS: Foreign Body, Aspiration, Stridor, Wheeze, Bronchoscopy.

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INTRODUCTION

Aspiration of foreign body is not an unusual event in young children especially toddlers 1-3 years.¹ Signs and symptoms of AFA may be apnea, stridor, wheeze, cough, decreased or abnormal breath sounds depending on the size and location of the foreign body. Early diagnosis and management prevents mortality and irreversible respiratory morbidity.¹ A history of a choking episode or abrupt onset of symptoms may lead the diagnosis. Unfortunately a choking episode is not always present or remembered by parents and subsequent respiratory symptoms may be misdiagnosed as infection or asthma. Plain radiographies may help to confirm the diagnosis but normal graphies don't rule out foreign body aspiration.¹ We report a 9 month old male with laryngeal foreign body aspiration and normal CXR and chest CT misdiagnosed as bronchial asthma.

CASE REPORT

A previously healthy 9 month old male infant was referred from a local hospital for further work up. He had common cold about three weeks before his first admission but his cough didn't improve. He was hospitalized following aggravation of his symptoms and appearance of wheeze and treated with nebulized salbutamol, intravenous dexamethasone and ceftriaxon with partial response. He had no history of wheezing or choking episode before this admission. His family history for asthma and other respiratory diseases was negative.

He had no past medical history for gastro esophageal reflux, swallowing dysfunction, asthma, pneumonia or drug and food allergy. He was developmentally normal and his immunization was up to date. His CXR was normal. On arrival to our hospital his temperature was 37.1°C. He had restlessness, tachypnea, intercostal retraction and wheezing. Nebulized salbutamol and intravenous dexamethasone were started again with a minimal response within three days when inspiratory stridor was added to persistent biphasic wheezing. His CXR (PA and lateral), lateral neck, right and left lateral decubitus graphies were all normal. We performed High resolution CT of chest which was normal.

Consultants insisted to continue the bronchodilators and added nebulized epinephrine and did not accept to perform bronchoscopy for the patient. The patient's wheezing and stridor was improved for next three days but did not disappear and

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Fig-1: Foreign body (a piece of sculpture paste) revealed by bronchoscopy.

increased again. We consulted again with another pediatric respiratory specialist for performing bronchoscopy. Finally the patient underwent bronchoscopy and a foreign body lodged on the vocal cord was revealed (Fig-1). Wheezing and stridor disappeared after foreign body removal & the patient was discharged without any respiratory complication.

DISCUSSION

Laryngotracheal foreign bodies are less common than bronchial ones. It is estimated that more than 80% of air way foreign bodies are lodged in the bronchus, while fewer than 10% become lodged in the larynx.²

AFA may present with different signs and symptoms depending on the size, location and type of the foreign body.³ They include cough, stridor, wheeze, asymmetric breath sounds, cyanosis, dyspnea and apnea.³

Our patient had both stridor and wheeze. In a previously healthy child with stridor and wheeze infectious causes such as combination of croup and bronchiolitis or croup and reactive air way disease & non infectious causes such as gastroesophageal reflux, anaphylaxis, inhalation of products of combustion and foreign body aspiration are considered. If the signs are persistent or recurrent then other differential diagnosis such as congenital lesions obstructing the airways and asthma, also must be considered.⁴

Our patient had no history of choking episode and his cough and wheeze was followed by a common cold so wrong diagnosis of respiratory infection and hyper reactive airway disorder caused delay in performing bronchoscopy. Missed or delayed diagnosis of air way foreign body aspiration is not surprising in infants and young children and as many as 46% of these cases have been diagnosed with more than 8 days of delay.³ In one study the cause of one third of cases with delayed diagnosis was parental

negligence but the major cause was disregarding of the physicians.¹

CXR is the first diagnosis tool performed to find the radiologic clues leading to AFA diagnosis. Abnormal radiographic findings that suggest AFA include Asymmetry in lung expansion, mediastinal shift, obstructive emphysema, opacification, atelectasis, consolidation, or finding a radiopaque foreign body.³

Chest radiograph is normal in approximately 30-50% of patients with bronchial and in up to 80% of cases with laryngotracheal foreign body aspiration.^{3,5} Expiratory and inspiratory CXR if the patient is cooperative or right and left lateral decubitus in young patients can help the clinician to find the differential air trapping in the two lungs.⁶

Airway foreign bodies are opaque in only about 9% of cases and when plain radiographs are normal but aspiration is suspicious, taking CT scan may help the clinician to diagnose radiolucent foreign body aspiration before performing bronchoscopy although routine CT scan before bronchoscopy is not necessary.⁶ In our patient neither CXR nor chest CT was abnormal and this was the main cause of delayed diagnosis in our case.

Bronchoscopy is the procedure of choice for diagnosis and removal of the foreign body as well.^{7,8} The important point is a large number of negative bronchoscopies in published studies which demonstrates that failed bronchoscopy to find the foreign body is much better than imposing the morbidity or even mortality to the patient from missing AFA diagnosis.³ Clinicians specially pediatricians should remember that "all that wheezes is not asthma" and normal or nonspecific CXR even a normal chest CT doesn't rule out a foreign body aspiration and in any child with stridor, wheezing or combination of these two, foreign body aspiration should be considered and if primary workup is not conclusive then bronchoscopy is a worthy tool to help the physician to be directed to correct diagnosis.³

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