Role of CT scan In Neglected Inhaled Foreign Body in Children, Our Experience: Case Report

Baba Aijaz Khaliq¹, Qurat Ul Ain Batool², Zubair Ahmad Lone³, Waseem Qadir⁴.
1,2,3,4 post graduate scholars in Department of ORL & HNS, Government Medical College, SMHS hospital Srinagar.

Abstract : Foreign body aspiration is one of commonest emergency and sometimes life threatening emergency which ENT surgeon will encounter in his routine life. Although in maximum cases child is symptomatic and diagnosis is clear from history, presentation of child, clinical examination and radiological help (chest x-ray). This however is not always the case as child may be asymptomatic with normal clinical and chest x-ray findings. It is mostly seen in cases that inhaled foreign body does not disturb respiratory physiology, can lead to mis-diagnosis with increased chances of complications and morbidity.2 such cases are discussed below which we encountered at our tertiary care center.

Keywords: Foreign Body; inhalation; children

Introduction

Foreign body aspiration is commonly encountered in children particularly less than three years age. 35 patients were diagnosed with foreign body inhalation in the ENT & HNS department of our hospital in 2015 and foreign body was removed using rigid bronchoscopy. Among 60% these cases, foreign body was located in right main bronchus. History was suggestive in 83% of the children while radiological findings supported the diagnosis in 94% ¹,². History and radiological findings leads to early diagnosis in many cases, but few cases may be misleading due to asymptomatic features and radiology(chest x-ray) showing normal chest features leading to severe complications and delay in diagnosis and some-times wrong diagnosis and treatment. Delay in diagnosis especially when the foreign body does not cause airway obstruction therefore not disturbing respiratory physiology. Two such cases with inhalation of a foreign body not causing significant clinical and radiological findings are discussed below.

2 Case reports

Case 1

Thirteen year old boy attended our OPD in department of ENT & HNS SMHS hospital Srinagar with history of chronic dry cough and breathlessness for past 6 years. He has been treated for same complaints with various diagnoses and was presently being treated as bronchial asthma. He had been examined and his documents were reviewed chest x-ray was done which was showing non-specific changes, child was subjected to fibro-optic examination which showed features of laryngo pharyngeal reflex (LPR). However chest auscultation was done which revealed rhonchi and wheeze on right side. Child was treated on basis of LPR along with some bronchodilators and ant allergic drugs. Initially child showed some response but after few weeks child again came to our OPD with similar features. Case was discussed with HOD of our department who after properly reviewing his documents revised the history, where child’s mother said some 7 or 8 years back he was playing with pen and suddenly he developed choking like symptoms and breathlessness however these symptoms subsided soon and child was taken to local hospital were chest x-ray and examination revealed normal study. After some time he started developing choking like symptoms and breathlessness however these symptoms subsided soon and child was taken to local hospital were chest x-ray and examination revealed normal study. After some time he started developing these symptoms, since then child is under treatment and was labeled as bronchial asthma and was on treatment for same with varied responses. After history taking child was subjected to HRCT chest which revealed a foreign body in right secondary bronchus. Later after proper consent from parents bronchoscopy was done and foreign body (piece of pen) was removed. In the follow up child was seen after 1 week, 3 weeks and 3 months, child was asymptomatic with no symptoms of cough and breathlessness.

Case 2

Six year old girl brought to our OPD by her parents with history of chronic cough and breathlessness on exertion like going upstairs etc since two years. This child was under pediatric follow up since past few years and was treated as recurrent respiratory tract infection with pneumonia. This child was referred to us by pediatric hospital as there was no significant improment in symptoms of child. From history it was revealed by parents that 2 years back child had inhaled vissel (piece of toy) and child developed choking and breathlessness and was
brought to hospital at that time only after investigations bronchoscopy has been done and vissel was removed. Child has developed these symptoms few weeks after that episode and was under regular pediatric follow up. During this period many times chest xray was done which revealed no significant information. We did HRCT chest which was suggestive of foreign body in right bronchus, subsequently bronchoscopy was planned and remnants of vissel which are normally present inside of vissel was found and removed. child was followed up and his symptoms resolved.

Discussion

Foreign body aspiration that is most commonly encountered in pre-school children, is a life threatening emergency, however, it may go unrecognized for prolonged periods of time due to vague clinical and radiological findings in some cases. Considering that most commonly aspirated foreign bodies in children include organic material including peanuts not causing complete obstruction, careful evaluation is especially important for prompt diagnosis. Aspiration of a foreign body usually results in immediate choking when lodged in larynx or may lead to complete obstruction of air entry into a lung segment. Retained foreign body leads to local mechanical effects, chemical reactions and inflammation. However foreign body may get lodged in the air away just producing symptoms like choking earlier later patient will be having no sign and symptoms of inhalation with radiological dilemma. Usually there are three mechanisms. No valve mechanism leading to complete obstruction and atelectasis. One valve mechanism allowing air entry one way only and bivalve mechanism leading air entry both ways thus producing less symptoms and signs it is in this type of mechanism where signs and symptoms with radiological features develop late hence easily missed during immediate and early post inhalation period. Foreign bodies which usually don’t affect airway physiology remain asymptomatic during early phase, it is in such patients where C T chest has played important role. CT chest not only have diagnostic but also prognostic values in such patients, thus helps in best management and outcome

Presenting symptoms of foreign body aspiration may vary from vague to specific symptoms including cough, wheeze, dyspnea and fever. Physical examination may reveal focal wheezing or decreased air entry but the findings may also reveal generalized wheezing or it may be completely normal. Similarly plain radiographs of chest may reveal unilateral hyperinflation, atelectasis, consolidation or mediastinal shift if there is complete obstruction of airflow by the foreign body or they may be normal especially if there is no obstruction to airflow. Therefore, it is impossible to exclude diagnosis of foreign body aspiration with a normal radiograph. In the presented cases, both of them had been diagnosed as asthmatic and were on treatment for same. However proper history taking and C T Chest played an important role in diagnosing and proper management of both these cases. Diagnosis of foreign body aspiration is usually suggested with clinical history and radiological findings. Foreign body is encountered only in 5% of cases that undergo flexible bronchoscopy without a prior suspicion of aspiration. Considering that early removal of aspirated foreign bodies is necessary to avoid the pathological progress from inflammation that initiates at third day to development of bronchiectasis after 30 days, high suspicion even in cases with vague clinical or radiological findings is required. Two cases presented in this report highlight the importance of aspiration of foreign bodies that do not cause complete obstruction since these cases may easily be overlooked and bronchoscopy may be delayed. In one of these cases clinical findings were not suggestive of foreign body aspiration due to the nature of the foreign body that allowed air passage. Although the clinical findings may be milder without complete airway obstruction, induction of inflammation is still expected to progress thus making early and prompt diagnosis essential for prevention of complications. Therefore, high clinical suspicion and use of bronchoscopy as the initial technique of evaluation in patients with suspected foreign body aspiration is prompted. Moreover, bronchoscopy provides detailed information about the nature and localization of the foreign body as well as the characteristics of airway mucosa. Detection of a foreign body aspirated into the airway should be followed by removal as soon as possible to prevent the inflammatory reaction and development of complications. Although, flexible bronchoscopy is very often used for evaluation of airway in suspected cases of foreign body aspiration, rigid bronchoscopy remains the method of choice for removal due to the wide working channel. There are a limited number of reports of foreign body removal by flexible bronchoscopy. Above both cases foreign body was removed by rigid bronchoscopy after CT confirmation of foreign body inhalation.

Conclusion

In conclusion, diagnosis of foreign body aspiration was delayed in one case presented in this report due to the non-obstructing nature of the foreign body. Air passage through the foreign body
delayed appearance of radiological clues in 1st case. In 2nd case small neglected piece of vissel left after bronchoscopy created diagnostic dilemma. However both the cases were successfully picked by CT chest showing its importance in diagnosing and managing asymptomatic or neglected inhaled foreign bodies. These cases were reported to emphasize the importance of early consideration of bronchoscopy in cases with persistent findings even in the absence of supporting clinical and radiological clues of foreign body aspiration where CT chest could be of great benefit to patient as well to surgeon.

References


