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Case Report

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Unusual foreign bodies of the airway: a case series regarding their management

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ABSTRACT

Foreign bodies in the bronchi are a common problem seen by ENT surgeons. Bronchial foreign bodies are common in children because they have difficulty in swallowing hard foodstuffs such as nuts and have an inadequately developed protective respiratory reflexes, which makes them vulnerable to inhalation of foreign bodies This is a case series of four unusual cases of foreign body airway, that presented to our ENT OPD, after taking detailed history and clinical examination, these patients were subjected to radiological studies such as chest X-rays, X-ray soft tissue lateral view, virtual bronchoscopy and CT chest to confirm the foreign body, after taking informed consent rigid bronchoscopy was performed and foreign body extracted.

Keywords: Unusual foreign bodies, Dire emergency

INTRODUCTION

Foreign body (FB) aspiration is a common problem in children; requiring prompt recognition and early treatment to minimize the potentially serious and sometimes fatal consequences.[1] Accidental inhalation of both organic and non-organic FBs continue to be a cause of childhood morbidity and mortality. Prevention is best, but early recognition remains a critical factor in the treatment of FB inhalation in children. This is a case series of four unusual cases of foreign body airway, that presented to out ENT OPD, after taking detailed history and clinical examination, these patients were subjected to radiological studies such as chest X-rays, X-ray soft tissue lateral view, virtual bronchoscopy and CT Chest to confirm the foreign body, after taking informed consent rigid bronchoscopy was performed and foreign body extracted.

CASE 1

A four year old male presented with recurrent episodes of non resolving cold and cough since one month, no history of foreign body aspiration was present. He was also on ventilatory support for the same one month back. On Clinical examination patient was afebrile, no stridor present, respiratory system examination showed reduced air entry over the right side and crepitation's were present. Virtual bronchoscopy and Ct Chest revealed an intraluminal foreign body in the right main bronchus. After taking informed consent, general anaesthesia induced with adequate preoxygenation, intravenous anaesthesia and muscle relaxants such as scoline was given, rigid bronchoscope sized 3.5 mm was introduced using Macintosh laryngoscope, due to the irregular shape of the foreign body betel nut, the foreign body got dislodged from the right bronchus and was in the subglottis. Using peanut grasping forceps the foreign

body was extracted from the subglottis. Hence the betel nut can be considered as a very dangerous foreign body rightly called as the moving foreign body.

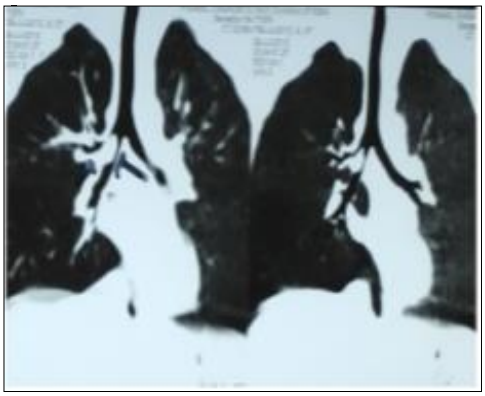

Figure 1: Showing virtual bronchoscopy with foreign body in the right main bronchus, on rigid bronchoscopy betel nut was extracted.

CASE 2: SILENT FOREIGN BODY

A four year male presented with symptoms of dry, non-regressing cough of 20 days, on retrograde history foreign body plastic whistle was aspirated. On clinical examination patient was afebrile, pulse rate, respiratory rate were normal. Respiratory system examination showed crepitation's over the left lung area and reduced air entry. Chest radiography was normal. The patient was subjected to virtual bronchoscopy and Ct Chest. A tubular foreign body was found in the left main bronchus, because the lumen was present in the foreign body it kept aerating the lung, producing minimal symptoms. Rigid bronchoscopy was performed, after adequate preoxygenation, intravenous anaesthetic agents were given, as it was a hollow foreign body peanut grasping forceps was used and plastic whistle all its three parts i.e. the tubular portion, thin transparent film and the ring removed. Plastic whistle can have varied presentation, either the patient can present with a whistling sound during inspiration or can produce mild symptoms such as dry cough, when the tubular portion is lodged which keeps aerating the lungs.

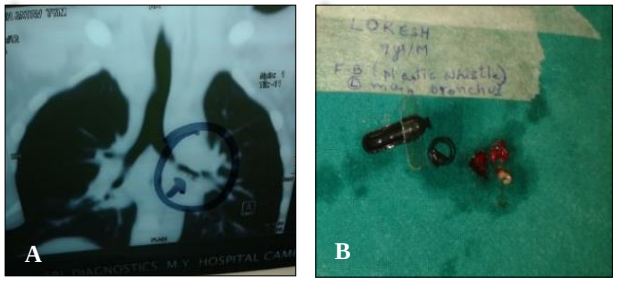

Figure 2: (A) Virtual bronchoscopy showing tubular foreign body in the left main bronchus; (B) showing all three parts of the whistle, ring, tubular portion and transparent film.

CASE 3: IMBIBING FOREIGN BODY

A six year old female presented with severe bouts respiratory distress and cold and cough of 15 days duration, retrospective history revealed tamarind aspiration with choking episode. On examination, patient was afebrile, tachypnea was present, respiratory system examination showed that air entry was reduced over the right side, with crepitation's and wheeze. Chest radiography showed collapse of the right lung. Virtual bronchoscopy and Ct Chest revealed an intraluminal foreign body in the right main bronchus. After taking high risk consent rigid bronchoscopy was done but during the procedure the patient required tracheostomy to secure the airway, as the foreign body tamarind seed was unable to negotiate through the glottis during rigid bronchoscopy. Tracheostomy tube was taken as an anchor to prevent the foreign body form slipping back into the trachea and the foreign body was removed in piecemeal. Tamarind seed can be considered as the most dangerous foreign body as it swells two to three times its initial size making it difficult to pass through the glottis.

CASE 4: HOLLOW FOREIGN BODY –PEN PART

A four year old male presented with dry cough of three days, he had a history of aspiration of pen part, presented with breathing difficulty. On clinical examination patient was tachypneic, intercostal in drawing, sternal retractions were present. Oxygen saturation was 90%, respiratory system examination showed decreased breathe sounds over the left lung. Chest radiography showed complete collapse of the left lung, virtual bronchoscopy showed complete collapse of left lung and foreign body in the left main bronchus, urgent rigid bronchoscopy was done using Karl Storz rigid bronchoscope size 3.5 mm and for easy removal of the pen part a technique was used where the pen part was held opposite the beak of the scope for the easy removal of the foreign body. Post-operative x ray showed complete resolution of the collapse.

DISCUSSION

Aspiration of foreign bodies by children is a common problem around the world. Asphyxiation from inhaled foreign bodies is a leading cause of accidental death among children younger than 4 years.[1] Foreign body aspiration is a common cause of morbidity and mortality in children, especially between ages 18 months to 3 years. It accounts for up to 7% of pre-hospital deaths in children in this age group.

According to Reilly et al, children less than 4 years are more susceptible to FB injuries due to their lack of molar teeth, oral exploration, and poor swallowing coordination.[2] In India, children between the ages of 1 and 3 years were found to be very vulnerable for aspiration.[2] Children present a higher risk of foreign body aspiration, which is attributed to several factors: a) tendency to put objects in their mouth; b) absence of

molars to chew some types of food; c) to cry, walk and run with objects inside their mouth; d) lack of coordinating mechanism of swallowing, associated to the elevation of the larynx and to the protective reflex, which is immature in small children.[3] Boys are usually more involved in foreign body aspiration, with a ratio boys/girls of two to one, which might be explained by their more adventurous personality and sharper curiosity, compared to girls.[4]

This case series has been conducted to throw light on the quicker diagnosis and management of foreign body airway, which can be a life threatening emergency if not dealt with promptness. In this case series we emphasis the role of radiography and virtual bronchoscopy for the accurate diagnosis, before subjecting the patient for rigid bronchoscopy under general anesthesia. Betel nut is a dangerous foreign body due to irregular size can dislodge from the bronchi and get impacted in the subglottis producing sudden onset respiratory distress

Foreign bodies in the tracheobronchial tree are mainly 2 types, either vegetative or non vegetative. Vegetative are more common in the airway and they include various seeds, food stuffs and are more dangerous as they swell up 3-4 fold of their size.[4]

Tamarind seed is a dangerous foreign body as it swells two to three times and makes passing through the subglottis difficult as it is the narrowest part in an infants airway. Plastic whistle can have varied presentation, either the patient can present with a whistling sound during inspiration or can produce mild symptoms such as dry cough, when the tubular portion is lodged which keeps aerating the lungs.

This study deals with the extraction of four difficult cases of airway foreign bodies and also their management. Foreign body (FB) aspiration is a common problem in children, requiring prompt recognition and early treatment to minimize the potentially serious and sometimes fatal consequences.[5]

CONCLUSION

Accidental inhalation of both organic and non-organic FBs continue to be a cause of childhood morbidity and mortality. Prevention is best, but early recognition remains a critical factor in the treatment of FB inhalation in children. Diagnosis depends on high level of suspicion in a child with sudden onset respiratory distress. Coughing, choking, acute dyspnoea, and sudden onset of wheezing are the most common symptoms.

Confirmation of the diagnosis can be done by virtual bronchoscopy which had a positive predictive value of 98%, as chest radiography had a high percentage of false negative in cases of radiolucent foreign bodies, which was close to the gold standard of rigid bronchoscopy. Hazardous general anaesthesia can be prevented if there is a negative virtual bronchoscopy, hence aiding the quick diagnosis of emergency foreign body aspiration. Extraction is generally performed by rigid bronchoscopy and postoperative period was closely monitored for complications. Hence we see a change of pattern of diagnostic imaging from X-rays over a decade to virtual Bronchoscopy for the effective diagnosis of foreign body airway.

Quick management of emergency foreign body airway can be done by taking a proper history, in suspected cases the child must be subjected to chest radiography.

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