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Case Report

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Fish Bone in the Glottis of a Seventeen-Month-Old Child: A Case Report

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ABSTRACT

Foreign body aspiration is one of the leading causes of accidental death in children. Young children tend to put objects in their mouths which may additionally explain the incidence of foreign body aspiration. Laryngeal impaction of a foreign body is very rare as most aspirated foreign bodies pass through the laryngeal inlet and get lodged lower down in the airway. Inhaled foreign bodies are suspected from the history of incidence witnessed by the parent or caregiver or at times from clinical symptoms of respiratory complains not responding to medical therapy. Removal of the foreign body from the airway is the modality of treatment done via rigid bronchoscopy under general anesthesia in our setting. A rare case of foreign body aspiration with glottic impaction in very young child of seventeen months has been described here.

Keywords
Fish bone, foreign body, laryngeal inlet

INTRODUCTION

Airway foreign body (FB) is common in children and can become clinically problematic, potentially inducing life-threatening complications.[1] Inhalation of foreign body in children is not an uncommon occurrence.[2] A careful history and examination can help in diagnosis and prompt intervention can save lives of patient with laryngeal foreign body. Though a variety of foreign bodies ranging from needle to screw, from broomstick to bubble gum have been reported to be lodged in the larynx, it is still a very uncommon site for lodgment of foreign bodies. The majority of foreign bodies pass through the glottis into the trachea and main bronchus.[3] In most cases, the foreign body can be removed with rigid or flexible laryngoscopy, and few cases require tracheostomy.[1]

CASE PRESENTATION

A 17-month female child from Dhading, Nepal was given pieces of fish by her mother. Shortly after eating the fish, she developed acute cough and noisy breathing. She was taken to District hospital on April 2020 and seen in the emergency department. Her vitals were relatively stable with

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Figure 1. Normal Chest X Ray

oxygen saturation between 91-95% in room air. She had biphasic stridor and subcostal retraction. There was no drooling, no bluish discoloration of skin or history of loss of consciousness. Foreign body was not visualized in oral cavity and oropharynx.

The child was then referred to our tertiary center after 1 week of onset of clinical symptoms to be assessed by otorhinolaryngology department. Upon arrival to our center, the child had saturation of 97% with oxygen via face mask. On examination, she had low pitched noisy breathing on inspiration and signs of respiratory distress was also present however plain chest X- Ray PA view was done, which was normal (Figure 1).

The child was taken urgently to the operating room with the suspicion of foreign body bronchus for direct laryngoscopy, rigid bronchoscopy and removal of foreign body. At induction of anesthesia, anesthesiologist examined the airway. Fish bone was seen impacted in the glottis with 1.5 x 0.5 cm T shaped flanges impinging in the ventricle was removed with small Magill forceps (Figure 2).

Then the check rigid bronchoscopy was done. Edema was seen at the upper surface of true vocal cord due to friction caused by the foreign body. The child was then intubated with the anticipation of laryngospasm following the procedure. The child was then shifted to Pediatric Intensive Care Unit for monitoring and was extubated on 2nd post-operative day and shifted to ward.

The child was stable and then discharged on 4th post-operative day.

DISCUSSION

Foreign body aspiration is a common cause of accidental death in children.[4] Food items are the most common items aspirated in infants and toddlers, whereas older children are more likely to aspirate non-food items. Young children tend to explore using their mouths and this puts them at

Figure 2. T-shaped foreign body fish bone

risk of the foreign body entering the aerodigestive tract. An eastern European retrospective study identified the following relative proportions: tracheobronchial 11%, pharyngo- esophageal 17%, and ear, nose and post nasal space 72%.[5] So, this case report presents rare type of foreign body seen in the glottis in this age group.

Pediatric airway differs considerably from adult airway. Location of the larynx in neonate is high up in the neck opposite to the cervical third and fourth vertebrae which gradually descends down with age. Sub glottis is the narrowest part of the larynx in the neonates and the abundance of soft tissue in the sub glottis and supraglottis make them vulnerable to lodgment of foreign body and swelling during inflammation.

Laryngeal foreign bodies are relatively infrequent (2-12%) compared to the rest of the tracheal and bronchial incidence.[6] Chances of foreign body migrating down the glottis in the trachea and bronchus is likely more common. Organic foreign body like beans, peanut, bone, cotyledon of gram causes tissue reaction and can cause more complications than non organic foreign body like pen cap, rubber, paper, plastic, metal, whistle, safety pins.

Inhaled foreign body presentation can be varied depending upon the exact location of obstruction with the airway. The history may present with a witnessed foreign body in the mouth or even no apparent clinical suspicion, and this can delay the diagnosis. Respiratory symptoms are helpful in the early diagnosis of laryngeal foreign bodies. Foreign bodies in the larynx usually cause dysphagia, dyspnea, cough, wheeze, stridor, or acute respiratory obstruction. Laryngeal foreign bodies may give rise to hoarseness which is unlikely with an object in the right main bronchus. However, some foreign bodies that do not cause obstruction can lead to indolent symptoms. If the correct diagnosis is not made at the initial evaluation, reflexes become relaxed, leading to less pronounced symptoms; this condition may be misdiagnosed as some other condition, such as asthma. However, the complications of

such misdiagnosed retained foreign bodies would manifest as erosion or obstruction leading to pneumonia, atelectasis, or abscess.[7]

According to Shah et al, it is necessary to screen and X-ray every patient who is admitted with a history of having swallowed/ inhaled a foreign body or patient who suddenly develops cough and dyspnea.[1] Radiological findings on chest films will often be normal (11-26%) unless there is a radiopaque foreign body present.[8] Additional radiologic feature includes hyperinflation, mediastinal shift, pneumonia, pneumothorax and atelectasis. But in this case the chest X-ray was normal with no changes. The sensitivity and specificity of radiographs for airway foreign bodies have been calculated to be 73% and 45% respectively, which implies that radiological investigation is an aid but should not deter an airway endoscopy.8 Plain cervical and chest X-ray is a simple method to detect foreign body and to have an idea about its location but has low sensitivity.[7]

Flexible nasopharyngolaryngoscopy should be carried out in all the cases of suspected laryngeal foreign body whenever feasible to prevent unnecessary complications of general anesthesia and diagnostic rigid bronchoscopy.

CT is a useful diagnostic method with high sensitivity and specificity. Computed tomography virtual bronchoscopy is highly sensitive at identifying a foreign body within the airway.

Rigid bronchoscopy under the controlled conditions of a general anesthetic is the mainstay for foreign body removal. Flexible bronchoscopy can also be used for removal of foreign body. The endoscopy is best performed during the daylight hours. If a child presents during the evening with a history of possible foreign body inhalation and is well, it is reasonable to delay the endoscopy until the morning. Exceptions to this include unstable symptoms and type of foreign body.[8]

Steroid is typically administered to reduce effects of edema due to airway instrumentation. Most patients require post-operative observation until the following day.

In our case, the baby presented with unique features of noisy breathing with suspicion of foreign body aspiration but normal chest radiogram. The baby was taken to the operating urgently without even during the nasopharyngolaryngoscopy. The foreign body was fish bone which was T shaped, approximately 1.5 × 0.5 centimeter in size (Figure 2) over the upper surface of true vocal cord impinging the ventricle. By passage of time, foreign body would have produced more edema and granulation tissue in the area, dislodged down into lower airway and cause more complications and difficult retrieval.

Most of the cases of inhalation of foreign body in childhood is caused due to inquisitiveness of children and habit of putting everything in mouth, while some cases could be, like in this case report due to the absentmindedness of person feeding them.

CONCLUSION

A foreign body aspiration should always be suspected when the child presents with acute onset cough and noisy breathing with or without witnessed inhalation of foreign body. Whatever the foreign body, there is an urgent need to retrieve the foreign body and secure the airway. Possible history by the parents or caregiver of witnessed aspiration or sometimes suspicion by the clinician like in our case would help in early detection and active management of the case. Cases where retrieval may be difficult should be anticipated and properly planned to avoid airway compromise, complications and long-term morbidity.

CONSENT

Written informed consent was obtained from the patient's parents for publication of this case report.

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CONFLICT OF INTEREST

The author(s) declare that they do not have any conflicts of interest with respect to the research, authorship, and/or publication of this article.

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