Occult foreign bodies in the aero digestive tracts in infancy

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Abstract Foreign body impaction in aero digestive tract in infancy is difficult to diagnose sometimes. In this review of five unusual cases of occult foreign body impaction in aero digestive tract has been presented and their management discussed

Keywords Foreign body · Aero digestive tract · Foreign bodies in infancy · Occult foreign body · Management

Introduction

Foreign bodies in the aero digestive tract in infancy are one of the most common emergencies encountered in ENT practice & in neglected cases, may lead to fatal outcome. The presentation of occult foreign bodies is complex [1] and diagnosis of such foreign body impaction claims most minute attention [2]. In one study in Japan, it was found that two-year-olds were the most common patients, and the range from age 1 to age 4 included 67.7% of all the patients. The most involved sites were the nose (39.4%) and the

pharynx (38.4%), followed by the esophagus (12.9%) and the trachea-bronchi (6.5%) [3]. So every case of suspected foreign body in the aero digestive tract must be given due attention as removal of such will bring back joy to the child, or else, removal by an inexperienced person may lead to catastrophes. The problem in the infancy group is complex as proper elucidation of history is difficult & high index of suspicion is mainstay for diagnosis followed by skiagram & endoscopy.

Case 1

A four week old female was referred to our emergency from a pediatric hospital in Kolkata where she was being treated as bronchopneumonia. Her parents did not reveal any history of foreign body aspiration or swallowing by the child. Initially she had symptoms of mild cough which changed to respiratory distress & discomfort within few days. On examination her pulse was 160/min and crepitus on both sides of chest. Her chest X ray taken at pediatric hospital showed an opaque shadow of locket in the neck (Fig. 1).

We did a direct laryngoscopy on an urgent basis which revealed a locket in the fitting the supraglottic region leaving a very narrow gap for respiration. The foreign body was removed with due care and was put on antibiotics and steroids post operatively. Post operative recovery was uneventful.

Case 2

One 6 month old boy child presented to us with complaints of refusal of taking food & excessive salivation. Emergency skiagram of soft tissue of neck showed an open safety pin in the hypopharynx (Fig. 2). He was immediately taken to OT where the safety pin was removed through hypopharyngoscopy and the child was cured.

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Case 3

One male infant of 4 months of age was brought to the ENT emergency with complaints of inability to swallow & dribbling of saliva for the last 15 days. Initially the baby was admitted in a Sub Divisional Hospital where an X ray soft tissue neck was undertaken which did not reveal any suspected clue aiding to the diagnosis. At the time of presentation to us, the child was quite emaciated & his oral cavity was full of froth. Immediate hypopharyngoscopy revealed some hard whitish mass in the post cricoid region which was taken out easily which looked to be a part of Oyster shell of 1 × 1" size (Fig. 3). Post operative period was uneventful.

Case 4

A 9- month-old child brought to our ENT Out Patient's Department with history of respiratory distress and a 'peculiar

Fig. 1 Case 1 showing locket in the hypo pharynx

Fig. 2 Case 2 showing open safety pin in the hypopharynx

sound' emanating from the child's larynx. The child was playful & normal 24 hours before the incident & suddenly developed respiratory difficulty. He was being treated in a Sub Divisional hospital with Oxygen inhalation, bronchodilators and antibiotics without any relief. When he was referred to us, the child was having stridor and an x ray soft tissue neck taken at the emergency room immediately revealed a closed safety pin at the region of glottis/sub glottis region (Fig. 4). Patient was immediately taken to the OT where a direct laryngoscopy was performed and the offending safety pin was carefully removed and the child was sent home on the very next day.

Case 5

A 1-year-old child presented to our ENT OPD with 2 week history of gradually increasing breathing problem along with fever & nasal discharge which was bilateral. Patient has been treated medically as a case of acute rhino sinusitis. When 1st presented to us, the child was toxic & was crying incessantly. Initial suspicion of a foreign body lodgment in the nasopharynx was made & was put to an x ray of nasopharynx lateral view which clearly showed a neglected foreign body in the form of a small bell lodged in the nasopharynx (Fig. 5). The offending agent was removed under GA.

Discussion

Most cases of respiratory tract foreign bodies present with symptoms like stridor, choking, excessive cough, and hoarseness [3]. Esophageal foreign body symptoms that may arouse suspicion are dysphagia, food refusal, weight loss, drooling, emesis/hematemesis, foreign body sensation, chest pain, sore throat, stridor, cough, unexplained fever, altered mental status etc.

Fig. 3 Case 3 showing the extracted oyster shell

The mucosa of the larynx, trachea, and bronchi rapidly adapts to the presence of foreign bodies so signs and symptoms may not be present. Foreign body aspiration has three stages. Initially, there is a choking episode followed by coughing, gagging, and occasionally complete airway obstruction. An asymptomatic interval then results when the reflexes become fatigued and irritation subsides. This stage accounts for the large number of cases with delayed diagnoses. Around 20–50% of foreign bodies are not detected for more than one week. The third stage is characterized by symptoms

of complications. Cough, hemoptysis, pneumonia, lung abscess, fever, and malaise may develop at this point.

However, our first case of laryngeal foreign body presented with chronic symptoms with occasional acute exacerbation which may be explained by its supraglottic lodgment and due to adaptation of sensory receptors in the supraglottic region by the foreign body itself [4]. Occasional acute episodes were maybe due to plugging of laryngeal inlet by patient's own excessive secretion which she frequently coughed out inefficiently due to presence of foreign body. Furthermore the foreign body was sharp and was firmly impacted so that violent cough also failed to dislodge it.

In our second case no history of foreign body swallowing was elicited from parents. Only x ray revealed an open safety pin in the region of hypopharynx. So was in our 3rd case where the foreign body in the form of an oyster shell was hidden and unsuspected lying inside the hypopharynx. In both the cases, the history from the parents was misleading but the clinical presentation was a good pointer towards raising a suspicion of a possibility of a foreign body. Our 4th case was unique in that the patient was being treated as a case of suspected childhood bronchial asthma as no suggestive history from the parents were unavailable & no alarm of suspicion was raised in the mind of the attending physician about doing a check X ray of soft tissue of neck.

Radiology plays an important role in detecting occult radiopaque foreign bodies. Chest/abdominal radiographs are important as most foreign bodies ingested by children are radiopaque (in contrast to inhalation, in which most are radiolucent). If the swallowed object may be radiopaque, a single frontal radiograph that includes the neck, chest, and entire abdomen is usually sufficient to locate the object. If the object is below the diaphragm, further radiographs are generally unnecessary (in the absence of previous GI disorders, such as repaired pyloric stenosis). If the object is in the esophagus, frontal and lateral chest radiographs are necessary to precisely locate and better identify the object and to be sure that the foreign body is not, in fact, 2 adherent objects. If the ingested object is radiolucent, the object's location may be inferred from effects (e.g., airway compression) seen on plain radiographs. Such findings, however, are not reliable. Radiolucent objects in the esophagus may be better visualized by repeating the study after having the child drink a small amount of dilute contrast. This should not be done if endoscopy is planned. Special care must be taken if the esophagus could possibly be obstructed or perforated. When a foreign body is strongly suspected on clinical grounds, visualization by endoscopy, which has the added advantage of allowing removal of the object, may be the most efficient method of management, CT scan or MRI is rarely indicated but may enhance the detection of foreign bodies or complications (e.g., perforations) in special cases.

Foreign bodies in the larynx or cervical trachea can produce inspiratory or biphasic stridor. A prolonged wheeze in

Fig. 4 Case 4 showing closed safety pin in the larynx

Fig. 5 Case 5 showing bell in the nasopharynx

the expiratory phase is suggestive of intrathoracic tracheal obstruction although it can be absent with smaller objects. Discrepancy in breath sounds between sides of the chest and unilateral wheezing are significant since most objects will impact in the one of the mainstem bronchi. Signs can be subtle and physical exam can be normal, 5–40% of patients fall into this group. The classic diagnostic triad of unilateral wheeze, cough, and ipsilaterally diminished breath sounds is observed in less than 50% of cases. Flexible fiberoptic laryngoscopy can add valuable information as laryngomalacia or other nontraumatic etiologies can be identified.

Any sign of airway distress demands more immediate removal. Sharp objects or disc batteries have risks of perforation when lodged in the esophagus and are not observed. Children with known esophageal anomalies or strictures are unlikely to spontaneously pass the object.

Misdiagnosis, lack of suspicion or even undue risk on the part of fellow professionals will contribute significant delay in management [6] as evident from all of our cases.

Conclusion

Upper aero digestive tract foreign bodies are the major causes of morbidity and mortality amongst the pediatric age group especially in infancy and some foreign bodies in the lower aero digestive tract may produce fatal outcome if not treated early. Elucidation of proper history from parents is

difficult to elicit in most of the time in infants and so it is the responsibility of the attending physician to have the D/D of foreign body in the back of one's mind. Radiological investigation is important to confirm the diagnosis and position of the foreign body. However in suspected cases, even if the radiology is negative, endoscopy is mandatory & may prove to be life saving [6].

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