Rare impacted foreign bodies of larynx

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Abstract This paper presents our experience with three cases of very unusual impacted foreign bodies in larynx and all without any Classical signs and symptoms of foreign body inhalation. Review of literature reveals that these conditions are rare and reported infrequently. Correct diagnosis and adequate approach is necessary as foreign bodies that do not obstruct the airway and which are stuck in place may be relatively asymptomatic but could be life threatening.

Keywords Foreign bodies in larynx · Asymptomatic foreign body in airway · Transglottic foreign body.

Introduction

Foreign body aspiration is a very serious and life-threatening emergency, which is quite frequently, encountered in small children. In Rothman and Boeckman's series (1980) 77% of aspirated foreign bodies were in children less than 3 years of age. In most cases of inhaled foreign bodies there is a definite history of choking followed by paroxysmal coughing, which then subsides [1].

In Rothman and Boeckman's series (1980) a positive history of foreign body aspiration was obtained in 85% cases. After the initial paroxysm of coughing, the tracheobronchial mucosa becomes tolerant to foreign body and coughing ceases. This causes delay in diagnosis [1].

In the same series, 18% of cases were diagnosed in a week and 8% in a month after the event [1]. In Cohen's series 50% of the cases were recognized and treated within 24 hours and by 10 days 74% of cases had been treated, 26% of the cases being diagnosed between 10 days and one month [2].

In a series of 51 foreign bodies reported by Ross and McCormick (1980) there was no history of aspiration in 8% cases. The symptom triad of cough choking and wheeze was present in 91% of patients with foreign body aspiration (Black et al 1984).

Boys are likely to inhale foreign bodies more than girls, 2:1 (Rothmans & Boeckman). This has been observed by various authors liker Brown & Clark (1983) [3]. O'Neill, Holcomb and Neblett; (1983) [4]; Schloss Pham – Danng and Rosales (1983) etc.

Maximum incidence of inhalation of foreign body occurs between the age of 1 & 3 years. 74% of 115 patients (Brown & Clark 1983) [3] & 77% of 225 patients (Rothman & Boeckman, 1980) [1], 74% in a much larger series (Jackson & Jackson 1936), Hollinger (1962) found that children under 4 years of age constituted 55% of there foreign bodies, but their cases included adults.

A minority of these objects impact in the larynx. 4% in Cohen's series were removed from larynx. Foreign bodies

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lodge in the larynx if they are too large to pass through or if they are of irregular shape or have sharp edges that often catch on laryngeal mucosa. Egg shells, glass fragments, plastics are not infrequent offenders. (J. N .G. Evans) [5].

Case 1

A 14-year-old male patient came to us with history of swallowing one rupee coin 10 days back when he was playing with coin in his mouth and in peak excitement he swallowed the coin. This was not followed by any episode of choking, cough, and respiratory distress. Patient had traveled a long distance from Bihar to Jaipur before he came to our OPD with coin in his throat but patient had no symptoms of respiratory distress during his journey. Patient complained of mild odynophagia.

X-ray chest and soft tissue neck AP and lateral view (Figs. 1 and 2) showed a round foreign body (coin) at the level of glottis. Findings were confirmed on indirect laryngoscopy.

Figs. 1 and 2 X-ray chests showing a round foreign body (coin) at the level of glottis

Case 2

A 1-year-old female child was brought to ENT Department SMS Medical College, Jaipur, by her parents with history of swallowing of a piece of locket which was put in her mouth by her sibling while playing with her. Patient had a bout of cough after the episode. On examination patient had hoarse cry and mild respiratory distress. There was no cyanosis or pooling of saliva, no intercostal in drawing. Air entry was bilaterally equal on chest auscultation. Patient was sent for X-ray chest and neck AP and lateral view that showed a half round foreign body lying sagittally at the level of larynx (Fig. 3). It was a part of the locket, which her sibling was wearing (Fig. 5).

Both the cases were taken into emergency OT immediately. General anaesthesia was given without intubating the patients. Direct laryngoscopy was done. Both foreign bodies were seen lying sagittally between the vocal cords, which were removed with the help of coin holding forceps. Immediate post-operative period was uneventful.

Fig. 3 X-ray chest showing a half round foreign body lying sagittally at the level of larynx

Fig. 4 Part of the locket swallowed by the patient

Fig. 5 X-ray chest showing an open safety pin lying vertically at the level of glottis

Case 3

A 12-year-old female patient came to us with history of inhalation of a safety pin while she was doing household work. She had severe bout of cough after the episode and complained of pain in neck. She didn't have any respiratory distress. There was no cyanosis or excessive salivation. Bilateral air entry was equal on auscultation of chest. X-ray chest PA view and soft tissue neck AP and Lateral view (Fig. 5) showed an open safety pin lying vertically at the level of glottis; pointed and open end was directed upwards.

Patient was immediately taken to OT. GA was given without intubating the patient keeping the tracheostomy set and bronchoscope ready. Direct Laryngoscopy was done and safety pin was gripped holding the pointed end with the help of coin holding forceps, it was withdrawn a little and then the grip was changed, this time holding both the prongs of safety pin together by tilting the forceps on oropharynx and posterior pharyngeal wall in an inclined way. Safety pin was removed successfully without traumatizing the mucosa. Immediate postoperative period was uneventful.

Discussion

Although cases of asymptomatic foreign bodies in respiratory tract have been reported in literature but majority of foreign bodies pass through the glottis into the trachea or bronchus and get lodged there and not in larynx. A foreign body, which remains impacted in the larynx, is generally noticed as a dire emergency, which needs immediate intervention [6].

Peculiarity of lodgment of foreign bodies in larynx is that foreign bodies get aligned in antero-posterior direction along rima glottis which is the narrowest part of larynx [7].

When a foreign body tries to pass down the vocal cords, a spasm and forced expiration forces the foreign body to be in supraglottic region. If coughing is forceful, it may expel the foreign body out of the larynx. On the other hand if the expiratory coughing is weak & the resistance offered by the aryepiglottic fold is enough, the foreign body is held up in the larynx [7].

Children may accidentally inhale an infinite variety of objects. Children unaware of the inhalation danger are in a habit to put many objects in mouth, which may be vegetable, nonvegetable, metallic or non-metallic. It is this habit of keeping such objects in mouth and carelessness, such as crying, laughing, and talking while eating, that these objects may be inhaled or swallowed. Often smaller foreign bodies are coughed out due to protective cough reflex of larynx. But occasionally, they are unable to be coughed out and are retained and get impacted at some place in laryngotracheobronchial tree.

The diagnosis of such a case at times becomes difficult because of non-availability of a positive foreign body inhalation/ingestion history, due to ignorance of the child, forgetfulness of such an accident or out of fear, the child does not disclose the accident. Lack of clinical features and absence of radiological features may also aid to the difficulty in diagnosis.

Modern techniques of endoscopic removal of bronchial foreign bodies stem from advances made in the early part of the century by Chevalier Jackson who reduced the mortality of foreign body from over 20% to approximately 2%. He achieved a 98% success rate of bronchoscope removal of F.B.

Since then, improvement in illumination provided by the Hopkins rod lens system and advent of the ventilating bronchoscope (Hopkins 1976) coupled with the advances in anesthesia have further reduced the mortality and greatly facilitated the task of the endoscopist (Tucker 1985). Most paediatric endoscopists use these instruments and perform the removal of foreign body under general anaesthesia (Gans & Bercl, 1971).

Conclusion

The most common cause of accidental death in the home in children under 6 years of age is the inhalation of foreign body (National Safety Council of America, 1980). It is estimated that almost 600 children under 15 years age die each year in USA. from asphyxia following the aspiration or ingestion of large foreign bodies. The peak incidence of inhalation of foreign in early childhood is of course related to the fact that children have a habit of putting objects into the mouth to determine their texture and taste and to chew. It is extremely important, therefore, where possible to keep objects, which might be inhaled out of reach of small children.

The vast majority of cases of inhaled or ingested

foreign bodies occur as a result of carelessness either in the preparation or ingestion of food or drinks or as a result of placing inedible or unsuitable objects in mouth. The accidental inhalation or ingestion of foreign bodies is therefore almost entirely preventable. Infants & children under the age of 2 years should not be allowed to eat peanuts and their play areas should be cleared of small objects that could be inhaled. Adults should set a good example by never placing pins, coins in their mouth.

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