FOREIGN BODY OF AERODIGESTIVE TRACT- A TERTIARY CARE EXPERIENCE

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ABSTRACT

BACKGROUND
Foreign body is ingested accidentally, but sometimes for homicidal or suicidal reasons. Most common foreign bodies in children are coins, but marbles, buttons, batteries, safety pins and bottle tops are also reported.

MATERIALS AND METHODS
Patients who presented with history of ingested foreign body were clinically examined. Total 54 patients were diagnosed with foreign body in upper airway or digestive tract based on detailed history, physical examination and necessary investigations. The data were compiled as per the various parameters such as age, sex, site, nature of FB, and mode of removal.

RESULTS
The youngest patient was 1.5-year-old while the oldest was of 72 years. 60 (76.92%) were male and 18 (23.07%) were female. The incidence was common in males, male female ratio 3.3:1. Foreign body in food passage was found in 62 (79.48%) and FB in air passage was found in 16 (20.51%) cases. A coin seen in 31 cases (39.74%), was the commonest foreign body followed by groundnuts and metallic wires. Foreign bodies which have gone beyond the oesophagus will pass uneventfully through intestinal tract in 80% cases.

CONCLUSION
Foreign bodies in the aerodigestive tract continue to be a problem affecting children and adults alike. It is difficult to eradicate as children, by nature, are curious and exploratory. It is important to develop a comprehensive approach to the early recognition and timely management of aspirated and ingested foreign bodies, as complications from delayed diagnosis can have significant health implications.

KEYWORDS
Foreign Body, Aerodigestive Tract, Oesophagoscopy.


BACKGROUND
Foreign body ingestion is common in children, but frequently seen among adults also.1 Foreign body is ingested accidentally, but sometimes for homicidal or suicidal reasons. Most common foreign bodies in children are coins, but marbles, buttons, batteries, safety pins and bottle tops are also reported.2 Smaller foreign bodies do not pose much threat, but may cause airway obstruction. Sharp foreign bodies, if not retrieved at the earliest may penetrate oesophageal wall and cause complications. So, aggressive approach is required for sharp foreign bodies like chicken bone, safety pin, fish bones.3

The problem of foreign body ingestion and aspiration is not new, but significant dilemmas in the diagnosis and treatment of this problem remain despite medical progress.

Since C. Jackson described endoscopic techniques for the removal of foreign bodies in 1936, this has remained the safest and most trusted method of treatment.4 In adults, common foreign bodies are bones, dentures and metallic wires. Foreign bodies which have gone beyond the oesophagus will pass uneventfully through intestinal tract in 70-80% cases.5

The signs and symptoms of foreign body ingestion or aspiration may be different and often very nonspecific. In most instances, patients can relate to history of foreign body accident, but paediatric patients are often unable to give such information due to their very young age. When any patient has a history of ingested foreign body, investigation is mandatory regardless of the age or apparent absence of signs and symptoms.6

It is difficult to eradicate the problem as children, by nature, are curious and exploratory. It is important to develop a comprehensive approach to the early recognition and timely management of aspirated and ingested foreign bodies, as complications from delayed diagnosis can have significant health implications. Serious complications from aspirated foreign bodies such as severe airway obstruction and death, tend to occur in infants and younger children due to the small size of their airways.7

The best method to remove an oesophageal and tracheobronchial foreign body is endoscopic-guided extraction. Both rigid and flexible bronchoscopes can attain more than 90%-95% success rate, but there is no consensus.
as to which is better. In our hospital, aerodigestive foreign bodies are removed using hypopharyngoscope, oesophago-
scope, or rigid or flexible bronchoscope combined with optical
forces depending upon the site of foreign body. The purpose
of the study is to determine the distribution of foreign bodies
in relation to age, sex, site of lodgement and type among the
patients attending our institution.

MATERIALS AND METHODS
The present study is a prospective study, carried out in the
Department of Otorhinolaryngology and Head & Neck Surgery,
Govt. Medical College and associated Dr. Sushila Tiwari
Government Hospital, Haldwani, Uttarakhand during
December 2014 to December 2016. Patients who presented
with history of ingested foreign body were clinically examined.
Inability to swallow saliva was a frequent symptom of foreign
body impaction. Pain while swallowing was a major symptom
in cases of sharp foreign bodies. Routine neck and chest X-ray
in both AP and lateral views were obtained for these cases.
Total fifty-four patients were diagnosed as foreign body cases
in upper airway or digestive tract based on detailed history,
physical examination and necessary investigations. All
patients underwent oesophagoscopy in operating room under
general anaesthesia/IV sedation. Rigid oesophagoscopy of
appropriate size depending upon age and sex was used. After
removal, site of foreign body impaction was re-examined for
any erosion of mucosa, for a possible second foreign body. The
data were compiled as per the various parameters such as age,
sex, site, nature of FB, and mode of removal.

RESULTS
This study included a total of 78 patients with FBs, of which 62
FBs were in the digestive tract and 16 in the respiratory tract
(Table 1). The youngest patient was 1.5-year-old while the
oldest was of 72 years. 60 (76.92%) were male and 18
(23.07%) were female. The incidence was common in males,
with male female ratio 3.3:1.

Foreign body in food passage was found in 62 (79.48%) and
FB in air passage was found in 16 (20.51%) cases. 57
(91.93%) were observed in cricopharynx followed by
oropharynx 2 (3.22%) and hypopharynx 2 (3.22%), mid-
oesophageus 1 (1.61%). FB seen in the right bronchus was
68.75% (11) and in trachea 31.25% (5). (Table 2).

Coin seen in 31 cases (39.74%) was the commonest
foreign body followed by groundnuts and alkaline batteries in 10
(12.82%) (Figure 1). Dentures 6 (7.69%); whistle, walnut shell
(4) 5.12% each; and safety pin, toy wheel, ring (3) each (Figure
2) in 3.84%; drawing pin (Figure 3) and marble were found in
2.56% each respectively (Table 3). Out of the 78 patients, 6
patients underwent rigid bronchoscopy for airway foreign
bodies, 72 patients underwent rigid oesophagoscopy.

<table>
<thead>
<tr>
<th>Digestive Tract</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oropharynx</td>
<td>2</td>
<td>3.22%</td>
</tr>
<tr>
<td>Hypopharynx</td>
<td>2</td>
<td>3.22%</td>
</tr>
<tr>
<td>Cricopharynx</td>
<td>57</td>
<td>91.93%</td>
</tr>
<tr>
<td>Mid oesophagus and below</td>
<td>1</td>
<td>1.61%</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Airway</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larynx</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>trachea</td>
<td>5</td>
<td>31.25%</td>
</tr>
<tr>
<td>Right bronchus</td>
<td>11</td>
<td>68.75%</td>
</tr>
<tr>
<td>Left bronchus</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2. Sites of Foreign Body Lodgement

<table>
<thead>
<tr>
<th>Nature of Foreign Body</th>
<th>Number of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin</td>
<td>31</td>
<td>39.74</td>
</tr>
<tr>
<td>Whistle</td>
<td>4</td>
<td>5.12</td>
</tr>
<tr>
<td>Denture</td>
<td>6</td>
<td>7.69</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>10</td>
<td>12.82</td>
</tr>
<tr>
<td>Ring</td>
<td>3</td>
<td>3.84</td>
</tr>
<tr>
<td>Alkaline batteries</td>
<td>10</td>
<td>12.82</td>
</tr>
<tr>
<td>Marble</td>
<td>2</td>
<td>2.56</td>
</tr>
<tr>
<td>Safety pin</td>
<td>3</td>
<td>3.84</td>
</tr>
<tr>
<td>Drawing pin</td>
<td>2</td>
<td>2.56</td>
</tr>
<tr>
<td>Toy wheel</td>
<td>3</td>
<td>3.84</td>
</tr>
<tr>
<td>Walnut shell</td>
<td>4</td>
<td>5.12</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3. Type of Foreign Bodies Ingested

<table>
<thead>
<tr>
<th>Age (In years)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>29</td>
</tr>
<tr>
<td>11-20</td>
<td>21</td>
</tr>
<tr>
<td>21-30</td>
<td>11</td>
</tr>
<tr>
<td>31-40</td>
<td>4</td>
</tr>
<tr>
<td>41-50</td>
<td>8</td>
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<td>51-60</td>
<td>4</td>
</tr>
<tr>
<td>61-80</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
</tr>
</tbody>
</table>

Table 1. Age Incidence

Figure 1. Coin In The Region Of Cricopharynx

Figure 2. Board pin taken out from the Right main Bronchus
DISCUSSION

Foreign body ingestion is a commonly encountered problem in both children and adults in emergency departments. Management of aerodigestive FB patients was revolutionised by the technique and instruments developed by Chevalier Jackson in 1904. The mortality decreased from more than 20% to 2%. Impaction of a foreign body in the oesophagus causes oedema of the mucosa, and the oesophageal wall becomes weakened. Retention leads to perforation, which is only a matter of time. Therefore, all foreign bodies retained in the oesophagus should be removed as soon as diagnosed. The youngest patient was aged around 1.5 years and the oldest patient was of 72 years. In a study by Gilyoma et al (2011), it was observed that the ages ranged from 1 year to 63 years (mean 7.04 ± 14.62 years). Patients aged ten years and below were the majority and accounted for. The results of the above studies suggest that majority of the patients with ingested foreign bodies in oesophagus are children. This can be explained by the explorative nature of the children. In the study of Steven C, the average age of patients with foreign body aerodigestive tract was 3 years. Foreign body in food passage was found in 62 (79.48%) and in air passage in 16 (20.51%) cases. 56 (91.93%) were observed in cricopharynx followed by oropharynx 2 (3.22%) and hypopharynx 2 (3.22%). Mid-oesophagus 1 (1.61%). FB seen in the right bronchus was 68.75% (11) and in trachea 31.25% (5). In the study of Murty PSN, the common site of impaction of foreign body in the airway is the right bronchus, whereas cricopharynx was the commonest site in food passage. It was observed in our study that majority of foreign bodies of tracheobronchial tree were found in the right bronchus (66.6%) as in the series of Zerrella et al.

In the study of Steven C, 47 coins, 23 sharp objects, 4 button batteries and 65 blunt and non-corrosives were found. In our study, coin seen in 31 cases (39.74%) was the commonest foreign body followed by groundnuts and alkaline batteries in 10 (12.82%); dentures 6 (7.69%); whistle, walnut shell (4) 5.12% each; safety pin, toy wheel, ring (3) each in 3.84% drawing pin and marble were found in 2.56% each respectively. In the general population, the most common ingested foreign bodies in children are coins but meat bone, marbles, safety pins, hair dips, batteries and screws are also reported while impacted meat or other types of food bolus, fish bone and dentures are common in adults (Lee et al, 2007; Pokharel et al, 2008; Haidary & Leider, 2007).

CONCLUSION

Foreign bodies in the aerodigestive tract continue to be a problem affecting children and adults alike. It is difficult to eradicate the problem as children, by nature, are curious and exploratory. It is important to develop a comprehensive approach to the early recognition and timely management of aspirated and ingested foreign bodies, as complications from delayed diagnosis can have significant health implications.

REFERENCES