

## Original Research Article

# Foreign bodies in esophagus: our experiences

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### ABSTRACT

**Background:** Foreign bodies in esophagus come as an emergency to otolaryngologist and needs to be removed at the earliest to prevent complications. The objective was to share our experience with esophageal foreign bodies removal in Sathagiri Institute of Medical Science and Research Centre, Bangalore, India.

**Methods:** Study of 84 patients admitted with the final diagnosis of esophageal foreign body during September 2011 – September 2018, for sex, age, diagnosis on admission, estimated duration and site of impaction, type and number of foreign body removed.

**Results:** Over 7 years period, 84 patients (48 males and 36 females) of different ages, youngest being 02 years and oldest being 92 years were admitted with the diagnosis of esophageal foreign body. Fifty percent of patients were five years or less in age at the time of admission. 32.1% were between 5 to 14 years and 17.9% were between the age range of 60-92 years. Seven patients (2.9%) had a history of esophageal anomalies requiring operation. Different types of foreign bodies ingested most common being coin. Majority of foreign bodies (75/84, 89.2%) were located in the post cricoid and upper esophagus followed by the mid-esophagus, and only 3 cases involved the lower esophagus.

**Conclusions:** The most common foreign bodies in children are coin and toys. Sharp foreign bodies are difficult to remove but need to be removed carefully at the earliest to prevent dreaded complications like - retropharyngeal abscess and mediastinitis. Loose fitting dentures are common foreign body in elderly patients.

**Keywords:** Esophageal foreign body, Children, Rigid esophagoscopy, Coin, Sharp foreign bodies

### INTRODUCTION

Accidental ingestion of foreign body cases are relatively common emergency encountered in the field of otorhinolaryngology, yet it is curious to know because of the broad range of objects being swallowed and the way the case is presented to the professionals. Foreign body ingestion may be either due to accidental or purposeful which is observed anytime during the lifetime. However maximum chances of foreign bodies are noticed among paediatric age groups, followed by edentulous adults and psychiatric patients.<sup>1</sup> Of all the factors, the wearing of removable dentures is most commonly associated with foreign bodies in adults.<sup>2,3</sup>

Most common foreign bodies in children are coins, marbles, buttons, batteries, safety pins and bottle tops are also reported.<sup>4,5</sup> In adults common foreign bodies are bones, dentures and metallic wires. The foreign bodies ingested get trapped in the oesophagus, narrowing the oesophagus lumen and leading to anatomic abnormalities. In few cases reported foreign bodies which have gone beyond the oesophagus will pass uneventfully through intestinal tract in 70-80% cases.

Ingested objects if untreated shams various challenges in the form of complications like development of mucosal ulceration, esophageal perforation, mediastinitis, vascular trauma, aorto-esophageal fistula, pseudo aneurysm,

paraesophageal abscess, tracheoesophageal fistula, pneumothorax, pericarditis, and other conditions.<sup>6-9</sup>

The best method of removing impacted foreign body remains controversial. Rigid endoscopic removal of foreign body is safe and effective, but often requires GA. The flexible endoscopic removal, which can be done under LA in outpatient department has gained great popularity over the past decade.

## METHODS

This case series included 84 cases reported to Department of Otolaryngology, Sathagiri Institute of Medical Science and Research Centre, Bangalore, during the period of September 2011–September 2018. All patients reported with history of foreign body ingestion in esophagus were included. Initially a detailed history was recorded for all the patients, majority of the subjects reported with dysphagia and drooling of saliva. After thorough clinical ENT examination all the patients were advised for neck and chest X-ray in both AP and lateral views to confirm and know the level of foreign bodies. CT scan of neck and thorax was advised in special cases where complications were suspected. Based on the history, clinical examination and radiological investigations patient were taken for rigid oesophagoscopy and foreign body removal. All patients underwent oesophagoscopy in operating room under general anaesthesia. Rigid oesophagoscopy of appropriate size depending upon age and sex was used. Different types of foreign body forceps were utilized for removal of foreign body. After removal, oesophagoscope was re-inserted and site of foreign body impaction was re-examined for any erosion of mucosa, for a possible second foreign body or any other cause of foreign body impaction like presence of carcinoma. After procedure, cases were monitored in ICU.

## RESULTS

Over 7 years period, 84 patients (48 males and 36 females) of different ages, youngest being 02 years and oldest being 92 (Table 1) years were admitted with the diagnosis of esophageal foreign body. Fifty percent of patients were five years or less in age at the time of admission. 32.1% were between 5 to 14 years and 17.9% were between the age range of 60-92 years. Seven patients (2.9%) had a history of esophageal anomalies requiring operation. Different types of foreign bodies ingested in our study are shown in Table 2. Majority of foreign bodies (75/84, 89.2%) were located in the post cricoid and upper esophagus followed by the mid-esophagus, and only 3 cases involved the lower esophagus, which was the least frequent location (Table 3). Patients presented with a wide variety of signs and symptoms (Table 4) and most of them had multiple symptoms.

**Table 1: Age wise distribution of samples.**

Sl. No.	Age in years	Number	Percentage distribution (%)
1	0–5	42	50
2	5–14	27	32.1
3	60-92	15	17.9

**Table 2: Details of type of foreign bodies ingested.**

Objects	Children	Adults
Coins	49	0
Pins and needles	2	2
Meat with bone	0	6
Fish bone	5	2
Dentures	0	5
Metal/plastic toys	6	0
ring	3	0
Button batteries	2	0
Hair clip	2	0

**Table 3: Position of foreign bodies.**

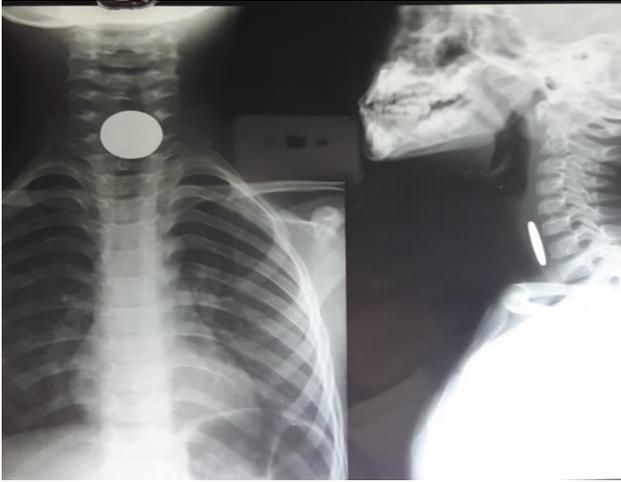
Position	Children	Adults
Post cricoid region/upper esophagus	65	10
Middle esophagus	3	3
Lower esophagus	1	2

**Table 4: Sign and symptoms.**

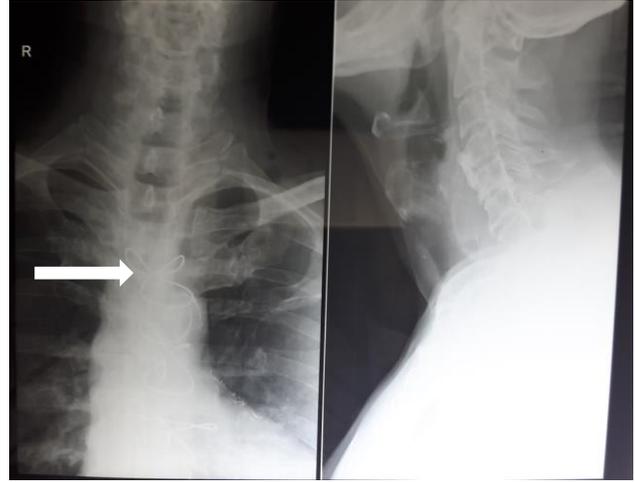
	Percentage (%)
Dysphagia	80
Drooling of saliva	85
Breathing difficulty	40
Retro sternal pain	25
Cough	54
Hematemesis	5
Dysphonia	5



**Figure 1: Coin, most common esophageal foreign body.**



**Figure 2: Plain X-ray of neck and thorax [AP and lateral view] showing coin in cricopharynx.**



**Figure 5: X-ray showing sharp metal foreign body in upper esophagus.**



**Figure 3: Position for rigid esophagoscope-sword swallowing position.**



**Figure 6: Sharp plastic toy removed from upper esophagus from 4 yr, old child.**



**Figure 4: Most common foreign body in edentulous elderly patient-denture with sharp metal clip.**



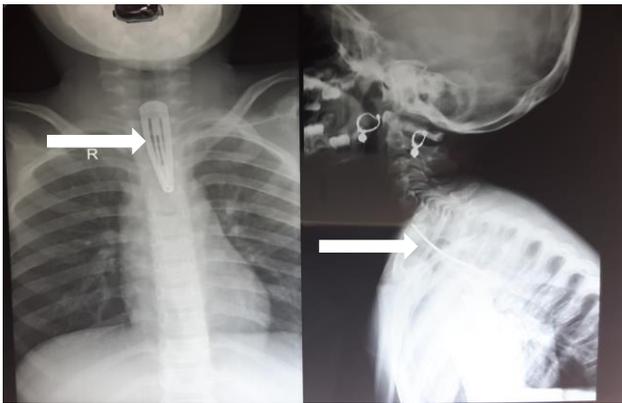
**Figure 7: Unusual foreign body-hair clip removed from mid esophagus.**

## DISCUSSION

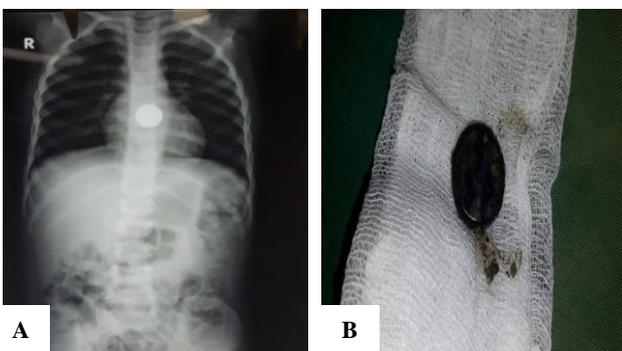
Three groups of patients appear to be particularly at risk for impacted oesophageal FB.<sup>10</sup> Oesophageal disease and poor oral sensitivity from dental prosthesis predispose elderly edentulous patients to food bolus impaction. Psychiatric patients comprised the second group. And lastly, paediatric patient's account for approximately 75% to 80% of oesophageal foreign bodies in many studies, with a preponderance of children aged 18 to 48 months.<sup>11</sup>

In our study 69 [82%] patients were below age 14 years and all ingested coins. All of these patients had endoscopic removal. We did not have any psychiatric patients with foreign body in esophagus. The majority of adult patients was over the sixth decade of life and most presented because of bones stuck in the throat, especially chicken bones. Adults may present with food boluses lodged in the oesophagus accidentally in the act of

eating.<sup>12</sup> Similar results were reported from the case series published by Kumar et al, Saki et al and Al-Qudah et al, where majority of patients were between the age of 3 months to 14 years.<sup>13-15</sup> Local tenderness over the cervical oesophagus and persistent drooling with strong history of foreign body ingestion gave clue to impacted foreign body in the esophagus. These patients require esophagoscopy even though X-ray show no foreign body. 80% of patients in our study presented with dysphagia, odynophagia and drooling of saliva. Study by Nader et al, only 30 to 40% of patients presented with dysphagia, odynophagia and drooling of saliva.<sup>14</sup> Most of the patients are (85%) brought to emergency room within four hours after ingestion of the foreign body.



**Figure 8: X-ray showing metal foreign in upper 1/3<sup>rd</sup> of esophagus.**



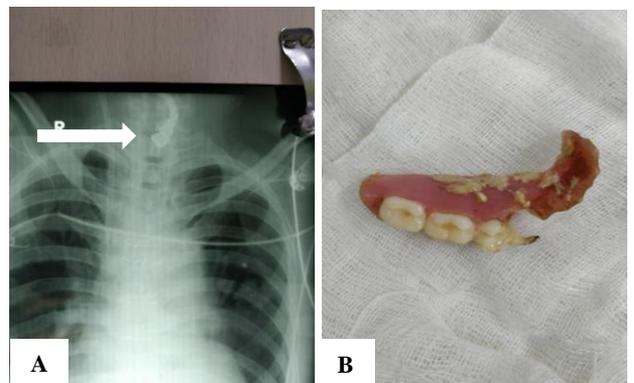
**Figure 9: (A) X-ray showing button battery in lower esophagus, on right side; (B) showing button battery removed from esophagus covered with burned mucosa.**

In our series majority of foreign bodies around 89% were impacted at post cricoid level and upper esophagus. Study conducted by Williams et al showed the same results i.e. cricopharynx and upper esophagus.<sup>16</sup> In most of children foreign body was ingested accidentally while playing, whereas in adults foreign body ingestion occurred when they were intoxicated with alcohol. Blunt foreign bodies can be removed safely from oesophagus without any major complications.<sup>17</sup> However they cause erosions if present for a long time. In our study there were no such complications due to blunt foreign bodies.

Complications rate of 12.6% in adults and 4.6 in children has been reported with foreign bodies, pulmonary complications being the most common in children and retropharyngeal abscess in adults.<sup>18</sup> Sharp foreign bodies are the one which causes dreaded complications like retropharyngeal abscess, oesophageal perforation and later leading to mediastinitis. Esophageal injury occurs with sharp foreign bodies especially while removing it. Sharp foreign body can also be removed safely by rigid endoscopic technique avoiding open surgical methods.<sup>19</sup> In our study no complications were seen except one patient had mucosal injury due to sharp foreign body i.e., denture with metallic clip, but patient recovered with conservative treatment without requiring further surgical intervention.



**Figure 10: (A) X-ray showing foreign body [meat ball] with air blast in upper digestive tract; (B) meat ball removed from elderly patient.**



**Figure 11: (A) X- ray showing denture in upper esophagus; (B) showing denture with sharp broken edges removed safely from esophagus.**

## CONCLUSION

The most common foreign bodies in children are coin and toys. Sharp foreign bodies are difficult remove but need to be removed carefully at the earliest to prevent dreaded complications like- retropharyngeal abscess and mediastinitis. Loose fitting dentures are common foreign body in elderly patients. Elderly patients must be advised

not to gulp large pieces of meat. Rigid endoscopy is very effective and safe procedure for foreign body removal.

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