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RESEARCH ARTICLE

OESOPHAGEAL FOREIGN BODIES IN PAEDIATRIC PATIENTS: A THREE-YEAR RETROSPECTIVE STUDY

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ABSTRACT:
We discuss clinical symptoms and radiological findings of variable oesophageal foreign bodies as well as therapeutic procedures in paediatric patients. A retrospective study of 100 cases of suspected oesophageal foreign bodies between 2012 and 2015 was conducted. Among the patients with foreign body in aero digestive tract, the foreign body in oesophagus was noted in 57% patients. The most common foreign body was coin (56%). The foreign bodies were seen most commonly among children of age 1 – 5 years. Most objects were located within cricopharyngeal sphincter. Dysphagia occurred in 45%, followed by vomiting (29%) and drooling of saliva (26%). We recommend a rigid oesophagoscopy under general anaesthesia in doubtful cases as a safe treatment for paediatric patients.
Keywords: Foreign body,Oesophagus, Rigid endoscopy

INTRODUCTION:
Foreign body ingestion is a commonly encountered problem in children at emergency departments. After nose and ear the oesophagus is the commonest site for foreign body impaction. Eighty percent of impacted foreign objects are held up at cricopharynx. Annual incidence of foreign body ingestion is 13 per 100,000 population.The majority of foreign objects ingestionsoccurs in paediatric population with a peak incidence between six months and six years of age. Most common ingested foreign bodies in children are coins but meat bone, marbles, safety pins, hair clips, batteries and screws are also reported. This study will determine the frequency, type and site of impaction and method of removal of oesophageal foreign bodies amongst patients reporting with aero digestive tract foreign body.

MATERIAL AND METHODS:
A Retrospective study conducted at the ENT Department, SVS Medical College & Hospital from June 2012 to June 2015. Informed consent was obtained from all patients prior to surgery as a part of ethical practice. The inclusion criteria were patients of either sex above six months of age, with definite history of foreign body ingestion and/or radiographic finding of foreign body. An exclusion criterion was patients with vague history of foreign body ingestion, age below six

months as foreign body ingestion is less likely and patients in whom the foreign body was passed into stomach spontaneously before procedure.

Demographic information like name, age and gender were obtained. A detailed and careful history was taken with special emphasis on the onset, progression of symptoms and duration and nature of foreign body. A detailed ENT and systemic examination was carried out in every case. Baseline investigations like viral profile, Hb, Bleeding time and clotting time were done in all patients. Radiographs in anteroposterior and lateral view were taken. Before general anaesthesia X-rays were repeated to confirm the foreign body. If it was passed through oesophagus into stomach, patient was excluded from the study. Patients were prepared for general anaesthesia, and Oesophagoscopy was performed using rigid oesophagoscopy and findings were recorded in the proforma. Patients were discharged next day if there was no complication, and followed up after one week. If patient was not fit for General anaesthesia, foreign body was removed using Flexible endoscopy. The type and site of foreign body removed was recorded.

RESULTS:

A total of 100 patients were included in the study. The age of patients varied from 1 to 9 years with mean age was 05 ± 02 years. The most common age was 1 to 5 years (56%) as shown in Figure 1. There were 59 (59%) male patients while female patients were 41 (41%) in the study. Among the 100 patients who presented with aerodigestive foreign bodies, 57 (57%) patients had foreign body in the oesophagus. Among these 57 patients, the foreign body was lodged at the level ofcricopharyngeal sphincter in 40 patients while belowcricopharyngeal sphincter in 17 patients. Among 100 patients, 43 (43%) patients had foreign body impaction at other sites (including oralcavity, pharynx and tracheobronchial tree as shown in Table 1. The most common type of foreign body oesophagus was coin, 32 patients (56%) followed by other objects. (Figure 2) The most common method for removal of foreign body oesophagus was rigid oesophagoscopy in 48 (84%) patients while flexible in 8 (14%) patients. Only in 1 (2%) patient the foreign body was removed surgically.

Table1:

Anatomical Location	No.	Percentage
Esophagus	**57**	**57**
Cricopharangeal Sphincter	40	40
Below Cricopharangeal Sphincter	17	17
Others:	**43**	**43**
Oral Cavity	4	4
Pharynx	8	8
Tracheobronchial Tree	31	31

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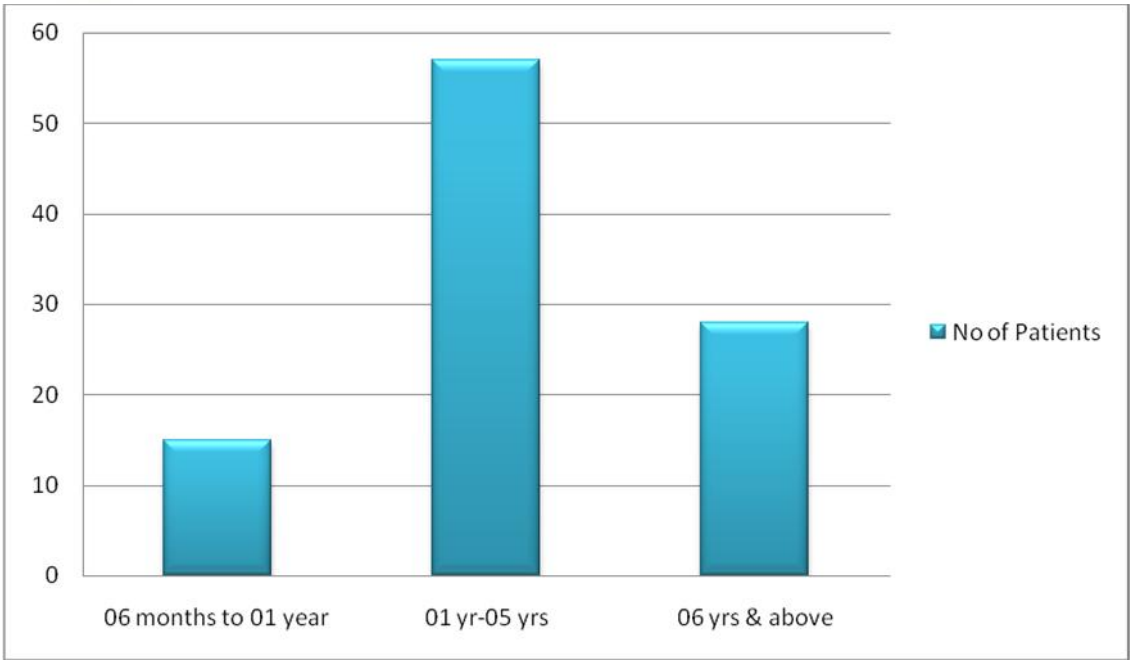

Fig 1.Distribution of patients by age (n=100)

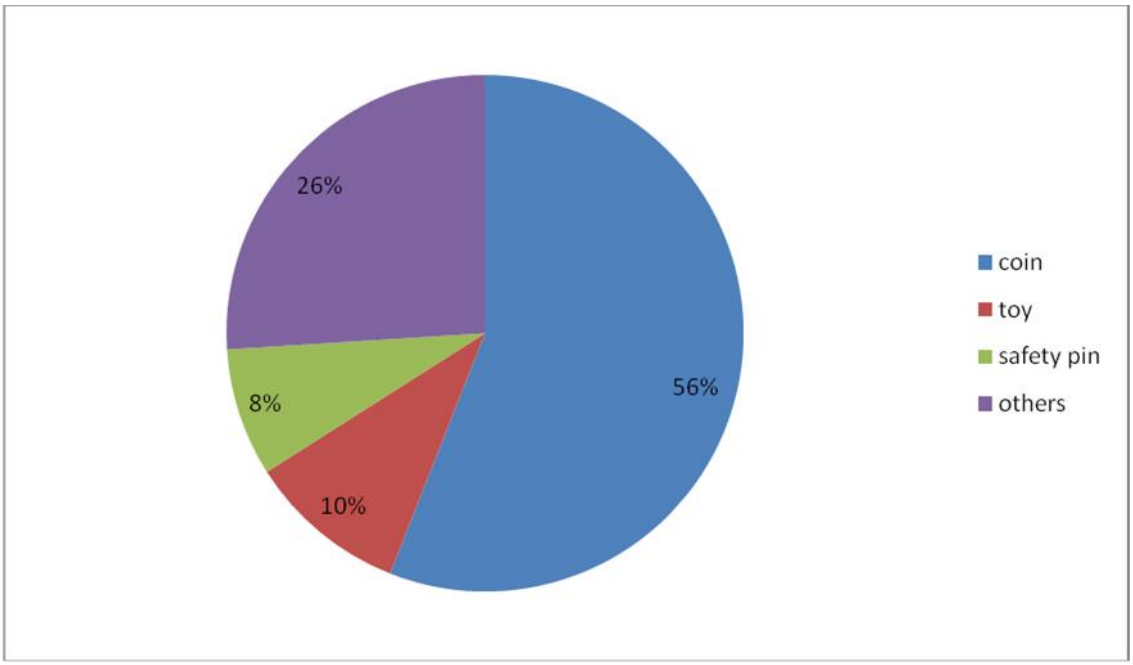

Fig2. Distribution of patients by type of Oesophageal foreign body (n=57)

DISCUSSION:

Foreign body ingestion is a commonly encountered problem in both children and adults in emergency departments[1].After nose and ear,the oesophagus is the commonest site for foreign body impaction as reported by Akhtar&Haq[1].Besides history and physical examination, radiological examination is a very important diagnostic tool to identify the foreign body and its location as cited by Athanassiadi et al [2].Impaction of a foreign body in the oesophagus causes edema 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[3]. Radiolucent objects will require direct visualization or contrast radiographs for location specification[4]

Fig 4.Safety pin removed from oesophagus

Fig 3. Plain X-ray neck lateral view showing radio-opaque foreign body in oesophagus

Many alternative methods for removal of foreign bodies have been described in the literature, such as dislodgment by a Foley catheter, advancement with bougie, papain or carbonated fluid treatment, glucagon therapy, balloon extraction during fluoroscopy but rigid endoscopy remains the gold standard treatment as cited by Athanassiadi et al (2002)[2]

Fig 5: Toy removed from food passage of a 3 year old girl

Majority of the patients in our study who ingested the foreign bodies were children i.e. 56 which is consistent with other studies in the world.In a study by Saki N, et al (2007), it was observed that sixty five percent of patients were four years or less in age at the time of admission.[5]
Patients aged ten years and below were the majority and accounted for 88.8%.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. There were 59 % male and 41% female patients in our study and the female to male ratio was 1:1.43. In a study by Gilyoma et al [6], males outnumbered females by a ratio of 1.1:1. Similarly larger male population was observed in study by Iseh et al [7], with 66.7% male and 33.3% female patients[7]. Like our study, most of the studies confirm that foreign bodies are common among males.
In our study, the frequency of foreign body in oesophagus was 57% while 43% at other sites. These findings were comparable to the study done by Gilyoma, et al [6]which showed that majority of the foreign bodies were in the 0esophagus i.e. 54 %. Different foreign bodies have been described in different studies. Iseh et al[7]observed that coin (65.3%) was the commonest foreign body occurring mainly in the paediatric age group followed by bones (17.3%) and meat bolus (8%) in adults. Gilyoma et al [6] and Hussain et al [8], studied 212 patients with aerodigestive tract foreign bodies in a teaching hospital and observed that the commonest type of foreign bodies in airways was groundnuts (72.7%) and in oesophagus was coins (72.7%). The trachea (52.2%) was the most common site of foreign body's lodgement in the airways. Coins 118(55.6%) were the most common foreign bodies followed by meat bolus 44(20.75%), dentures 15(7.07%), fish bone 15(7.07%), chicken bone 10(4.7%), battery cell, peach seeds artificial jewellery 2 each (0.94%), marble ball and bone chip 1 each (0.47%). Our results are also consistent with these studies with coin being the most common oesophageal foreign body in paediatric age group.

In our study, rigid endoscopy was used in 84% patients followed by flexible endoscopy (15%) and surgery was performed only in 1% patients, and Foley's catheter was not used in our study.

Hussain et al [8]documented that foreign body were removed spontaneously in 4.08% patients, and rigid endoscopy with forceps removal under general anaesthesia was the main treatment modality performed in 87.8% of patients while in the study of Gilyoma et al [6]. Saki et al reported foreign body oesophagus in 240 patients and endoscopic treatment was offered in 93.2 % patients and surgery in 8.3% patients[5]. So, like our study, the mainstay of the treatment in most of the studies is rigid endoscopy. Although the overall incidence of gastrointestinal perforation due to foreign body ingestion is less than 1%, sharp and pointed objects result in perforation rates up to 35 % as reported by Bounds[9]. In our study no oesophageal perforation was reported.

CONCLUSION:

All children with a history of foreign body ingestion should undergo radiographic evaluation. A normal plain chest and a cervical X-ray does not exclude the presence of a FB. Radiological examinations are helpful to diagnose Oesophageal FBs in children but sometimes they give false positive or negative results. This is the reason we recommend a rigid oesophagoscopy under general anesthesia for eventual diagnosis and treatment. Despite various alternative methods of FB removal, a rigid oesophagoscopy remains a “gold standard” as a safe and efficient method of removing objects from the oesophagus of paediatric patients. In symptomatic patients, timely diagnosis and endoscopic removal should be performed early to prevent serious life threatening complications.

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