

ENDOSCOPIC ESOPHAGEAL FOREIGN BODY RETRIEVAL: A SINGLE CENTER EXPERIENCELAEQUE AHMED*¹, SURESH KUMAR¹, PERVEZ ASHRAF², SAMREEN LAEQUE³¹Division of Gastroenterology, Dr Ziauddin University Hospital (North campus) Karachi, Pakistan, ²Department of Gastroenterology, Liaquat National Hospital, Karachi, Pakistan, ³Department of Radiology, Dr Ziauddin University Hospital (North campus) Karachi, Pakistan, Email: laeque1@yahoo.com

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ABSTRACT

Objective: Endoscopy was done for the removal of impacted foreign body in esophagus. The objectives of this study were to determine the demographics, type and site of foreign body impaction, estimated duration of reporting to hospital, signs and symptoms, and post procedural complications.

Study Design: A retrospective analysis.

Place and Duration of Study: Division of Gastroenterology, Dr Ziauddin University Hospital (North campus) Karachi, Pakistan from May 2007 to March 2010.

Methodology: The record of all forty nine patients was analyzed by chart review to ascertain the demographics, type and site of foreign body impaction, estimated duration of reporting to hospital, signs and symptoms, and post procedural complications. The analysis was done for all patients who came to center with complain of esophageal foreign body impaction. In last four years forty nine patients with diagnosis of esophageal foreign body impaction were admitted at Dr. Ziauddin University Hospital Karachi.

Results: All forty nine patients were involved in the analysis, 28 (57.14%) being male and 21(42.86%) being female. The age distribution of patients was that 25 (51.02%) patients were in the range of five years or less while 24 (48.98%) were above five years. The duration of impaction was less than 24 hours in 45 (93.7%) patients. The major foreign bodies were the metallic coins 28(57.14%) in children and 7(14.28%) bones in adults. Dysphagia and choking in 14 (28.57%) and 10 (20.40%) patients were the most common symptoms reported respectively. Proximal esophagus was noted to be the most common site of impaction. All patients were managed successfully with flexible endoscopic retrieval of foreign body except one in which the foreign body was safely pushed to stomach. There were no complications seen during and post-endoscopic retrieval of foreign body.

Conclusion: Flexible endoscopy is reliable method for the removal of impacted foreign body in esophagus. The treatment of foreign body removal of esophagus in our centre is managed effectively.

Key words: Esophageal foreign body, flexible endoscope, retrieval.

INTRODUCTION

Foreign bodies in the upper gastro-intestinal (GI) tract are usually swallowed, intentionally or accidentally.¹ Commonly swallowed objects include: coins, buttons, batteries, and small bones, but can include more complex objects, such as eyeglasses, spoons, and toothbrushes.^{2,3} Usually the coins are commonest impacted object seen in children, while fish bones and food bolus are responsible for foreign body impaction in adults.^{4,5} The commonest site of foreign body impaction is oropharynx and proximal/ mid esophagus. Fortunately, most of them pass through the gastrointestinal tract harmlessly.^{6,7} However, 10-20% will require non-operative intervention and only 1% or less surgery.^{1,5-7}

Foreign body may cause mucosal ulceration, inflammation and superimposed infection. Anatomically esophageal wall lacks a serosal layer, this may results in lethal complication of esophageal perforation therefore patients should be investigated and treated urgently. Flexible esophagoscopy is reliable method for removal of impacted foreign bodies in esophagus. A retrospective study was performed in 49 patients with esophageal foreign bodies in order to analyze safety and our experience.

MATERIALS AND METHODS

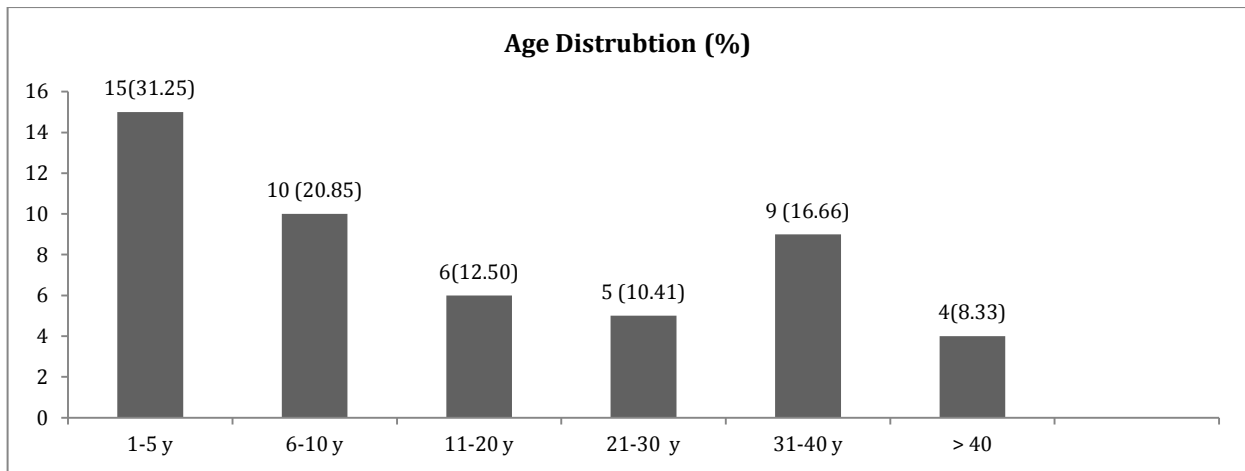
Forty nine consecutive patients with history of foreign body ingestion admitted in our center From May 2007 to March 2010, under the care of single physician for flexible endoscopic retrieval of foreign body in esophagus. Records of all patients were analyzed by chart review using descriptive statistics for demographics, type and site of foreign body impaction, estimated duration of reporting to hospital, sign and symptoms, duration of procedure, and post procedural complications. Each study subject was enrolled by single medical record number. A separate patient's identification number was also assigned to maintain the subject confidentiality.

The demographics, signs and symptoms were recorded in case report forms. Prior to the endoscopic procedure; detailed medical

history, clinical examination, complete blood counts, prothrombin time, activated partial thromboplastin time, and international normalization ratio were performed for all the subjects who attended the emergency room. Radiological examination performed in all patients included a lateral and a postero-anterior soft-tissue roentgenogram showing the oropharynx, neck, chest and, when indicated, the abdomen. Benzodiazepine was appropriately used as routine for sedation. The devices commonly used for foreign body retrieval were; dormia basket, snares, crocodile forceps, Roth basket and biopsy forceps.

RESULTS

The analysis was performed on forty nine patients, the males were predominant i.e. 28 (57.14%) and females were 21(42.86%). The age distribution of the patients was 15 (31.25%) patients in the range of 1-5 years, 10 (20.85%) patients in the range of 6-10 years, 6 (12.50%) patients in the range of 11-20 years, 5(10.41%) patients in the range of 21-30 years, 9 (16.66%) patients in the range of 31-40 years and 4 (8.33%) patients in the range of more than 40 years (Graph 1). Among the most frequent findings Dysphagia was found in 14 (28.57%) patients, choking was found in 10 (20.40%) patients, crying was found in 8 (16.32%) patients, globus sensation was found in 7 (14.28%) patients, vomiting was found in 5 (10.20%) patients, and drooling was found in 4 (8.16%) patients (Table 1). Coins 28 (57.14%) and food bolus 6 (12.25%) was found most commonly impacted foreign bodies among children and adults respectively (Table 2). The oropharynx and proximal esophagus was the commonest site of impaction (Figure 1-3). Esophageal edema was found among four patients (8.18%) with ingestion of coins and erythematous esophageal mucosa in three patients (6.12%) with bone ingestion was noted. The duration of impaction was less than 24 hours in 45 (93.7%) patients and mean duration of procedure was 16.16 minutes.



Graph 1: Patient's age distribution with percentage

Table 1: Symptoms observed in the patients with the number and percentage of patients

Symptoms	Numbers of cases	Percentage of cases
Dysphagia	14	28.57 %
Choking	10	20.40 %
Crying	08	16.32 %
Globus sensation	07	14.28 %
Vomiting	06	12.24 %
Drooling	04	8.16 %

Table 2: Nature of foreign bodies with number and percentage of cases reported

Type of Foreign Body In Children	Number of Cases (%)	Type of Foreign Body In Adults	Number of Cases (%)
Coins	28(57.14%)	Food bolus	06(12.25%)
Battery cell	01(2.04 %)	Bones	07(14.28%)
Hair pin	01(2.04%)	Dentures	03(6.12%)
Round plastic body	01(2.04%)	Others	02(4.08%)
Total	31(63.26%)	Total	18(36.73%)

All patients were managed successfully with flexible endoscopy for retrieval of foreign body except for one patient who was 1.7 years of age. The maximum and minimum dose of benzodiazepine intravenous (midazolam) was 3 and 5 mg respectively with mean of 3.04 mg. Transient drop in oxygen saturation below 90% was seen in seven patients (14.29%) and effectively managed with supplemental oxygen. There were no adverse or serious adverse events and no other post procedural complications were noted.

DISCUSSION

Foreign body ingestion is a common pediatric problem.^{8,9} The vast majority of pediatric ingestion is accidental. The most common pediatric foreign body ingested is coins followed by a variety of other objects, including toys, toy parts, sharp objects, batteries, bones, and food. In adolescents and adults, bone piece, meat, food or denture impactions are the most common accidental foreign body ingestion.¹⁰⁻¹³ Most cases of food impaction occur due to underlying esophageal pathology. In most of cases children with age below 12 years are more commonly involved with accidental ingestion of foreign body.¹⁴⁻¹⁶ Boys are involved more than girls and even more than other patients. The presentation is usually less than 24 hours and management is usually safe and is associated with minimal complications, as reported in literature.¹⁷ Complications rate could be high if the impacted foreign body last more than 24 hours.^{17,18} Prior to undertaking endoscopy, attempts should be made to locate the foreign body with x-rays or other non-invasive techniques. For radio-opaque objects, x-rays of the neck, chest and abdomen can be used to locate the foreign body and assist endoscopy. X-rays are also useful in identifying the type of foreign body ingested and

complications of foreign body ingestion, including mediastinitis and perforation of the esophagus.

The management of foreign bodies depends on the type (sharp or dull, pointed or blunt, and toxic or nontoxic) and the size, along with the location of foreign body in the gastrointestinal tract. The physician should decide whether endoscopic intervention is necessary and how urgently it has to be done. Devices commonly used for foreign body retrieval include forceps, snares, baskets, crocodile forceps and biopsy forceps.¹⁹⁻²² The duration of the endoscopic procedure performed for retrieval of foreign body is usually between 20 to 30 minutes in majority of cases with most common site of impaction was proximal/ mid esophagus. Esophageal foreign bodies require early intervention because of their fatal complications such as para- or retroesophageal abscess, mediastinitis, empyema, perforation, respiratory distress or even an aorto-esophageal fistula formation.²³ Endoscopic removal of foreign bodies in the upper gastrointestinal tract had a success rate of approximately 94%.²⁴ Endoscopy allows the removal of the foreign bodies in almost all cases without significant complications.²⁵

In present study, 49 patients were included in the analysis, with male predominance i.e. 28 (57.14%). The types of foreign bodies were significantly age related as resemblance to literature. Children most often ingested coins, whereas adults tended to have food bolus.²⁶ The location of foreign bodies e.g. oropharynx and proximal esophagus was also consistent with previous reports. Reporting time to hospital and duration of procedure were also similar with the findings of other studies. All patients were managed successfully with flexible endoscopy for retrieval of foreign body except for one patient who was 1.7 years of age. In our center, dormia basket, snares, crocodile forceps, roth basket and biopsy forceps were the most frequently used accessory devices. Our success rate for removal of foreign bodies with a flexible endoscope was as similar as reported in the previous series of single centre experience.

CONCLUSION

Ingestion of foreign body is common clinical problem among children. Removal of foreign bodies with flexible endoscope is effective and safe in our centre with simple and quick approach.

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