

Upper gastrointestinal foreign body: our experiences in rural area

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Abstract: *Background:* Foreign body ingestion is a common occurrence, particularly among children, but it can also affect adult patients. *Objective:* This case series study was to evaluate the presentation and outcome of accidentally ingested upper gastrointestinal foreign bodies. *Material and Methods:* The study included 45 patients with a history of ingested foreign body between January 2011 and June 2017 at the Dhonde Endoscopic and Laparoscopic Centre in Sangli. *Results:* The majority of cases (89%) were observed in the pediatric age group, with dysphagia being the most common presenting symptom (62.22%), followed by odynophagia (22.22%), drooling (11.11%), and a pricking sensation (4.45%). The cricopharynx and upper esophagus were identified as the most common sites of foreign body impaction, accounting for 97.8% of cases. Coins were found to be the predominant foreign bodies in children (90%), while mutton pieces were more common in older adults (40%). The management approach involved video gastroendoscopic retrieval, which was successful in the majority of cases. Only 8.88% of patients experienced complications, including chemical injury due to a button battery or pressure ulcer resulting from an impacted coin. *Conclusion:* Foreign body ingestion is a significant concern, especially in pediatric patients. Prompt and effective endoscopic retrieval can lead to favorable outcomes, with minimal complications. Awareness and understanding of foreign body ingestion can aid in timely intervention and improve patient outcomes.

Keywords: Foreign Body, Dysphagia, Odynophagia, Video Gastroendoscopy, Chemical Injury, Pressure Ulcer, Endoscopic Removal.

Introduction

Foreign body ingestion is a major problem as it is reports to the accompanied by remarkably high morbidity and mortality rates [1]. Approximately 1,500 - 1,600 people die each year in the USA of complications after foreign body ingestion [1]. Of the approximately 1,00,000 reported cases in the united states each year , nearly 80% occur in children, most of whom are between 6 months and 3 years of age [2]. Foreign body ingestion is common in children but frequently seen among adults also [3]. Foreign body is ingested accidentally but occasionally homicidal or suicidal [4]. Most common foreign bodies in children are coin but marble, button battery, safety pin, bottle tops, toys , magnet [5-6].

Foreign body of esophagus are common in young children between 2 to 3 years and are likely to occur whenever child puts an inedible objects in

the mouth [5], as they tend to place foreign body in their mouth [7]. Children's with developmental delays are at increased risk for both foreign body ingestion and subsequent complications. It is also common in the older age group, adults and middle age patients are less commonly. Edentulous patients do not chew the food and prefer to swallow the bolus as a whole, large boluses thus get stuck [8].

In adults, fish bones and other bone fragments are the most commonly ingested foreign bodies and are likely to become lodged in the upper esophagus with a high risk of perforation [9]. Patients who purposely swallow a true foreign body (non food object) typically are younger and more often male; associated psychiatric illness and / or drug abuse are common [10]. The types of ingested objects vary with patient age. coins accounted

for 66% of the upper GI foreign bodies found in patients less than 10 yrs of age; in contrast, food boluses account for 60% of upper GI foreign bodies in those over 11 years old, a food bolus impaction, in the adult patients, is often due to an underlying structural abnormality, such as an esophageal web, ring, a benign or malignant stricture or eosinophilic esophagitis [6].

Presentation of patients with GI foreign bodies can range from the patients in extreme is to the patients with subtle or chronic finding without a clear history. Potential complications of upper gastrointestinal foreign bodies include abrasions, laceration, punctures with associated abscesses, perforations, and infection to surrounding structures including abscess, mediastinitis, pneumomediastinum, pneumothorax, pericarditis or tamponade, fistula or even vascular injuries to the aorta or pulmonary vasculature [11].

The majority (80%-90%) of foreign bodies and food impactions will pass spontaneously. Ten to twenty percent of gastrointestinal foreign bodies will require endoscopic intervention. Few patients who ingest foreign bodies require surgery [6]. Before the mid 1850, the most common management for suspected esophageal foreign body impaction was to attempt to push the object in to the stomach [12]. The first esophagoscope used in 1890 by Mackenzie was later improved by Jackson, Lingal, and Mosher [13]. The earliest esophagoscopies for foreign body extraction by Jackson and Ingals were performed on awake patients in a sitting position [12]. With the passage of time anesthesia risks have decreased and instrumentation for endoscopic removal of esophageal foreign bodies has improved, these procedures are performed with the patient on supine position under general anesthesia [14].

The flexible fiberoptic endoscopic removal, which can be done under LA in outpatient department, has gained great popularity over the past decade. Different types of foreign body forceps were utilized for removal of foreign body [15]. Here we report our experience of 45 cases of foreign body ingestion.

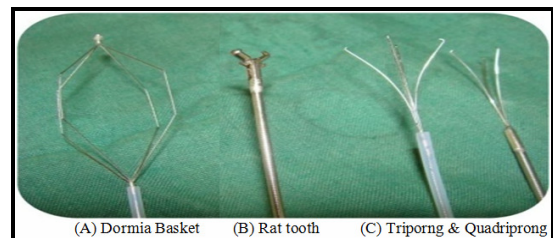
Material and Methods

Patient who presented with history of ingested foreign body between Jan 2011 to June 2017 at Dhonde Endoscopic and Laparoscopic Centre

Sangli were included in the study. A total 45 cases of upper digestive foreign body were treated. Patients 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 major symptom in cases of sharp foreign bodies. Routinely neck and chest X-ray in both AP and Lateral views were obtained for these cases. Video gastroendoscope of appropriate size depending upon age and sex was used. Different types of foreign body forceps were utilized for removal of foreign body (Fig-1). After removal, video endoscope 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 or stricture.

Fig-1: Displays different instruments used in removal of foreign body, (A) Dormia basket, (B) Rat tooth, (C) Tri-prong and quadri-prong.



Results

In total no of 45 cases 40(89%) were in paediatric age group and 5 (11%) were in adults. Among them 22 were males and 23 were females. Male to female ratio was 1:1.05 with age range from 3 years to 68 years (Table-1).

Age (years)	No of patients	Percentage
2-10	36	80%
11-20	4	8.8%
21-30	0	0
31-40	0	0
41-50	1	2.2%
51-60	2	4.5%
61-70	2	4.5%
Total	45	100%

Table 1 displays the distribution of patients by age groups in a study population. The age groups range from 2 to 70 years. the largest proportion of patients (80%) falls within the 2-10 age range. Patients aged 11-20, 41-50, 51-60, and 61-70 constitute smaller percentages of the total population. Overall, the table highlights the prominent representation of pediatric patients and variations in different age categories.

Symptoms	No of cases	Percentage
Dysphagia	28	62.22%
Odynophagia	10	22.22%
Drooling	5	11.11%
Pricking sensation	2	4.45%
Total	45	100%

Table- 2 shows various symptoms among 45 patients in the study. Dysphagia was the most common symptom, affecting 62.22% of the cases. Odynophagia was reported in 22.22% of patients, followed by drooling in 11.11% of cases. A pricking sensation was noted in 4.45% of patients.

Site	No of patients	Percentage
Cricopharynx and upper esophagus	44	97.8%
Lower esophagus	1	2.2%
Total	45	100%

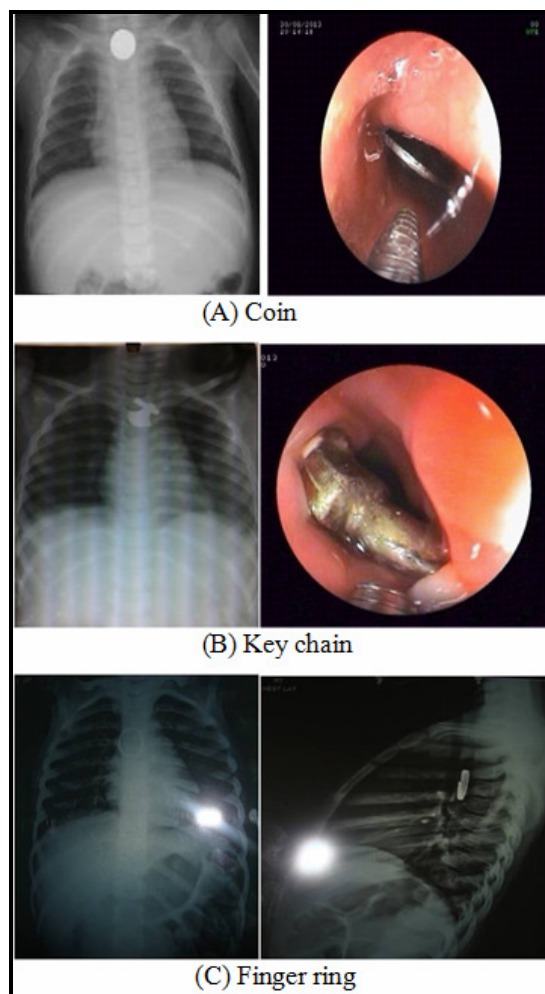
Table-3 shows site of foreign body among 45 patients in the study. The majority of cases (97.8%) involved the cricopharynx and upper esophagus, while only one case (2.2%) was reported in the lower esophagus

Diagnosis was made clinically and / or radiologically with the type of foreign body. Radiological investigations consisted of plain x-ray neck and chest.

Table- 4 show that among 40 patients in the study. Coins were the most common foreign body, accounting for 90% of cases. Additionally, there were single occurrences (2.5% each) of keychain, meat, battery cell, and finger ring as other types of ingested foreign bodies (Fig-2).

Nature	No of patients	Percentage
Coin	36	90%
Keychain	1	2.5%
Meat	1	2.5%
Battery cell	1	2.5%
Finger ring	1	2.5%
Total	40	100%

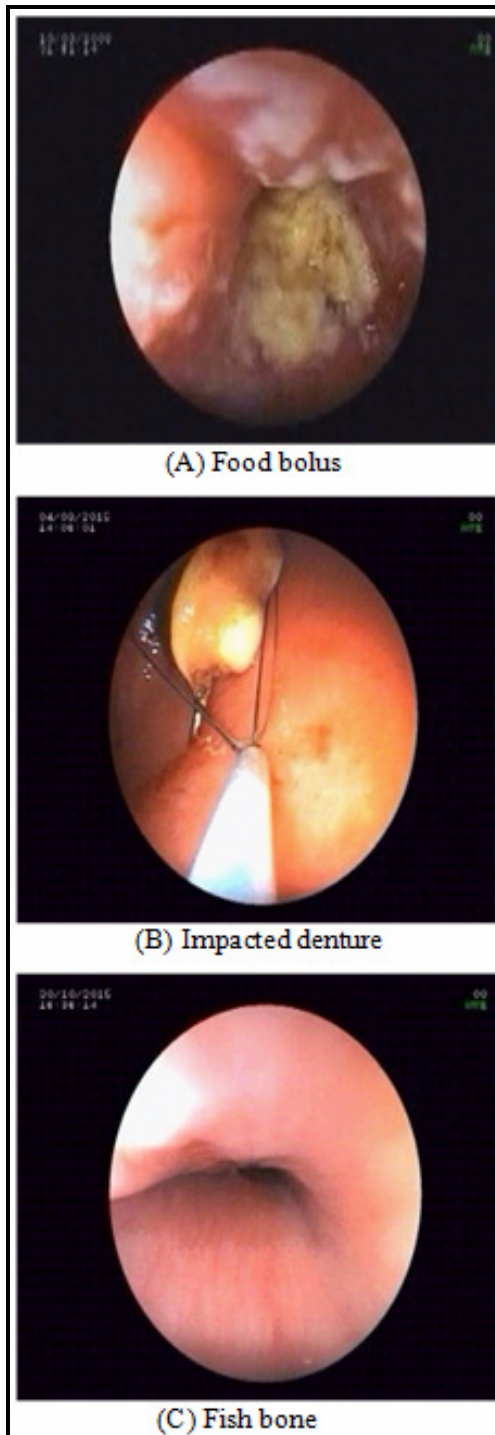
Fig-2: Shows radiographic image and pictures from the endoscope of (A) Coin, (B) Key chain, (C) Finger ring



Nature	No of patients	Percentage
Mutton pieces	2	40%
Food bolus	1	20%
Denture	1	20%
Fish bone	1	20%
Total	5	100%

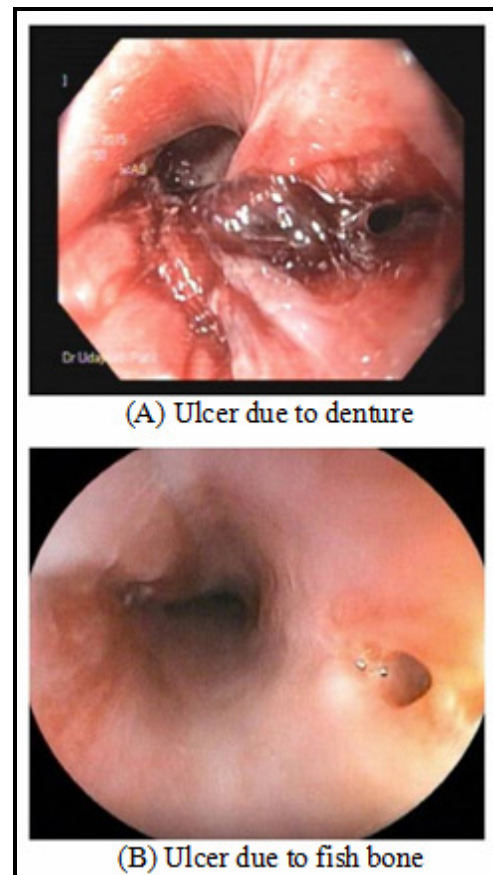
Table -5 shows percentage of objects ingested among adult patients. Mutton pieces were the most prevalent foreign body, accounting for 40% of cases. Other types of foreign bodies, such as food bolus, denture, and fish bone, each constituted 20% of the cases.

Fig-3: Shows endoscopic image of (A) Food bolus, (B) Impacted denture, (C) Fish bone



In all patients management consisted of video gastroendoscopic retrieval. Different types of foreign body forceps were utilized for removal of foreign body. In 2 patients foreign body was pushed into stomach. Associated condition: single patient associated with stricture esophagus. Complication noted in 4 patient (8.88 %) that is chemical injury due to button battery, pressure ulcer due to impacted coin in the cricopharynx inlet, lower esophageal ulcer due to impacted denture and ulcer at cricopharynx due to fish bone (Fig-3 & 4).

Fig-4: Displays endoscopic images of injury of esophagus (A) Ulcer due to denture, (B) Ulcer due to fish bone



Discussion

Ingestion of foreign bodies in the upper gastrointestinal tract is a common problem in the pediatric age group and also frequently occurs in adults, which is either purposefully or accidentally swallowed. In our study it was observed that incidence of foreign body ingestion in paediatric age group (89%) was

higer. A similar high prevalence of foreign body ingestion in children was found in the study conducted by Saki [16] and Friedman E M [17] et al. Foreign bodies of the esophagus are commonly occur in young children between 2 and 3 years of age [17], It also frequently occurs in older age group, While Adults and middle aged group presents less commonly. Edentulous patients do not chew the food and prefer to swallow the bolus as a whole, large boluses thus get stuck [8].

In our study dysphagia is the most common symptom (62.22%) followed by odynophagia (22.22%), drooling (11.11%) and pricking sensation (4.45%). These results are consistent with the results of the Zeba-Ahmed et al [5] and other studies. In children, history of foreign body ingestion may go unnoticed. Conner reported 7% and 20% of children were asymptomatic [18-19]. In our study history was given by parents who had seen the child with an object in mouth.

In our study, we found that cricopharynx and upper esophagus were the most common sites of foreign body impaction, accounting for 97.8% of cases. This finding is consistent with the results reported by Zeba Ahmed et al [5]. Similarly, Roura et al. observed that 99% of ingested foreign bodies in their study of 242 patients were lodged in the upper gastrointestinal tract. Among these, 39 patients had foreign bodies in the pharynx, 181 in the esophagus, 19 in the stomach, and 3 in the small intestine. These findings collectively support the notion that foreign bodies predominantly tend to impact in the upper gastrointestinal tract, with cricopharynx and upper esophagus being the most frequently affected regions.

Our research revealed that coins were the most common foreign bodies amongst children (90%), while mutton pieces were most commonly encountered in the elderly population (40%). This Finding is attributed to the potential difficulty in detecting bones within the bolus due to the presence of artificial dentures, leading to inadvertent ingestion in elderly individuals. Remarkably, our findings corroborate the outcomes observed in other studies, reinforcing the consistency of these trends across different research investigations. Thus, the higher occurrence of coins in children and mutton pieces

in older adults highlights the influence of age-related factors on the type of foreign bodies ingested in the upper gastrointestinal tract. In our study, one patient was associated with stricture esophagus. Pre-existing esophageal disease particularly strictures, predisposes to frequent impaction of foreign bodies.

Confirmation of a foreign body impaction in the neck and chest can usually be achieved through a plain radiograph if the object is radio-opaque, That is it appears clearly on the X-ray. However, for non-radiopaque foreign bodies, a widening of the prevertebral space seen in the neck lateral view can suggest the presence of a foreign body. Unfortunately, plain radiology does not significantly impact the management of non-opaque foreign bodies, except for potentially delaying the need for an endoscopy.

In such cases, more advanced imaging techniques or diagnostic procedures may be required to precisely locate and remove the foreign body. It is crucial for medical professionals to carefully assess the clinical presentation and history of the patient to determine the most appropriate course of management in dealing with non-radiopaque foreign bodies in the neck and chest. In our study all foreign bodies were removed with video gastroendoscope with special holding forceps.

Experienced flexible fibre optic -endoscopic removal with special holding forceps is recommended by Berggreen and Webb since rigid endoscopy carries a higher complication rate [20-21]. In the study four patient (8.88%) that is chemical injury due to button battery, pressure ulcer due to impacted coin in the cricopharynx inlet, lower esophageal ulcer due to impacted denture and ulcer at cricopharynx due to fish bone. In zebaetal [5]. In our Study, complications were noted in 3% of patients which included respiratory distress, laryngospasm at the time of extubation. Esophageal perforation was seen in one of patients as a complication

The longer the duration of foreign body impaction in the esophagus the more likely is perforation of the esophagus to occur.

Conclusion

Foreign body ingestion is seen in both children and adults, but most commonly in children. A plain radiograph of Neck and Chest both in AP

and LATERAL view confirms the diagnosis of foreign body ingestion. Video assisted gastroendoscopy is safe and effective in the foreign body removal.

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