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Management of Foreign body(FB) in upper Digestive Tract: a cross-sectional study in south Indian tertiary care hospital

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Abstract
Foreign body(FB) ingestion is an emergency scenario that is encountered in routine gastroenterology practice. Although children, especially toddlers are more vulnerable recent data surprisingly shows that it is prevalent in adults. The majority of them requires no intervention and passes spontaneously. Some of them do (15-20%) require endoscopy, and very rarely (1 %) surgical exploration. A considerable number of deaths are attributed yearly due to foreign body ingestion and its complications. Flexible endoscopy has in the last two decades have achieved immense success in the retrieval of such cases (95%). **Aim and Objective:** The study aimed to understand the clinical profile of foreign body ingestion in the upper aerodigestive tract. **Methodology:** This retrospective observational study included 130 patients who presented with and were referred to the department of gastroenterology at medical trust hospital, Kochi, Kerala, India. for the period April 2017 to May 2018 retrospectively. Demographic details such as age, gender, type of foreign body, type of procedure used, and the outcome of these procedures were analyzed. **Results:** Of 130 patients (78 males and 52 females) presenting with foreign body ingestion in the upper digestive tract and underwent endoscopy, endoscopic removal was highly successful (82%), while unyielding in the rest. Fish bone 48(44%) was the most common FB ingestion. followed by chicken bone(18%),and upper esophagus was the most common site of impaction **Conclusion:** The present study articulates the importance of the endoscopic approach in the removal of foreign bodies as endoscopic is simple and secure, with a success rate is a high and less morbidity or complications.

Key Words: Endo Scope, esophagus, Foreign bodies, gastrointestinal, SPSS

Introduction

Foreign body ingestion is an emergency scenario commonly encountered in gastroenterological clinics. It is relevant to note that children and mentally challenged patients are at high risk even though it is not uncommon in adults. Pre-existing oesophageal diseases like rings, strictures, eosinophilic esophagitis can aggravate the incidence in adults. Chronic FB perforations can cause infections in surrounding soft tissues of the throat and neck[1-2].

The signs and symptoms caused by FB ingestion depend on various factors. Some of such factors are the size and quantity of the object(s), the location of impaction, the interval between ingestion and presentation, and the mental status of the patient[2-5]. Evidence of infection, in cases of complications such as perforation, can be revealed by physical examination. In approximately 75 percent of pediatric cases, the foreign object becomes lodged in the upper esophageal sphincter while in adults, mostly it lodges in the lower esophageal sphincter. When foreign body ingestion affects the esophagus, the symptoms will be dysphagia, and pain in the throat or chest.Rarely it causes coughing, drooling etc[3-6]. In symptomatic cases, blunt or sharp foreign bodies must be removed within 6 hours while in asymptomatic cases the window period can be till 24hrs. Impaction of more than 3 days are associated

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with higher complications; hence more care is needed in such cases. The migratory foreign body should be managed as soon as possible to avoid fatal and serious complications. The purpose of this study is to understand the clinical profile of foreign body ingestion in the aerodigestive tract and accordingly update the epidemiology of foreign bodies.

Methods

This study is a quantitative observational descriptive study and is conducted to explore epidemiological features of patients and clinical profile with suspected foreign body sensation in their upper digestive tract. A total of 130 adults and paediatric patients with suspected foreign body ingestion in the aerodigestive tract and who were referred to the gastroenterology Department, Medical trust hospital, Kochi, Kerala, India during the period between April 2017 to May 2018 were included. Excluded from the study were patients who had foreign bodies lodged in respiratory passages, and people who had foreign body sensation only but turned out negative on evaluation.

All the participated patients have undergone an endoscopic procedure in the Medical trust hospital. The participated patients included 78 males and 52 females. Out of a total of 130 patients, foreign bodies were detected in 110 patients during endoscopy. After getting the due permission from patients demographic profile like data, age, and gender, types of symptoms presented at the time of admission, clinical findings, types of foreign body, radiological findings, and management of cases and complications of foreign body impaction were collated. Clinical features of foreign bodies were analyzed, including type, sharpness of the object's, edges, number, and location. Participated patients underwent Esophagoduodenoscopy under local pharyngeal anesthesia or general anesthesia. An Olympus 190 evis exera scope was used for esophagogastroduodenoscopy(OGD). Endoscopic devices used for the removal of foreign bodies included biopsy forceps, rat-tooth forceps, and a net protective cap was used in suspected sharp objects (figure 1).

Endoscopic data that were analyzed included the site of impaction, mucosal changes, type of instrument used for retrieval, complication rate. Endoscopic ultrasound was done in selected cases as well. The personal identifiers of the patients (Patients 'names and addresses) were kept confidential and secure. Each patient was given a Unique ID number to make each entry anonymously. In this study, descriptive statistics were analyzed using SPSS 21.0. Descriptive analysis was done

Results

A total of 130 patients were admitted in our hospital with. The foreign body was detected in 110 patients during endoscopy. It included 78 males and 52 females, male: female ratio was 3:2. The demographic characteristics are shown in table-1. Age-wise distribution <5 years,23 patients, 5 -10 years,27 patients,10-20 years-21 patients, 20-50 years-31 patients,50-70 years-24 patients >70 years-4 patients respectively. The youngest subject was nine months whereas the oldest subject was 78years old (Table1).

Table 1. Age and gender-wise distribution of the study participants (N=130)

SN.	CHARACTERISTICS	VARIABLES	FREQUENCY (N)
1	Age	<5 years	23
		5-10 years	27
		11-20 years	21
		21-50 years	31
		51-70 years	24
		>70 years	4
2	Gender	Male	78
		Female	52

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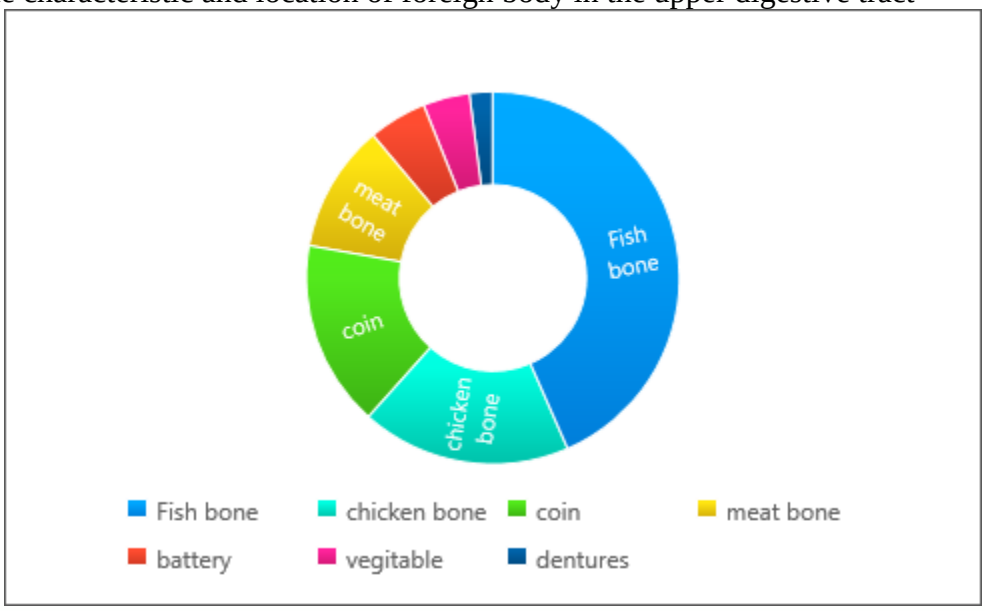
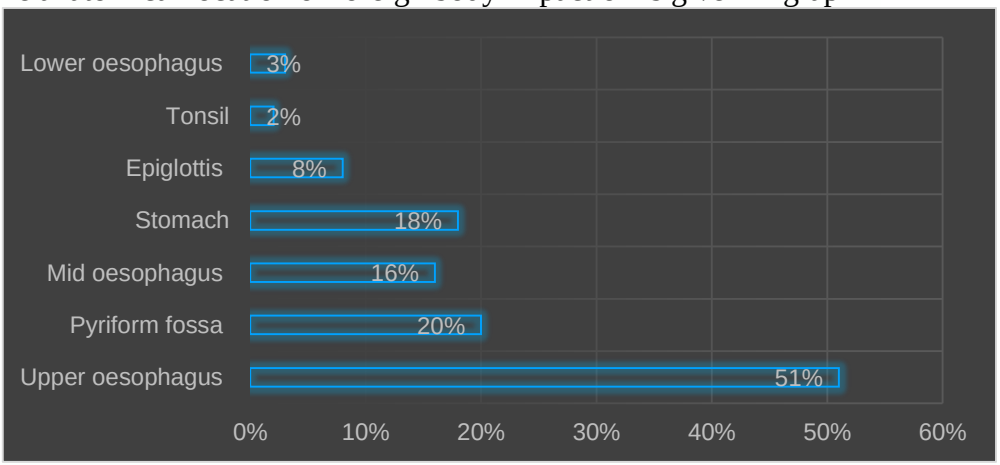
Total			130

Figure.1 The characteristic and location of foreign body in the upper digestive tract



Fish bone 48(44%) was the most common foreign body seen impacted followed by chicken bone 20 (18%), coin 18(16%), meat bone12(11%), battery 6(5%), vegetable 4(4%), dentures 2 (2%) respectively

Figure 2. The anatomical location of foreign body impaction is given in graph 2



The majority of the patients had a foreign body found in the upper esophagus 47 (51%). Pyriform fossa 18(20%), mid oesophagus 15(16%), stomach 17(18%), epiglottis 8 (8%), tonsil 2(2%) and lower oesophagus 3(3%) respectively.

Table 2. Type of devices used and complication (N=110).

SN	TYPE OF ENDOSCOPIC MANAGEMENT	N
1	biopsy forceps	60(54.5%)
2	Foreign body forceps	24(21.8%)
3	basket	6(5.5%)
4	push into the stomach	20(18%)
	COMPLICATION	
1	Erosions	50(45.5%)
2	Ulcer	15 (13.6%)

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3	Hematemesis	02(1.8%)
4	Abscess	01 (0.9%)
Total		**110**

The preferred accessory devices for extraction varied according to the type and location of the foreign bodies. For retrieval, frequently used devices were biopsy forceps 54.5%, Foreign body forceps 21.8%, basket 5.5% and a push into the stomach 18% was performed, respectively. The endoscopic distal cap (ESD cap) was helpful in the evaluation of post cricoidal area.

Among the 110 patients who underwent endoscopic removal of foreign bodies, minor mucosal injuries such as abrasions or small erosions were noted in 50 cases (46%). Significant complications related to foreign body impaction and removal seen in patients some, for example deep lacerations or ulcer (14%), hematemesis 2% and abscess in 1% ,respectively.

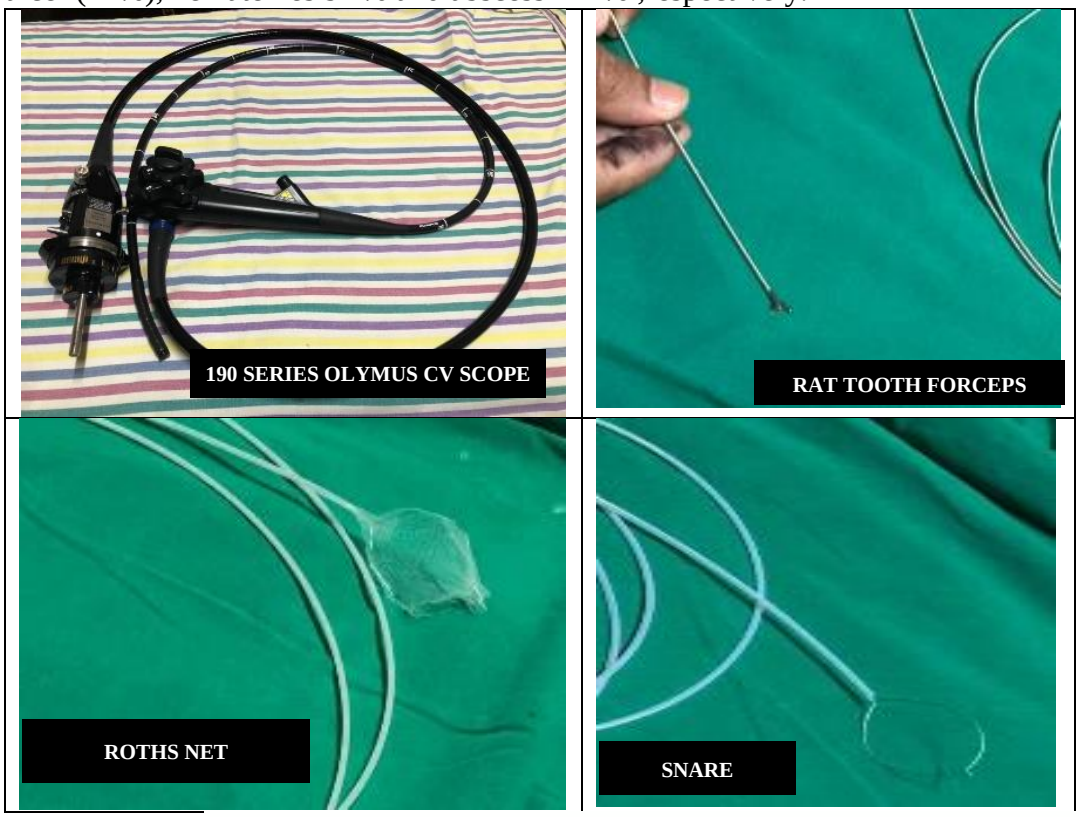

Figure 3: Endoscopic devices used for the removal of foreign bodies

Discussion

Foreign body ingestion is a commonly encountered problem in the Emergency Department. According to reports, 80%-90% of ingested foreign bodies pass spontaneously and the complication rate is generally low [4]. Studies have shown that foreign body ingestion is commonly seen in children and males, the present study also reveals the same. In most cases, a foreign body presented in the upper esophagus (47%) and it was removed with biopsy forceps (60%). A recent study has demonstrated that the rate of endoscopic intervention may be much higher (63%-76%) than expected and long delays from ingestion to presentation and intervention may account for the relatively high rates of surgery and perforation in patients with intentional ingestion [5]. This present study showed 84.6 % of the participants presented with impaction of foreign body in upper aerodigestive tract and all of them underwent endoscopic management. 60% of the case subjects were males and 37% of the foreign bodies were fishbone.

Foreign bodies differ according to the geographical location as well. In South India, Seafood and chicken are the main constituents of meals, especially in Kerala. Pulling with rat tooth forceps was

an effective method to bring out the chicken and fish bones. Ingested dental prostheses can be dealt with snares. After fragmentation small or large bolus of foods were pushed gently to the stomach or small intestine with gentle pressure at the center of the bolus with an endoscope. The present study shows that the complications associated with foreign bodies were minor abrasions or erosions 50%. which was similar to a study done by Sung et al[10]. Our study is in concordance with the data collected by Peter Ambe et al[9], who postulated that incidence of foreign body ingestion was maximum in children aged between 6 months and 6years. Sung et al[10] has done a study on esophageal pathologies which predispose to the occurrence of oesophageal foreign bodies viz-esophagus strictures 36%, malignancy 10%, esophageal rings 6%, Achalasia 2% causes for impaction. There have been also few studies conducted in India regarding this. A M Shivakumar et al[2] postulated that most blunt foreign bodies in children (83.5%) were impacted in post cricoid region. While adults were (37.5%) seen in the upper esophagus. in our study, (47%).

In practice, the need for and timing of an endoscopic intervention depends on various factors, including the patient's age, clinical condition, foreign body size, shape, content, anatomical location, and duration time since ingestion. In our study majority of the patients underwent endoscopic management with biopsy forceps n=60. Park et al[8] has done a study on the topic Review of 209 cases of foreign bodies in the upper gastrointestinal tract and clinical factors for successful endoscopic removal, which reported that there was no correlation of impaction time (> 24 h) with risk of complication, and sharp-pointed objects, greater length of foreign bodies, and the presence of symptoms were significant risk factors for complications. However, our study clearly shows that showed that impaction duration and sharpness of foreign bodies were the two important risk factors for the development of major complications.

Conclusion

Endoscopy is the easiest safest, cost-effective, and least invasive method for foreign body removal. Our study emphasizes and reinforces the importance of the endoscopic approach in the removal of foreign body impaction in the aerodigestive tract. Although safe when performed by experienced hands. Rarely there can be iatrogenic complications. However, it is always imperative that foraging bodies are removed at the earliest since it can have catastrophic consequences and fatal complications. Higher success rates, lower complication incidence, reduced surgery needs, and hospitalization time are the benefits of endoscopic management.

Conflict of interest: NIL

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