

Endoscopic management of foreign bodies from the upper gastrointestinal tract in the hills of Himachal Pradesh, India: A 5-year tertiary care experience

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Abstract

Background and Aim: Foreign body (FB) ingestion is a common clinical problem in medical practice. Endoscopy is the therapeutic method of choice for the management of FBs with minimal complications. The aim of this study is to report our experience and outcome in a 5-year period in dealing with FBs in the upper gastrointestinal tract (GIT) using upper endoscopy. **Materials and Methods:** The records of all the patients who presented to the Department of Gastroenterology and who underwent endoscopic management between January, 2010, and December, 2014, were reviewed with details on age, sex, type of FBs and its anatomical location, treatments, and outcomes. **Results:** A total of 59 patients were analyzed. Their age ranged from 2 years to 87 years. A male predominance was noticed (59.4%). Coins and chicken bone shared the most commonly encountered FBs. Esophagus was the most common site of trapping (49/59). Upper endoscopy successfully resolved the problem by FB removal in all patients, thus the overall success rate was 100%. No complications or mortalities due to FB ingestion or removal were observed throughout the study. **Conclusion:** In our experience, endoscopic management of FBs in upper GIT is a safe and highly effective procedure.

Key words

Endoscopy, foreign body, Himalayan state

Introduction

Foreign body (FB) ingestion is a common medical emergency in both children and adults. Children constitute predominant population and constitute 80% of the total ingestions. Most FB ingestions in children are true FBs (nonfood objects) such

as coins, marbles, buttons, safety pins, toys, magnets, and batteries. For the remaining 20% of ingestions that occur in adults, most are related to eating, leading to either bone or meat bolus impaction.^[1] On the other hand, intentional or accidental true FB ingestion in adults occurs more commonly in individuals with psychiatric disorders, developmental delay, alcohol intoxication or drug abusers, and those seeking secondary gain.^[2] Edentulous adults are also at a greater risk of ingesting FBs, including an obstructing food bolus or their dental prosthesis.^[3] The majority (80%–90%) of the ingested

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FBs negotiate esophagus and pass into stomach. They then traverse the entire gastrointestinal tract (GIT) and are expelled uneventfully spontaneously. Approximately, 10%–20% of the objects lodge in esophagus and require endoscopic procedure, whereas 1% or less require surgical procedures.^[4-8] Fortunately, mortality as a result of FBs' ingestion is extremely rare. The symptoms, signs, and complications produced depend on the nature, size, location, and duration of the FB ingestion in the GIT.^[9] FBs' ingestion and food bolus impaction are also a common problem in Himachal Pradesh, but an endoscopic setup is not always readily available in many hospitals of the state. A PubMed medical literature search with keywords "endoscopic management of foreign bodies in Himachal Pradesh, India," did not yield a single result. The aim of the current study was to report our clinical experiences in the endoscopic management of patients reporting a tertiary care center in the Himalayan state of North India.

Materials and Methods

In this hospital record-based retrospective descriptive study, we evaluated FB ingestion cases admitted to the hospital in the Department of Gastroenterology from January 2010 to December 2014. Data were collected from the department of the tertiary care hospital which caters to the hilly population of the physiogeographic zone of northwestern Himalayas of the state of Himachal Pradesh, India. Recorded information was entered in a precoded pro forma which included details on demography, clinical profile, treatment, and outcome. We evaluated the records of all FB ingestion cases where complete information was available as per the precoded pro forma parameters. The data collected were cross checked by two independent observers. The data were analyzed using SPSS computer software, version 15 (SPSS Inc., Chicago, IL, USA) and expressed as a number and a percentage for qualitative variables and as mean \pm standard deviation for quantitative variables. The study was approved by college Ethics Committee.

Results

A total of 59 patients were admitted with FB ingestion over a period of 5 years. The patients were in the age range of 2 years to 87 years. The mean age was 36.4 ± 25.5 years. Males constituted 59.4% of the patients. The age group distribution is shown in Table 1. The mean duration of presentation was 36.4 ± 25.5 h. Twenty-two patients presented within 24 h and were managed. Thirty-seven patients presented beyond 2 days. Five patients presented 12 days later which included one patient who presented after 35 days of denture ingestion. The majority of FBs found were coins and chicken bone; each making up 28.8% [Table 2]. The coins belonged to the denomination of 50 paisa to 10 rupees. The diameters of these coins varied from 22 mm to 27 mm. Dentures were the second most frequent (20.3%) and meat pieces were third (6.8%). Other FBs included orange pieces, fish bone, coconut piece, mango,

hair pin, nail, needle, and safety pin. [Figures 1 and 2a, b] The esophagus was the most common lodgment site of ingested FBs, making up 83.1% of the incidents [Table 3]. Other lodgment sites were the stomach, pyriform fossa, pylorus, and the duodenum. The majority of esophageal FBs were found in the upper esophagus (59.1%) followed by mid esophagus (26.8%). Each one of the 57 patients was symptomatic and dysphagia was reported by all. One patient had features of gastric outlet obstruction and another had upper gastrointestinal bleed. One patient had achalasia. In another patient, stricture due to malignancy was present in the lower end of the esophagus. None of the patients had eosinophilic esophagitis. Majority of the patients were treated in the emergency department and all the patients had dysphagia as the indication. The FBs such as meat piece, orange piece, coconut piece, mango, and nail were taken out within 1 week of ingestion. Dysphagia was the indication in the meat piece, coconut piece, and mango. Patients had features of gastric outlet obstruction in

Table 1: Age distribution of patients (n=59)

Age group (years)	n (%)		
	Male	Female	Total
0-20	10 (16.9)	10 (16.9)	20 (33.9)
21-40	8 (13.6)	6 (10.2)	14 (23.7)
41-60	10 (16.9)	6 (10.2)	16 (27.1)
61-80	4 (6.8)	2 (3.4)	6 (10.2)
>81	3 (5.1)	-	3 (5.1)
Total	35 (59.4)	24 (40.6)	59 (100)

n=Number of patients

Table 2: Frequency of different types of foreign bodies ingested

Name of foreign body	n (%)
Coins	17 (28.8)
Chicken bone	17 (28.8)
Dentures	12 (20.3)
Meat piece	4 (6.8)
Orange piece	2 (3.4)
Fish bone	1 (1.7)
Coconut piece	1 (1.7)
Mango	1 (1.7)
Hairpin	1 (1.7)
Nail	1 (1.7)
Needle	1 (1.7)
Safety pin	1 (1.7)
Total	59 (100)

Table 3: Frequency of different sites of foreign body lodgment

Site	n (%)
Esophagus	49 (83.1)
Upper	30
Middle	12 (20.3)
Lower	7
Stomach	7 (11.9)
Pyriform fossa	1 (1.7)
Pylorus	1 (1.7)
Duodenum	1 (1.7)
Total	59 (100)



Figure 1: Various foreign bodies removed from the upper gastrointestinal tract by endoscopy

orange ingestion and upper gastrointestinal bleeding in nail ingestion. Detailed history from all the patients did not reveal any psychiatric illness among them. All the patients in whom coins were found as FBs had dysphagia. X-rays were not used in determining the location of FB in majority of the patients. Upper gastrointestinal endoscopy had 100% overall success rate of retrieving the FBs in this study. No complication was encountered.

Discussion

FB ingestion and subsequent impaction are encountered commonly in clinical practice. Endoscopic removal has become the standard procedure for removal of FB lodgment in upper GIT.^[10] The majority of FB ingestions occur in the pediatric population. Children constituted one-third of our patients. True FB ingestion mainly with coins occurred in pediatric population as reported in other studies also.^[1,9,11-14] Incidents of coin ingestion were restricted to children only. One child had ingested a maximum of three coins and all were retrieved from stomach. The curiosity of children in dealing with coins is well known, and this explains why coins are the predominant FBs in pediatric age group. Dentures and food objects were the common type of FBs in adults and elderly. All our patients were symptomatic with dysphagia. Patients with esophageal FBs are almost always symptomatic with features of dysphagia, odynophagia, retrosternal pain, sore throat, FB sensation, retching, and vomiting. Other symptoms include choking, stridor, dyspnea, and hypersalivation.^[15] The most common anatomical site of FBs was the upper esophagus which is the narrowest area in esophagus. Similar observations have been made in other studies.^[2,9,11,13,16] Our experience in this study was a 100% success rate which is higher in comparison to other studies.^[2,9] We did not encounter any failure while retrieving the FBs. No complication was encountered during or after endoscopic removal. It is attributed to the kind of FBs which we encountered and were easily manipulated by endoscopic maneuvers. Flexible endoscopy is the best diagnostic and

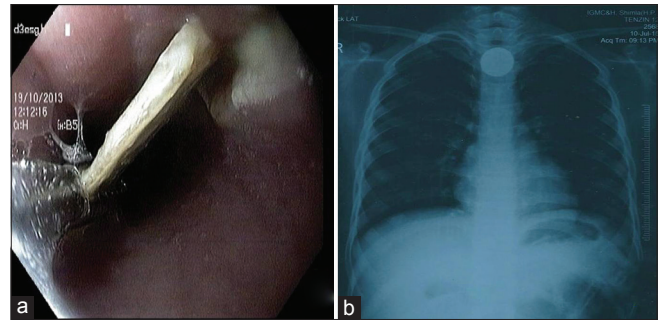


Figure 2: (a) Endoscopic view of a coin lodged in the upper esophagus. (b) Chest X-ray showing a coin in the upper esophagus

therapeutic approach in the management of FBs and food bolus impaction in the upper GIT, with success rates >95% and complication rates of 0%–5%.^[15] The complications mostly minor in the form of bleeding or mucosal erosion, tears, perforation, and abscess have been reported in some studies.^[9,11,16] The mean duration of time to endoscope patients in this study was 36.4 ± 25.5 h which is longer as compared to 335.5 ± 526 min found in another study.^[2] Twenty-two patients presented within 24 h and were managed. The FBs such as meat piece, orange piece, coconut piece, mango, and nail were taken out within 1 week of ingestion. Esophageal foreign objects and food bolus impacted in the esophagus should be removed within 24 h because delay decreases the likelihood of successful removal and increases the risk of complications.^[15,17] The risk for major complications (i.e., perforation with or without mediastinitis, retropharyngeal abscess, and aorto-esophageal fistula) increases 14.1 times with FBs impacted for more than 24 h in the esophagus.^[15] The delay in endoscopic interventions in our study was due to the fact that patients attended pediatrics, otorhinolaryngology, cardiothoracic surgery, and general surgery departments initially. Associated esophageal pathology was observed in only two patients, i.e., one each with achalasia and malignant stricture. Underlying esophageal pathology is found in more than 75% of the patients presenting with food bolus impaction. The most frequently associated abnormalities were esophageal (mainly peptic) strictures (more than 50%) and eosinophilic esophagitis (about 40%). Less frequently, esophageal cancer or esophageal motility disorders, such as achalasia, diffuse esophageal spasm, and nutcracker esophagus, are the causes of food bolus impaction.^[15] X-ray is not sufficient and not required in patients with nonbony food bolus impaction and without clinical signs of perforation. Most true FBs can be identified radiographically; however, thin metal objects, wood, plastic, glass, and fish or chicken bones are not readily seen. Imaging is also recommended in complications such as aspiration, perforation-free mediastinal/peritoneal air, or subcutaneous emphysema.^[15,17] Although our study lacks novelty and many studies on endoscopic management of FBs are well reported in literature, to the best of our knowledge, this is the first study from the hill state of Himachal Pradesh, India. The state has limited resources in terms of availability of well-equipped endoscopy centers. This tertiary care center caters to the majority of the population of the state and being

capable of dealing with such emergencies. Only 59 patients with FB ingestion reported to the hospital and have been included in the 5-year study. The number of patients reflects the picture of epidemiology regarding the hospital-based prevalence of FB ingestion in this region. Further, in this study, we experienced a 100% success rate in the retrieval of FBs without having a single complication.

Conclusion

It is recommended that all those patients with a history of FB ingestion and reporting initially to the departments of pediatrics, otorhinolaryngology, cardiothoracic surgery, and general surgery should be evaluated for possible endoscopic management.

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Conflicts of interest

There are no conflicts of interest.

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