



Endoscopic Management of Foreign Bodies in the Upper Gastrointestinal Tract: Experience from District Level Hospital of Bangladesh

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Abstract

Background: Ingestion of Foreign body and impaction of food bolus are common emergency scenario. This scenario often needs endoscopic support or removal. Majority of foreign bodies can pass spontaneously, few of them like 10-15% may require endoscopic intervention. In this type of problem most widely recommended therapeutic measure is flexible endoscopy because it has minimal complications. The aim of this study is to report our clinical experiences in the endoscopic management of foreign bodies in the upper gastrointestinal tract in both children and adults. **Material & Methods:** We have reviewed cases of foreign body ingestion admitted in emergency of Kushtia Medical College hospital from October 2020 to October 2022. Apart from demographic data like age, sex data like type of FB, its location in gastrointestinal tract, treatment and outcome were also evaluated. **Results:** The study included a total of 56 participants. The majority of the participants (48.2%) were children within the age group of 0-16 years. Only a small proportion (8.9%) belonged to the age group of 17-40 years. The most common foreign body ingested is food particles, with a frequency of 26 (46.4%) of all cases. There were 40 (71.4%) cases where the foreign body was lodged in the esophagus. In 24 cases (42.9%), the foreign body was lodged in the upper part of the body. **Conclusions:** Considering the excellent treatment outcome, flexible endoscopy can be used as definitive treatment option for FB removal in district level hospital because it has excellent safety profile.

Keywords:- Foreign body, Endoscopic management, Esophageal stricture, Food bolus impaction, True foreign body.

INTRODUCTION

Ingestion of Foreign body and impaction of food bolus is common emergency scenario.^[1] This scenario often needs endoscopic support or removal.^[2] Majority of foreign bodies can pass spontaneously, few of them like 10-15% may require endoscopic intervention. In this type of

problem most widely recommended therapeutic measure is flexible endoscopy because it has minimal complications.^[3,4] Ingestion of foreign bodies and impaction of food bolus represent common emergency scenarios encountered in clinical practice, particularly within the realm of

gastroenterology.^[5] The ingestion of foreign bodies and the impaction of food bolus can occur across all age groups and demographics, presenting challenges that necessitate prompt evaluation and management.^[6] While the majority of ingested foreign bodies and food bolus impactions may pass spontaneously through the gastrointestinal tract, a subset of cases, estimated to be around 10-15%, may require endoscopic intervention to mitigate potential complications and ensure optimal patient outcomes.^[7] The upper gastrointestinal tract serves as a frequent site for the impaction of foreign bodies and food boluses, encompassing structures such as the esophagus, stomach, and duodenum.^[8,9] Foreign bodies may range from relatively benign objects such as coins, food boluses, and small bones to more hazardous items such as sharp objects, batteries, and magnets.^[10] The diversity in ingested foreign bodies underscores the complexity of management and the need for tailored approaches to ensure successful retrieval and prevent associated complications.^[11] Flexible endoscopy has emerged as the cornerstone of therapeutic intervention in cases of foreign body ingestion and food bolus impaction due to its minimally invasive nature and high success rates.^[12] The versatility of flexible endoscopy allows for direct visualization of the upper gastrointestinal tract, precise localization of the foreign body or food bolus, and implementation of therapeutic maneuvers aimed at safe and efficient removal.^[13] Moreover, flexible endoscopy offers the advantage of real-time assessment of mucosal integrity, enabling early detection and management of associated injuries or complications.^[14] The significance of prompt intervention in cases of foreign body ingestion and food bolus impaction cannot be

overstated, as delays in management may lead to adverse outcomes such as mucosal injury, perforation, obstruction, and secondary infections. Therefore, healthcare providers must maintain a high index of suspicion for these conditions and adopt a systematic approach to evaluation and treatment.^[15,16] Beyond the immediate clinical implications, the management of ingested foreign bodies and food bolus impactions carries substantial economic and healthcare burdens. In recent years, advancements in endoscopic technology and procedural techniques have enhanced the safety and efficacy of interventions for foreign body retrieval and food bolus disimpaction.^[17] Innovations such as the development of specialized retrieval devices, flexible endoscopes with improved imaging capabilities, and ancillary tools for mucosal protection have revolutionized the field of therapeutic endoscopy, enabling clinicians to address a diverse array of clinical scenarios with precision and confidence.^[18]

Objective

The objective of this study is to evaluate the efficacy and safety of endoscopic management techniques for foreign bodies in the upper gastrointestinal tract.

MATERIAL AND METHODS

We have reviewed cases of foreign body ingestion admitted in emergency of Kushtia Medical College hospital from October 2020 to October 2022. Apart from demographic data like age, sex data like type of FB, its location in gastrointestinal tract, treatment and outcome were also evaluated. Endoscopy provides the most accurate diagnostic method in suspected

FB ingestion and food bolus impaction. Esophageal FB and food impactions require urgent or emergent endoscopic intervention.

Inclusion Criteria

- Patients of all age groups, those who presents within 72 hours of FB ingestion.

Exclusion Criteria

- People present with multiple foreign bodies ingestion, those presented with FB with substance abuse excluded from study.

In the oesophagus, a foreign body was observed located at the fundus of the stomach during the endoscopic examination. This indicates the presence of an ingested foreign object that has traversed through the oesophagus and lodged within the upper portion of the stomach. Identification of the foreign body's precise location is crucial for planning and executing the endoscopic retrieval procedure effectively.

Data collection: Findings of observation and interview with the patient and attendants were recorded on prescribed data collection sheet that was fulfilled by the investigator.

Ethical consideration: Prior to commencement of the study, the respective authority was approved the research protocol. All the patients included in this study were informed about the nature, risks and benefits of the study. Confidentiality was maintained. Proper permission was taken from the department and institution concerned for the study.

Statistical analysis of data: After collection of data, all data were compiled in a master table first. Data was processed and analyzed using SPSS (22) for windows software. Qualitative data presented on categorical scale was expressed as frequency and corresponding percentage. Quantitative data was presented as mean and standard deviation (SD).

RESULTS

[Table 1] presents the distribution of the study patients by age group. The study included a total of 56 participants. The majority of the participants (48.2%) were children within the age group of 0-16 years. Only a small proportion (8.9%) belonged to the age group of 17-40 years, consisting of 5 individuals. The age group of 41-



Figure 1: Video endoscopy of upper GIT.



60 years had 9 participants, accounting for 16.1% of the total. The next age group 61-80 years, included 11 participants, representing 19.6% of the sample. Lastly, there were 4 individuals (7.1%) who were older than 80 years.

Based on [Table 2] we can observe the frequency and percentage of different types of foreign bodies ingested by individuals. The most common foreign body ingested is food particles, with a frequency of 26 (46.4%) of all cases. Dentures are the second most common, with a frequency of 12 (21.4%) cases. Next, we have all pins, coins, toys, and jewelry, each with a frequency of 4, representing 7.1% of cases each. Batteries have the lowest frequency with only 2 (3.6%) of all cases.

Based on [Table 3], There were 40 (71.4%) cases where the foreign body was lodged in the esophagus. In 24 cases (42.9%), the foreign body was lodged in the upper part of the body. There were 14 cases (25.0%) where the foreign body was lodged in the middle part of the body. Only 2 cases (3.6%) reported the foreign body being lodged in the lower part of the body. In 8 cases (14.3%), the foreign body was lodged in the stomach. Six cases (10.7%) reported the foreign body being lodged in the pyriform fossa. Lastly, there were 2 cases (3.6%) where the foreign body was lodged in the duodenum. These statistics provide insights into the distribution of foreign body lodgement in different parts of the body.

Table 1: Distribution of our study patients by age group (N = 56).

| Age groups (years) | N | % |
|--------------------|----|------|
| 0-16 | 27 | 48.2 |
| 17-40 | 5 | 8.9 |
| 41-60 | 9 | 16.1 |
| 61-80 | 11 | 19.6 |
| >80 | 4 | 7.1 |
| Total | 56 | 100 |

Table 2: Frequency of different types of foreign bodies ingested (N = 56).

| Name of foreign body | N | % |
|----------------------|----|-------|
| Food particles | 26 | 46.4 |
| Dentures | 12 | 21.4 |
| All pin | 4 | 7.1 |
| Coins | 4 | 7.1 |
| Toys | 4 | 7.1 |
| Jewellery | 4 | 7.1 |
| Battery | 2 | 3.6 |
| Total | 56 | 100.0 |

Table 3: Frequency of different sites of foreign body lodgement (N = 56).

| Sites of lodgement | N | % |
|--------------------|----|------|
| Esophagus | 40 | 71.4 |
| Upper | 24 | 42.9 |
| Middle | 14 | 25.0 |
| Lower | 2 | 3.6 |
| Stomach | 8 | 14.3 |
| Pyriform fossa | 6 | 10.7 |
| Duodenum | 2 | 3.6 |

DISCUSSION

The discussion surrounding the endoscopic management of foreign bodies in the upper gastrointestinal tract encompasses a multifaceted examination of clinical outcomes, procedural considerations, complications, and future directions in patient care. In this comprehensive discourse, we delve into key themes arising from our analysis, highlighting insights gleaned from our clinical experiences and contextualizing them within the broader landscape of gastroenterological practice. Central to our discussion is the evaluation of endoscopic efficacy in retrieving foreign bodies across diverse patient populations. Our findings underscore the pivotal role of endoscopic interventions in achieving successful foreign body removal, with a notable emphasis on the versatility and precision afforded by modern endoscopic techniques. Through meticulous endoscopic examination and targeted retrieval maneuvers, our clinical experiences demonstrate favorable outcomes in the majority of cases, encompassing both pediatric and adult cohorts.

Firstly, corroborating evidence from previous studies underscores the efficacy and safety of endoscopic interventions for foreign body retrieval across diverse patient populations.

Studies by Birk et al,^[4] and ASGE Standards of Practice Committee,^[5] emphasize the importance of endoscopic techniques in achieving successful foreign body removal while mitigating the risk of complications. By aligning our findings with established evidence, we reaffirm the pivotal role of endoscopy as the cornerstone of therapeutic intervention in gastrointestinal foreign body management. Moreover, insights from international guidelines and consensus statements offer valuable insights into best practices and procedural considerations in foreign body retrieval. The European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline by Birk et al,^[4] provides evidence-based recommendations for the management of ingested foreign bodies, including the selection of appropriate endoscopic instruments and procedural techniques. By adhering to established guidelines and consensus statements, clinicians can optimize procedural outcomes and ensure standardized care delivery across diverse healthcare settings.^[19,20]

Furthermore, comparative analyses of endoscopic techniques and adjunctive technologies offer insights into emerging trends and innovations in foreign body management.^[21] Sugawa et al,^[1] conducted a



comprehensive review of endoscopic management techniques, highlighting the efficacy of specialized retrieval devices and ancillary tools in facilitating safe and efficient foreign body removal. By integrating insights from innovative endoscopic approaches, clinicians can enhance procedural efficiency and expand the therapeutic armamentarium for foreign body retrieval. Beyond procedural considerations, the discussion extends to broader themes of patient-centered care, interdisciplinary collaboration, and healthcare resource utilization. Chiu et al,^[7] emphasized the importance of patient education and shared decision-making in empowering individuals to actively participate in their care journey and mitigate the risk of foreign body ingestions. Additionally, Webb et al,^[8] underscored the synergistic contributions of multidisciplinary teams in optimizing patient outcomes and fostering a culture of excellence in gastrointestinal care delivery. By embracing a holistic approach to patient care and leveraging interdisciplinary expertise, healthcare institutions can enhance patient satisfaction, minimize healthcare costs, and optimize clinical outcomes in foreign body management.^[6,22]

Moreover, our discussion extends beyond procedural outcomes to encompass broader considerations shaping the landscape of gastrointestinal care delivery. We explore the pivotal role of interdisciplinary collaboration in optimizing patient outcomes, emphasizing the synergistic contributions of gastroenterologists, endoscopists, radiologists, and surgical colleagues in facilitating comprehensive patient care. By fostering a culture of collaboration and knowledge exchange, our institution endeavors to harness collective expertise to address the

multifaceted challenges inherent in gastrointestinal foreign body management. Our analysis elucidates the nuanced considerations guiding endoscopic decision-making, particularly in cases characterized by anatomical complexity, foreign body composition, and patient-specific factors. The selection of appropriate endoscopic instruments and retrieval devices emerges as a critical determinant of procedural success, necessitating a tailored approach informed by clinical judgment and procedural expertise. By delineating optimal strategies for foreign body retrieval, our study aims to inform clinical practice and enhance procedural proficiency among gastroenterological practitioners.

Limitations & Recommendations

Our study is based on data from a single institution, which may limit the generalizability of our findings to other healthcare settings with different patient populations, resources, and procedural practices. The retrospective nature of our study introduces inherent limitations, including potential biases in data collection, incomplete documentation of clinical variables, and reliance on existing medical records. Limited follow-up data may restrict our ability to assess long-term outcomes, including the incidence of delayed complications, recurrence of foreign body ingestions, and patient satisfaction with the endoscopic procedure. Future research endeavors should prioritize prospective, multicenter studies to elucidate the epidemiology, clinical outcomes, and procedural practices surrounding foreign body management in the upper gastrointestinal tract. Collaborative research efforts can facilitate data sharing, enhance statistical power, and generate more robust evidence to inform clinical practice.



Development of risk stratification models based on patient characteristics, foreign body attributes, and procedural factors can inform clinical decision-making, guide resource allocation, and optimize patient triage in foreign body management.

CONCLUSIONS

Considering the excellent treatment outcome, flexible endoscopy can be used as a definitive

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