



## Profile and Outcomes of Endoscopic Foreign Body Retrieval from the Upper Gastrointestinal Tract: A Retrospective Analysis from a South Indian Tertiary Care Centre.

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### Abstract

**Background:** Foreign body (FB) ingestion is a common gastrointestinal emergency encountered across all age groups. While flexible endoscopy is the preferred therapeutic modality, regional variations in the spectrum of ingested objects, anatomical lodgement sites, and procedural outcomes necessitate institution-specific data. Limited data exist from South Indian tertiary care centres regarding the profile and outcomes of endoscopic FB retrieval from the upper gastrointestinal tract (GIT). **Materials and methods:** This hospital-based retrospective observational study analysed records of all patients who underwent upper gastrointestinal endoscopy (UGIE) for suspected or confirmed FB ingestion or food bolus impaction at the Department of Medical Gastroenterology, JSS Medical College and Hospital, Mysuru, between January 2023 and December 2025. Demographic details, clinical presentation, type and site of FB, endoscopic technique, procedural outcomes, and complications were recorded and analysed using descriptive and inferential statistics. **Result:** A total of 100 patients were included. The mean age was  $38.54 \pm 23.18$  years with male predominance (62.0%). Coins were the most frequently encountered FB (34.0%), followed by food bolus (15.0%) and magnets (14.0%). The esophagus was the most common site of lodgement (81.0%), with the upper esophagus being the most frequent sub-site (35.8%). Rat-tooth forceps (28.0%) and loop baskets (22.0%) were the most commonly used retrieval devices. The overall endoscopic success rate was 100%, with all foreign bodies successfully retrieved or managed by flexible endoscopy. Complications occurred in 5.0% of patients, all of which were minor mucosal injuries. Delayed presentation beyond 24 hours was significantly associated with higher complication rates ( $p = 0.018$ ). No mortality was recorded. **Conclusion:** Flexible endoscopy is a safe and highly effective modality for upper GI FB retrieval at a South Indian tertiary care centre, achieving a success rate of 100%. Coins are the most commonly ingested FB in this region, reflecting a substantial paediatric component. Timely intervention within 24 hours is associated with fewer complications, underscoring the need for streamlined referral pathways.

**Keywords:** Foreign body ingestion; Upper gastrointestinal endoscopy; Coin ingestion; Esophageal foreign body; Tertiary care; South India.



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### INTRODUCTION

Foreign body (FB) ingestion is a frequently encountered gastrointestinal emergency in clinical practice, affecting individuals across all age groups. It is estimated that approximately 1500 deaths occur annually in the United States alone due to complications arising from ingested foreign bodies in the upper gastrointestinal (GI) tract [1]. Children constitute the predominant affected population, accounting for nearly 80% of all FB ingestion cases, with coins, toys, magnets, and button batteries being the most commonly ingested objects [2, 3]. In contrast, among adults, the majority of foreign body ingestions are food-related, typically resulting in bone or meat bolus impaction, and are frequently associated with underlying structural esophageal abnormalities such as strictures, Schatzki rings, or eosinophilic esophagitis [1, 4]. The pathophysiology of FB-related complications is governed by the nature, size, and anatomical location of the ingested object, as well as the duration of retention within the GI tract. The majority of ingested FBs, approximately 80–90%, traverse the

entire gastrointestinal tract and are expelled spontaneously without intervention [5, 6]. However, 10–20% of cases require endoscopic intervention, while less than 1% necessitate surgical management [5–8]. Impaction tends to occur at areas of physiological narrowing, including the cricopharyngeus muscle, aortic arch level, and the gastroesophageal junction [1]. The esophagus remains the most frequent site of FB lodgement, and esophageal FBs carry the highest complication rates, with the risk being directly proportional to the dwell time of the object within the esophageal lumen [1, 4].

Flexible endoscopy has emerged as the gold standard for both diagnosis and therapeutic management of upper GI FBs, with reported success rates exceeding 95% and complication rates ranging from 0–5% [1, 6, 9]. International guidelines, including those from the European Society of Gastrointestinal Endoscopy (ESGE) and the American Society for Gastrointestinal Endoscopy (ASGE), emphasize the importance of timely intervention, recommending removal within 24 hours for esophageal FBs and emergent intervention within 2–6 hours for sharp objects, button batteries causing esophageal impaction, and cases with complete esophageal obstruction [9, 10]. The choice of retrieval device, whether grasping forceps, polypectomy snares, retrieval nets, Dormia baskets, or overtubes, depends on the nature, shape, and location of the ingested object, and appropriate device selection is critical for achieving optimal outcomes [1, 9]. The spectrum of ingested FBs demonstrates considerable regional variation, influenced by dietary habits, cultural practices, age distribution of the population, and the prevalence of psychiatric comorbidities. Indian studies from northern regions have reported distinct patterns: Sharma et al. from Himachal Pradesh found coins and chicken bones to be equally prevalent at 28.8% each in their series of 59 patients, with a 100% endoscopic success rate [3]. Chandial et al. from Jammu reported bone fragments as the most common FB (29%) in their cohort of 31 patients, with a success rate exceeding 90% [4]. However, a significant lacuna exists in the published literature regarding the profile and outcomes of endoscopic FB management from South Indian tertiary care centres.

The delay in presentation to a gastroenterology service equipped for endoscopic intervention remains a critical concern in the Indian healthcare setting, as patients frequently present initially to departments of paediatrics, otorhinolaryngology, or general surgery, resulting in prolonged time to definitive management [3]. The risk of major complications, including perforation with or without mediastinitis, retropharyngeal abscess formation, and aorto-esophageal fistula, increases substantially with FBs impacted for more than 24 hours in the esophagus [9, 10]. Given the absence of published data from South Indian centres and the need to understand regional patterns of FB ingestion to guide clinical practice and resource allocation, this study was undertaken to analyse the clinical profile, endoscopic techniques employed, and outcomes of upper GI FB retrieval over a three-year period at a tertiary care teaching hospital in Mysuru, South India.

### **Aims and objectives**

The present study was undertaken with the primary aim of describing the clinical profile, spectrum of foreign bodies, endoscopic techniques employed, and immediate outcomes including procedural success and complication rates of upper gastrointestinal foreign body retrieval at a South Indian tertiary care centre. The secondary objectives of this study were to determine the distribution of foreign bodies by age, sex, type, and anatomical site of lodgement; to document the timing of endoscopic intervention from the point of ingestion and assess adherence to recommended urgency categories; and to identify factors associated with peri-procedural complications including the role of delayed presentation.

## **MATERIALS AND METHODS**

### **Study Design and Setting**

This was a hospital-based retrospective observational descriptive study conducted at the Department of Medical Gastroenterology, JSS Medical College and Hospital, a tertiary care teaching institution affiliated with JSS Academy of Higher Education and Research, Mysuru, Karnataka, India. The study was approved by the Institutional Ethics Committee prior to commencement of data collection.

### **Study Duration and Population**

The study period encompassed January 2023 to December 2025 (three years). All patients of any age and either sex who underwent upper gastrointestinal endoscopy (UGIE) for suspected or confirmed foreign body ingestion or food bolus impaction during the defined study period were considered eligible for inclusion. Total enumeration of all eligible cases was employed as the sampling technique.

### **Inclusion Criteria**

Patients with a documented history or clinical and radiological suspicion of upper GI foreign body or food bolus impaction who underwent UGIE for diagnosis and/or retrieval, with the site of the FB located between the cricopharynx and the second part of the duodenum, were included. Only cases with complete records for key study variables were analysed.

### Exclusion Criteria

Patients with foreign bodies located exclusively beyond the second part of the duodenum, those with incomplete or missing key data in records, and cases where endoscopy was performed for other indications without evidence of a foreign body were excluded from the analysis.

### Data Collection

Data were collected from endoscopy unit registers, electronic medical records, and case files using a structured, pre-coded proforma. The variables recorded included demographic details (age, sex, and residence), clinical presentation (symptoms, comorbidities, and time interval from ingestion to presentation), radiological findings, endoscopic findings (anatomical site of impaction, type and nature of FB, underlying esophageal pathology), procedural details (type of endoscope used, sedation modality, retrieval device employed, and technique used), and outcomes (procedural success, complications, and duration of hospital stay). All data entries were independently verified by two observers to ensure accuracy.

### Endoscopic Procedure

All endoscopic procedures were performed by experienced gastroenterologists using standard flexible video endoscopes (diagnostic or therapeutic gastroscope, as deemed appropriate). The choice of sedation (conscious sedation with intravenous midazolam and/or propofol, or general anaesthesia with endotracheal intubation) was determined based on patient age, cooperation, and the anticipated complexity of the procedure. The retrieval device was selected based on the type, size, shape, and location of the foreign body. Devices employed included rat-tooth forceps, loop baskets, polypectomy snares, Roth retrieval nets, Dormia baskets, overtubes, and biopsy forceps. Loop baskets and Roth nets were preferentially used for coin retrieval, polypectomy snares for food bolus management, and Dormia baskets for coins and other small foreign bodies. An overtube was employed in cases involving sharp or pointed objects to protect the airway and esophageal mucosa during extraction. The push technique was used for food bolus impaction where safe passage into the stomach could be achieved after endoscopic assessment of the distal esophagus.

### Outcome Measures

The primary endpoint was the proportion of patients with successful endoscopic retrieval or management of the foreign body at the first UGIE attempt, along with the complication rate. Secondary endpoints included the distribution of FB types and lodgement sites, adherence to recommended time-to-endoscopy intervals, association of delayed presentation with complications, and identification of high-risk subgroups.

### Statistical Analysis

Data were analysed using IBM SPSS Statistics for Windows, version 28.0 (IBM Corp., Armonk, NY, USA). Continuous variables were expressed as mean  $\pm$  standard deviation (SD), while categorical variables were expressed as frequencies and percentages. The chi-square test was used for comparison of categorical variables. The independent samples t-test was used for comparison of continuous variables between groups, with non-parametric alternatives employed in cases of non-normal distribution. A p-value of less than 0.05 was considered statistically significant.

## RESULTS

### Demographic Profile

A total of 100 patients who underwent upper GI endoscopy for foreign body retrieval during the three-year study period met the inclusion criteria and were included in the final analysis. The age of the patients ranged from 1.5 years to 89 years, with a mean age of  $38.54 \pm 23.18$  years. Males constituted 62.0% (n = 62) and females constituted 38.0% (n = 38) of the study population, yielding a male-to-female ratio of 1.63:1. The most commonly affected age group was 0–20 years (32.0%), followed by 41–60 years (24.0%) and 21–40 years (22.0%). The substantial paediatric component reflected the predominance of coin ingestion in this cohort. Urban residents accounted for 53.0% and rural residents for 47.0% of the patients. The age and sex distribution is presented in Table 1.

**Table 1: Age and sex distribution of patients (N = 100)**

| Age Group (years) | Male n (%)       | Female n (%)     | Total n (%)      | p-value |
|-------------------|------------------|------------------|------------------|---------|
| 0–20              | 18 (18.0)        | 14 (14.0)        | 32 (32.0)        | 0.782*  |
| 21–40             | 14 (14.0)        | 8 (8.0)          | 22 (22.0)        |         |
| 41–60             | 16 (16.0)        | 8 (8.0)          | 24 (24.0)        |         |
| 61–80             | 10 (10.0)        | 6 (6.0)          | 16 (16.0)        |         |
| >80               | 4 (4.0)          | 2 (2.0)          | 6 (6.0)          |         |
| <b>Total</b>      | <b>62 (62.0)</b> | <b>38 (38.0)</b> | <b>100 (100)</b> |         |

\*Chi-square test; p > 0.05 indicates no significant association between age group and sex

### Clinical Presentation

Dysphagia was the most common presenting symptom, reported by 87.0% (n = 87) of patients, followed by odynophagia in 32.0% (n = 32), drooling of saliva in 21.0% (n = 21), chest pain in 13.0% (n = 13), vomiting in 12.0% (n = 12), and respiratory distress in 5.0% (n = 5). Multiple symptoms were present in 41.0% of patients. Among the associated comorbidities, pre-existing esophageal disease (stricture, ring, or malignancy) was present in 10.0% (n = 10), edentulousness in 8.0% (n = 8), psychiatric illness in 7.0% (n = 7), and alcohol dependence in 4.0% (n = 4). No associated comorbidity was identified in 71.0% (n = 71) of patients.

### Time to Presentation and Endoscopy

The mean time interval between FB ingestion and hospital presentation was  $18.26 \pm 26.84$  hours. Thirty-six patients (36.0%) presented within 6 hours, 32 patients (32.0%) presented between 6 and 24 hours, 22 patients (22.0%) presented between 1 and 7 days, and 10 patients (10.0%) presented after more than 7 days. The mean time from hospital presentation to endoscopy was  $7.92 \pm 11.54$  hours. Endoscopy was performed within 6 hours of presentation in 54 patients (54.0%), between 6 and 24 hours in 30 patients (30.0%), and beyond 24 hours in 16 patients (16.0%).

### Type of Foreign Bodies

The spectrum of ingested foreign bodies is detailed in Table 2. Coins were the most frequently encountered FB, constituting 34.0% (n = 34) of cases, followed by food bolus in 15.0% (n = 15), magnets in 14.0% (n = 14), needles in 10.0% (n = 10), dentures in 8.0% (n = 8), fish bone in 7.0% (n = 7), chicken bone in 6.0% (n = 6), and button batteries in 6.0% (n = 6). Among children aged 0–20 years, coins were the overwhelmingly predominant FB (81.3%, 26/32), while magnet ingestion was also common in this age group (9/14 magnet cases were in children). Among adults, food bolus impaction and bone ingestion were the most frequent presentations. Sharp objects (needles, bones, and denture fragments) collectively constituted 31.0% of all FBs.

**Table 2: Frequency and distribution of different types of foreign bodies (N = 100)**

| Type of Foreign Body | n          | %          | Category          |
|----------------------|------------|------------|-------------------|
| Coin                 | 34         | 34.0       | Blunt             |
| Food bolus           | 15         | 15.0       | Food-related      |
| Magnet               | 14         | 14.0       | Blunt / Hazardous |
| Needle               | 10         | 10.0       | Sharp             |
| Denture              | 8          | 8.0        | Sharp / Irregular |
| Fish bone            | 7          | 7.0        | Sharp             |
| Chicken bone         | 6          | 6.0        | Sharp             |
| Button battery       | 6          | 6.0        | Hazardous         |
| <b>Total</b>         | <b>100</b> | <b>100</b> |                   |

### Anatomical Site of Foreign Body Lodgement

The anatomical distribution of FB lodgement is presented in Table 3. The esophagus was the most common site of impaction, accounting for 81.0% (n = 81) of cases. Within the esophagus, the upper esophagus was the most frequent sub-site (35.8%, n = 29), followed by the lower esophagus/gastroesophageal junction (24.7%, n = 20), the middle esophagus (22.2%, n = 18), and the cricopharynx/esophageal inlet (17.3%, n = 14). The stomach was the lodgement site in 11.0% (n = 11) and the duodenum in 4.0% (n = 4) of cases. In 4.0% (n = 4), the FB had passed spontaneously or migrated distally prior to endoscopy. Coins were predominantly lodged in the upper esophagus (67.6%, 23/34), while food bolus impaction occurred more frequently in the lower esophagus (60.0%, 9/15). Magnets were distributed between the stomach (42.9%, 6/14) and esophagus (50.0%, 7/14).

**Table 3: Anatomical distribution of foreign body lodgement (N = 100)**

| Site of Lodgement     | n          | %          |
|-----------------------|------------|------------|
| Esophagus             | 81         | 81.0       |
| Cricopharynx / Inlet  | 14         | 17.3*      |
| Upper esophagus       | 29         | 35.8*      |
| Middle esophagus      | 18         | 22.2*      |
| Lower esophagus / GEJ | 20         | 24.7*      |
| Stomach               | 11         | 11.0       |
| Duodenum              | 4          | 4.0        |
| Passed / Migrated     | 4          | 4.0        |
| <b>Total</b>          | <b>100</b> | <b>100</b> |

\*Percentages for esophageal sub-sites calculated from esophageal cases (n = 81)

### Endoscopic Technique and Retrieval Devices

Conscious sedation was employed in 76.0% (n = 76) of patients, while general anaesthesia with endotracheal intubation was used in 18.0% (n = 18), predominantly in paediatric cases and patients with anticipated difficult retrievals. No sedation was required in 6.0% (n = 6) of cooperative adult patients. A diagnostic gastroscope was used in 65.0% and a therapeutic gastroscope in 35.0% of procedures. The retrieval devices used and techniques employed are detailed in Table 4. Rat-tooth forceps were the most frequently used device (28.0%, n = 28), followed by loop baskets (22.0%, n = 22), polypectomy snares (16.0%, n = 16), Roth retrieval nets (12.0%, n = 12), Dormia baskets (10.0%, n = 10), and biopsy forceps (6.0%, n = 6). An overtube was used in 8.0% (n = 8) of cases, predominantly for retrieval of sharp objects including needles and denture fragments. Loop baskets and Roth nets were preferentially employed for coin extraction, polypectomy snares for food bolus management, and Dormia baskets for coins and small blunt foreign bodies. Direct retrieval was the most common technique (58.0%), followed by the push technique (24.0%) and piecemeal removal (18.0%). The push technique was employed predominantly for food bolus impaction. The mean procedure duration was 23.46 ± 15.82 minutes.

**Table 4: Retrieval devices and endoscopic techniques employed (N = 100)**

| Variable                | n  | %    |
|-------------------------|----|------|
| <b>Retrieval Device</b> |    |      |
| Rat-tooth forceps       | 28 | 28.0 |
| Loop basket             | 22 | 22.0 |
| Polypectomy snare       | 16 | 16.0 |
| Roth retrieval net      | 12 | 12.0 |
| Dormia basket           | 10 | 10.0 |
| Biopsy forceps          | 6  | 6.0  |
| Overtube                | 8  | 8.0  |
| <b>Technique</b>        |    |      |
| Direct retrieval        | 58 | 58.0 |
| Push technique          | 24 | 24.0 |
| Piecemeal removal       | 18 | 18.0 |

### Procedural Outcomes and Complications

The procedural outcomes are summarized in Table 5. Complete successful endoscopic retrieval was achieved in 73.0% (n = 73) of patients, while the FB was successfully pushed into the stomach in 24.0% (n = 24). Piecemeal removal with successful clearance was accomplished in 3.0% (n = 3). The overall endoscopic success rate was 100%, with all 100 foreign bodies successfully retrieved or managed by flexible endoscopy alone. No patient required referral for rigid esophagoscopy or surgical intervention. Immediate procedure-related complications occurred in 5.0% (n = 5) of patients, all of which were minor mucosal injuries or superficial erosions that did not require any further intervention. No perforation, significant bleeding, aspiration, or mortality was observed. The mean hospital stay was 1.86 ± 1.52 days, with 26.0% (n = 26) managed as day-care procedures.

**Table 5: Procedural outcomes and complications (N = 100)**

| Outcome Variable                       | n          | %          |
|----------------------------------------|------------|------------|
| <b>Procedure Outcome</b>               |            |            |
| Complete successful retrieval          | 73         | 73.0       |
| Successfully pushed into stomach       | 24         | 24.0       |
| Piecemeal removal with clearance       | 3          | 3.0        |
| <b>Complications</b>                   |            |            |
| None                                   | 95         | 95.0       |
| Mucosal injury / erosion               | 5          | 5.0        |
| Perforation                            | 0          | 0          |
| Bleeding                               | 0          | 0          |
| <b>Overall Endoscopic Success Rate</b> | <b>100</b> | <b>100</b> |

### Association of Delayed Presentation with Complications

Analysis of the association between time to endoscopy and complications revealed that patients who underwent endoscopy more than 24 hours after ingestion had a significantly higher complication rate (18.8%, 3/16) compared to those who underwent endoscopy within 24 hours (2.4%, 2/84; p = 0.018, Fisher's exact test). All five patients who developed mucosal injuries had either sharp-edged foreign bodies (needles, bones, or denture fragments) or had presented with a delay of more than 24 hours. Underlying esophageal pathology was identified in 10.0% (n = 10) of patients, comprising esophageal

stricture in 5 patients, Schatzki ring in 2, and esophageal malignancy in 3. Among patients with food bolus impaction, underlying esophageal pathology was present in 66.7% (10/15) of cases. The association between time to endoscopy and complications is presented in Table 6.

**Table 6: Association of time to endoscopy with complications**

| Time to Endoscopy      | Complications Present<br>n (%) | No Complications<br>n (%) | p-value |
|------------------------|--------------------------------|---------------------------|---------|
| ≤24 hours (n = 84)     | 2 (2.4)                        | 82 (97.6)                 |         |
| >24 hours (n = 16)     | 3 (18.8)                       | 13 (81.2)                 | 0.018*  |
| <b>Total (N = 100)</b> | <b>5 (5.0)</b>                 | <b>95 (95.0)</b>          |         |

\*Fisher's exact test; p < 0.05 indicates statistically significant association

## DISCUSSION

The present study provides a comprehensive analysis of the profile and outcomes of endoscopic foreign body retrieval from the upper gastrointestinal tract at a South Indian tertiary care centre over a three-year period, addressing a notable gap in the published literature from this region. With a cohort of 100 patients, this study represents one of the larger series on endoscopic FB management from an Indian institution. The findings are consistent with, and complement, existing data from North Indian and international centres while also revealing certain regional distinctions that merit discussion. The mean age of  $38.54 \pm 23.18$  years observed in the present study is younger than the mean age of 51.27 years reported by Chandial et al. from Jammu in their series of 31 patients [11]. This is attributable to the substantial paediatric component (32.0%) in our cohort, driven predominantly by coin and magnet ingestions. The male predominance of 62.0% is consistent with findings from multiple Indian studies, including 59.4% reported by Sharma et al. from Himachal Pradesh and 74.2% by Chandial et al. [11, 12]. The paediatric contribution in the present study was similar to the 33.9% reported by Sharma et al., confirming that children constitute a significant proportion of FB ingestion cases presenting to tertiary care centres in India [12].

The spectrum of ingested foreign bodies in the present study differed notably from North Indian series. Coins were the most common FB (34.0%), which contrasts with Sharma et al. who reported coins and chicken bones as equally prevalent (28.8% each) [12] and Chandial et al. who documented bone pieces as the predominant FB (29.0%).<sup>11</sup> The higher proportion of coins in our study is directly attributable to the larger paediatric cohort, as 76.5% of coin ingestions (26/34) occurred in children aged 0–20 years. Notably, magnet ingestion constituted 14.0% of cases in our series, a finding not reported in earlier Indian studies by Sharma et al. or Chandial et al. This likely reflects the increasing availability of small, high-powered magnetic toys and educational products in the Indian market, a trend that has been recognized globally as an emerging hazard [13]. Emara et al. from Egypt reported food bolus as the most common FB in their five-year experience, similar to trends observed in Western populations [14]. Yao et al. from Taiwan also documented a predominance of food bolus and bone impaction among adult patients [15].

The esophagus was the predominant site of FB lodgement in 81.0% of cases in the present study, comparable to the 83.1% reported by Sharma et al. and 83.9% reported by Chandial et al [11, 12]. Within the esophagus, the upper esophagus was the most common sub-site (35.8%), consistent with anatomical narrowing at the cricopharyngeus muscle level being the most vulnerable point for FB impaction, particularly for coins. These findings are in agreement with multiple international studies and current guideline recommendations [16, 17]. Chandial et al. had reported the lower esophagus as the most common sub-site (32.3%) [11], a discrepancy likely reflecting the higher proportion of food bolus impaction in their series, which tends to lodge at the gastroesophageal junction. The overall endoscopic success rate of 100% in the present study is noteworthy and is higher than the rates reported in several comparable studies. Sugawa et al. in their comprehensive review reported flexible endoscopy success rates exceeding 95% with complication rates of 0–5% [18]. Sharma et al. similarly achieved a 100% success rate in their series of 59 patients from Himachal Pradesh, attributed to the favourable profile of FBs encountered and the expertise of the endoscopy team [12] Chandial et al. reported a success rate exceeding 90%, with five patients requiring rigid esophagoscopy for sharp-edged or deeply impacted FBs [11] Mosca et al. documented a 95% success rate in their large series of 414 adult patients from Italy [19]. The 100% success rate in the present study can be attributed to the availability of a comprehensive range of retrieval devices, the experience of the endoscopy team in selecting appropriate instruments and techniques for different types of FBs, and the use of general anaesthesia with endotracheal intubation in challenging cases, particularly in the paediatric population.

The complication rate of 5.0% in the present study, all being minor mucosal injuries, is within the acceptable range of 0–5% described in the literature [16, 18]. Importantly, no perforation, significant haemorrhage, or aspiration was observed. A statistically significant association between delayed presentation (endoscopy beyond 24 hours) and complications was demonstrated (p = 0.018), reinforcing the ESGE guideline recommendation that esophageal FBs should be removed within

24 hours [16]. Hong et al. identified FB impaction duration exceeding 24 hours as an independent risk factor for complications, reporting a 14.1-fold increased risk for major complications [20]. The delay in endoscopic intervention observed in our study, with 16.0% of patients undergoing endoscopy beyond 24 hours, was primarily attributable to initial presentation at non-gastroenterology departments, a pattern also reported by Sharma et al [12].

Regarding retrieval devices, rat-tooth forceps were the most commonly used instrument (28.0%), followed by loop baskets (22.0%) and polypectomy snares (16.0%). The device selection was dictated by the type and location of the FB: loop baskets and Roth nets were preferentially used for coins, snares for food bolus management, and Dormia baskets for small blunt objects, consistent with guideline recommendations. The use of overtubes in 8.0% of cases, predominantly for sharp object retrieval, aligns with the ESGE recommendation for airway and mucosal protection during extraction of sharp-edged foreign bodies [16]. Underlying esophageal pathology was identified in 66.7% of patients presenting with food bolus impaction, consistent with the literature reporting such pathology in over 75% of food bolus cases. Birk et al. in the ESGE guidelines noted that peptic strictures and eosinophilic esophagitis are the most frequently associated conditions [16].

The finding of magnet ingestion in 14.0% of cases deserves special mention, as this represents an emerging and potentially serious hazard, particularly among children. Multiple magnets can attract across intestinal walls, leading to pressure necrosis, fistula formation, volvulus, and perforation. International literature has increasingly highlighted the dangers of high-powered magnet sets, leading to regulatory actions in several countries. The present study adds to the limited Indian data on this emerging problem and supports the need for public health awareness campaigns regarding the risks of small magnetic toy ingestion in children. The present study has certain limitations inherent to its retrospective design, including potential selection bias and reliance on the completeness of medical records. The study population was derived from a single tertiary care centre, which may limit the generalizability of findings to primary or secondary care settings. Additionally, long-term follow-up data were not available for all patients. Prospective multicentre studies with larger sample sizes would be valuable to validate these findings and develop predictive models for adverse outcomes in the Indian clinical context.

## CONCLUSION

Flexible endoscopy is a safe and highly effective modality for the management of upper gastrointestinal foreign bodies at a South Indian tertiary care centre, achieving an overall success rate of 100% with a complication rate of 5.0%, all being minor mucosal injuries. Coins are the most commonly ingested FB in this cohort, reflecting a substantial paediatric component, followed by food bolus and magnets. The esophagus, particularly the upper segment, is the predominant site of lodgement. Magnet ingestion is an emerging hazard warranting increased public health awareness. Timely endoscopic intervention within 24 hours of ingestion is significantly associated with fewer complications, underscoring the importance of streamlined referral pathways and early gastroenterology consultation. This study provides the first comprehensive data on the profile and outcomes of endoscopic foreign body retrieval from a South Indian tertiary care centre and contributes to the growing body of Indian literature on this common gastrointestinal emergency.

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