

## Original Research Article

# Endoscopic management of foreign bodies in the upper gastrointestinal tract

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### ABSTRACT

**Background:** Foreign body ingestion and food bolus impaction is a common clinical scenario and can present as an endoscopic emergency. Though majority of them pass spontaneously 10-20% require endoscopic intervention. Flexible endoscopy is recommended as therapeutic measure with minimal complications. The aim of our study is to present 2 years' experience in dealing with foreign bodies in the upper gastrointestinal tract.

**Methods:** Cases of foreign body (FB) ingestion admitted to department of general surgery from January 2015 to December 2016 were evaluated. The patients were reviewed with details on age, sex, type of FB, its location in gastrointestinal tract, treatment and outcome.

**Results:** A total of 23 cases were studied. Age range was 2-75 years. Males were predominant (60.87%). Coins were found most commonly (52.17%). Esophagus was the commonest site of FB lodgment (65.22%). Upper esophagus being the most common (39.13%). Upper gastrointestinal flexible endoscopy was useful in retrieving FB in all the 23 cases. There were no complications throughout the study period.

**Conclusions:** Flexible endoscopy should be used as definitive treatment and endoscopic treatment is safe and effective.

**Keywords:** Endoscopy, Foreign body, Upper gastrointestinal tract

### INTRODUCTION

Foreign body ingestion is a common medical emergency in both children and adults. Children constitute 80% of total ingestions. In children most of them are true FBs like coins, marbles, toys, safety pins and batteries.<sup>1</sup> In adult's food bolus impaction is more common and true foreign body ingestion (non-food objects) occur in those with psychiatric disorders and alcohol intoxication. Most of the ingested foreign bodies pass spontaneously but few of them pose as an endoscopic emergency.<sup>2</sup> Upper esophagus is the commonest site followed by middle esophagus, stomach, pharynx, lower esophagus, pharynx and finally duodenum.<sup>3</sup> The aim of the current study is to report our clinical experiences in the endoscopic

management of foreign bodies in the upper gastrointestinal tract in both children and adults.

### METHODS

We evaluated cases of foreign body ingestion admitted to department of general surgery in SN Medical college from January 2015 to December 2016. Data were collected from the department and recorded information was entered into pre-coded proforma which included details of demography, clinical profile, treatment and outcome. The data collected were cross checked by two independent observers. The data were analyzed using SPSS computer software version 15 (SPSS Inc, Chicago 2, USA) and expressed as a number and a percentage for

qualitative variables and as mean±standard deviation for quantitative variables.

The study was approved by college ethics committee.

**RESULTS**

A total of 23 patients were admitted with foreign body ingestion over a period of 2 years. The patients were in the age range of 2 to 75 years. The mean age was 38.5 years. The males constituted 60.87% of the patients. The age group distribution is shown in Table 1.

**Table 1: Age distribution of patients (n=23).**

| Age group (years) | Male n%    | Female n% | Total      |
|-------------------|------------|-----------|------------|
| 0-20              | 7 (30.43)  | 5 (21.74) | 12 (52.17) |
| 21-40             | 2 (8.69)   | 0 (0)     | 2 (8.69)   |
| 41-60             | 1 (4.35)   | 1 (4.35)  | 2 (8.69)   |
| 61-80             | 4 (17.39)  | 3 (13.04) | 7 (30.43)  |
| Total             | 14 (60.87) | 9 (39.13) | 23 (100)   |

n=number of patients.

The majority of foreign bodies found were coins constituting 52.17% followed by chicken bone constituting 21.74%. Other foreign bodies found were safety pin, dentures, fish bone, dental instrument and whistle. The details are shown in Table 2.

**Table 2: Frequency of different types of foreign bodies ingested.**

| Name of foreign body | n=%        |
|----------------------|------------|
| Coins                | 12 (52.17) |
| Safety pin           | 2 (8.69)   |
| Dentures             | 1 (4.34)   |
| Chicken bone         | 5 (21.74)  |
| Fish bone            | 1 (4.34)   |
| Whistle              | 1 (4.34)   |
| Dental instrument    | 1 (4.34)   |
| Total                | 23 (100)   |

**Table 3: Frequency of different sites of foreign body lodgement.**

| Frequency of different sites | n=%        |
|------------------------------|------------|
| Esophagus                    | 15 (65.22) |
| Upper                        | 9 (39.13)  |
| Middle                       | 3 (13.04)  |
| Lower                        | 3 (13.04)  |
| Stomach                      | 7 (30.43)  |
| Pyriform fossa               | 0          |
| Pylorus                      | 1 (4.34)   |
| Duodenum                     | 0          |
| Total                        | 23 (100)   |

The most common site for lodgment of foreign bodies was esophagus (65.22%). Upper esophagus (39.13%) being the most common followed by mid and lower esophagus (both 13.04%). The details are shown in Table 3.

Out of 23 patients 7 patients presented within 24 hours. All the patients were symptomatic. Dysphagia was the presenting symptom. All the patients underwent therapeutic endoscopy with 100% success rate. There were no complications during the procedure.



**Figure 1: Foreign bodies removed from upper GI tract by endoscopy.**

**DISCUSSION**

Gastrointestinal foreign bodies are comprised of food bolus impaction and intentionally or unintentionally ingested or inserted true foreign body. Safe removal of these foreign bodies is a true challenge in gastrointestinal endoscopy. Food bolus impaction above a preexisting esophageal stricture or a ring is the most common cause of obstruction in adults. Coins are the most common foreign body ingested by children. Nearly 30% pass into the stomach within 24 hours. If the object is less than 2cm in size it passes through entire GI tract. If it fails to pass beyond stomach by 3-4 weeks it needs endoscopic removal. Majority of ingestions occur in pediatric population with a peak incidence between 6 months and 6 years. In adults, true FB ingestion occurs in those with psychiatric disorders and alcoholic intoxication. The foreign bodies with soft end do not cause much problem but the ones with sharp edges may pose serious problems. The commonest symptoms of foreign body ingestion are dysphagia, odynophagia, retrosternal pain, sore throat, FB sensation, retching, vomiting, choking and hypersalivation. Usually the FBs less than 2cm in size pass through the GI tract without causing any complications. Initial radiographic assessment is usually the preferred initial step in foreign body management. surgical intervention becomes necessary if patient develops symptoms of perforation and when sharp

objects do not pass through within 72 hours.<sup>12</sup> Mortality due to FB ingestion is quite rare.<sup>13</sup>

In this experience of 23 patients over a period of 2 years 50% were less than 8 years old. True FB ingestion (coin) was the most common as reported with other studies.<sup>14</sup> All of them presented with symptom of dysphagia. Commonest site of obstruction was upper esophagus constituting nearly 40% of cases. The same observation is made in many other studies.<sup>15</sup> We could successfully retrieve the foreign body in all 23 patients. One patient was a pregnant lady and had ingested open safety pin. No major complications were encountered. Flexible endoscopy is the ideal approach in the management of FBs. The overall success rate is >95% and the complication rate is 0-5%.<sup>9</sup> Our study correlates with many other studies. Out of 23 patients 15 presented within 24 hours of ingestion. FBs were removed in them without any complications.

## CONCLUSION

Most foreign bodies ingested pass through the GI tract spontaneously without causing any harm and without requiring any intervention. Flexible endoscopy should be used for definitive treatment. It is a safe, reliable procedure for a skilled endoscopist with a high success rate, low morbidity and no mortality.

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