Foreign Body Ingestion in Children: A Descriptive Study

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Abstract

Foreign body ingestion is the accidental or intentional swallowing of an object that can affect the oesophagus. The clinical presentation depends on the foreign body's location, size, and nature. Common clinical presentations include coughing, difficulty breathing, nausea, vomiting, chest pain, and fever.

Objective

To study the demographic data, presentation, and disposition of foreign body ingestion patients.

Material and Methodology

This research was a retrospective study conducted within a Security Forces Hospital setting.

The study protocol involved the inclusion of all patients aged 0 to 14 who visited the Paediatric emergency department and reported foreign body ingestion.

Result

The total study population was 45 patients; males were 24 (53.3%). 88.2% of our patients had no symptoms at presentation. Coins ingestion occurs in 18 (40%) patients.

Conclusion

Our study findings are similar to the literature description for foreign body ingestion.

Keywords: Foreign body; FB Ingestion; Children.

Introduction

Foreign body (FB) ingestion is defined as the accidental or intentional swallowing of an object that can affect the oesophagus [1]. The clinical presentation depends on the foreign body's location, size, and nature. Still, the common symptoms at presentation are coughing, difficulty breathing, nausea, vomiting, chest pain, and fever [2]

In 2000, the American Association of Poison Control Centers reported that 75% of the patients presented with foreign body ingestions were children aged ≤5 years [3].

The initial assessment of patients with foreign body ingestion is history-taking and physical examination. The history-taking component should include symptoms, type of foreign body, timing of presentation, and associated conditions. At the same time in the physical examination, you should record and assess the patient's status, vital signs, airway evaluation, signs of inability to manage their secretions, or emergency conditions, such as peritonitis or subcutaneous emphysema [4, 5].

Plain radiography is the first choice recommended in children after foreign body ingestion, but the primary physician can continue observation without doing plain radiography if the patient is asymptomatic and has swallowed a low-risk foreign body at presentation [6].

Management of foreign body ingestion depends on the nature and location of swallowed foreign bodies, and the risk of complication should guide the decisions. Children at low risk of future complications may be discharged with instructions, red flag symptoms, and signs when to return for re-evaluation. Higher-risk patients require hospital admission for observation or
consultation with a specialist, such as a pediatric surgeon, otolaryngologist, or gastroenterologist [7].

Symptomatic patients require immediate intervention to prevent complications associated with foreign body ingestion. Glucagon-inducing vomiting can be used in mid-oesophageal coins [8]. Our aim is to study the presentation and outcomes of patients attending our Emergency Department with foreign body ingestion.

Methods
This research was a retrospective study conducted within a Security Forces Hospital setting.

The study protocol involved the inclusion of all patients aged 0 to 14 who visited the Paediatric emergency department and reported foreign body ingestion. The data for this study was collected from the hospital database, spanning from October 1st, 2023, to March 31st, 2024.

Demographic data of patients showed that two to five years old were 25 patients (55.6%) and more than five years old were 14 patients (31.1%). Males were 24 patients (53.3%). In forty patients (88.9%) foreign body ingestion was witnessed.

At the presentation to the Pediatric Emergency Department, 37 patients (88.2%) were free of symptoms, five patients (11.1%) had Gastrointestinal symptoms, and three patients (6.7%) were presented with respiratory symptoms. The foreign body was not detected in 14 patients (31.1%), in the large bowel in 15 patients (33.3%), in the small bowel in 10 patients (22.2%), in the Stomach in four patients (8.9%), and in the esophagus in two patients (4.4%).

### Table 1: Demographic Data and Witness

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 2 years old</td>
<td>6</td>
<td>13.3</td>
</tr>
<tr>
<td>2 to 5 years old</td>
<td>25</td>
<td>55.6</td>
</tr>
<tr>
<td>more than 5 years old</td>
<td>14</td>
<td>31.1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>53.3</td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>46.7</td>
</tr>
<tr>
<td><strong>Witness of the event</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40</td>
<td>88.9</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>11.1</td>
</tr>
</tbody>
</table>

### Table 2: Symptoms at Presentation and Location of Foreign Body

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms at presentation to Pediatric Emergency Department</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free of symptoms</td>
<td>37</td>
<td>88.2</td>
</tr>
<tr>
<td>Respiratory symptoms</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>Gastro-intestinal Symptoms</td>
<td>5</td>
<td>11.1</td>
</tr>
</tbody>
</table>
Regarding the type of foreign body ingested, 18 patients (40%) are Coin, five patients (11.1%) are Screws, Three patients (6.7%) Magnetic, three patients (6.7%) Battery - Table 3.

Table 3: Types of Foreign Body

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
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<td>2.2</td>
</tr>
<tr>
<td>Coin</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>Magnetic</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>Screw</td>
<td>5</td>
<td>11.1</td>
</tr>
<tr>
<td>Battery</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>Bone</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>8.9</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>22.2</td>
</tr>
</tbody>
</table>

Disposition from the Pediatric Emergency Department showed that 40 patients (88.9%) were discharged, four patients (8.9%) were admitted for endoscopy, and one patient was admitted for observation - Figure 1.

Figure 1: Disposition of Patients from Pediatric Emergency Department
Foreign body ingestion is a public health problem as it has a high frequency among the population, particularly in children and older patients.\textsuperscript{[9]} Accidental ingestion of foreign bodies by children because they inadvertently place foreign bodies in their mouths \textsuperscript{[10-12]}. In our study, males were more frequent, similar to previous studies, as males were more active in and outdoors \textsuperscript{[13, 14, 18]}. Males predominate, which is explained by their hyperactivity in comparison to females \textsuperscript{[19]}. We found that the mean age at foreign body ingestion was 4.6778 ±3.2 years, and most were preschool children.\textsuperscript{[20]} and other studies \textsuperscript{[17, 21]} had similar age groups.

Most of our patients had no symptoms at presentation to the emergency department. Our study is similar to those of \textsuperscript{[22, 23]} study, most of their patients presented to the emergency department asymptomatic. Gastrointestinal symptoms occur in 5\% of our patients. Symptoms in foreign body ingestions are alarming for complications, but absences or asymptomatic patients are not at low risk of complications \textsuperscript{[24]}. In our study, in most patients, the presentation of foreign bodies was located in the large bowel, small bowel, stomach, and oesophagus, respectively, and was explained by the delayed presentation of our patients to the Emergency Department. In 14\% of patients seen in the Emergency Department, no foreign body was detected by X-ray \textsuperscript{[22]}. Study foreign body was found mainly in the oesophagus at presentation, and in 18\% of patients, no foreign body was detected \textsuperscript{[25]} in their study, and 22\% of the foreign body was not visualized Undetected foreign bodies in patients suspected of foreign body ingestion is due to a radiological investigation done on them, even if they were asymptomatic \textsuperscript{[26]}. Coin is the frequent foreign body ingested in our study. We had three patients ingested Magnetic. In the last few years, the incidence of magnet ingestion has increased as it has become the main part of children's toys.\textsuperscript{[27]} of most patients discharged without intervention, 8.9\% needed endoscopic intervention. In literature, in 80-90\% of patients seen with foreign body ingestions, the foreign body passes without complications and is evacuated with feces within a few days. Endoscopic intervention is done in 10-20\% of cases because of impaction or its potential harm, and surgical intervention is needed in less than 1\% of cases \textsuperscript{[28]}. In Turkey, patients presented with a blunt object or coin in the stomach and asymptomatic will be discharged without intervention, and only follow-up will be given \textsuperscript{[29]}. Single magnetic and not too large is expected to pass spontaneously, and intervention is unnecessary \textsuperscript{[30]}. The frequency of button battery ingestion has been increasing as they are widely used in electronic devices.\textsuperscript{[31]} In our study, 6.7\% of patients presented with battery ingestion and were treated in the conservatory.

Conclusion
In conclusion, our study mirrors other research in terms of demographic distribution and types of foreign bodies ingested. This finding has significant implications for healthcare professionals and parents alike, emphasizing the need for effective education and prevention strategies.

Limitations of our study: It’s a single-center study, which may limit the generalizability of our findings.

References


