# Prevalence of Foreign Bodies Ingestion in Children

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**Abstract-** Foreign body ingestion is one of the common pediatric emergency conditions and can lead to childhood morbidity, and mortality. We think that the results of this study will be of utmost usefulness for pediatric surgeons when considering foreign bodies' ingestion in children. We decided to study the age distribution, nature, the site of impaction, and fate of foreign body ingestion in children. This cross-sectional study was conducted on 77 children with foreign body ingestion, from February 2017 to July 2021(54 months). A total of 77 patients with foreign body ingestion were diagnosed during the study period. Forty percent were boys and 60% were girls. The maximum age of participants was 1-2 years, accounting for 55%. Batteries were the most common foreign bodies ingested accounting for 26% followed by magnets (13%), and coins 6.5%. The most common site of foreign body impaction was the stomach (34%), colon (26%), and small bowel (23%). Majorities of foreign bodies (72%) were passed through the gastrointestinal tract without complication, 18 % required extraction by the upper endoscope, and 10% were removed surgically. We conclude that increasing awareness among parents to check the quality and safety protocols of electronic toys that contain batteries and magnets.



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**Keywords:** Foreign bodies; Ingestion; Children

## Introduction

Foreign body ingestion is one of the common pediatric emergency conditions and can lead to childhood morbidity, and mortality (1). The most common age of ingestion is reported to be 6 months-3 years because in this age the baby cannot differentiate between eatable and non-eatable pieces, perform eating during playing, lack of teeth, and habitually put the small pieces in their mouth (2). Foreign body ingestion may have a hazardous effect on the gastrointestinal tract, especially when impacted the esophagus. But, most of it is excreted without complication by preventable reflexes, such as spitting, or cough, or passing with stool) (1). In children, the most swallowed foreign bodies are coins, batteries, magnets, plastic pieces, seeds, screws, nails, hair, glass marbles, pin, and bones (3). Few previously reported studies have proved foreign body ingestion in pediatrics; this is the first article in Iraq discussing foreign body ingestion in children.

This study aimed to identify the age distribution, nature, site of impaction, and fate of foreign body ingestion in children.

## Materials and Methods

This cross-sectional study was conducted on 77 children with foreign body ingestion, who were referred to the Department of pediatric surgery at Al-Ramadi Children and Maternity Teaching Hospital, Anbar-Iraq, from February 2017 to July 2021(54 months).

All patients with foreign body ingestion were included in this study. Using a checklist, we collected all required information through proper history and physical examination. The data collected included (patients' age, sex, nature of the foreign body and the site of impaction, and fate of foreign body), in addition to radiographs of neck, chest, and abdomen were done in all children. Follow-up of cases was done according to the type, location of foreign bodies.

Data was entered and analyzed using Microsoft Excel 2010.

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## Results

A total of 77 patients with foreign body ingestion were diagnosed during the study period. Thirty-one (40 %) were boys and 46 (60%) were girls. The most common age of foreign body ingestion is 1-2 years (Figure 1).

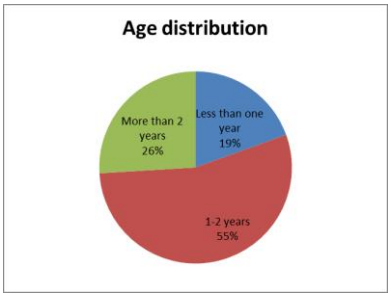


**Figure 1.** Foreign body ingested distribution according to age

Batteries were the most common foreign bodies ingested accounting for 26% followed by magnets (13%), and coins in 6.5% (Table 1).

**Table 1. Nature of foreign body ingested**

| Variables | n | % |
|---|---|---|
| **Battery** | 20 | 26 |
| **Magnets** | 10 | 13 |
| **Plastic piece** | 8 | 10.5 |
| **Seeds** | 8 | 10.5 |
| **Pin** | 7 | 9 |
| **Screw** | 6 | 8 |
| **Nail** | 5 | 6.5 |
| **Coin** | 5 | 6.5 |
| **Hair product** | 3 | 4 |
| **Glass marbles** | 2 | 3 |
| **Orbeez** | 1 | 1 |
| **Chicken bone** | 1 | 1 |
| **earring** | 1 | 1 |
| **Total** | 77 | 100 |

The most common site of foreign body impaction was the stomach (34%), followed by the colon (26%), small bowel (23%), unknown site (8%), esophagus (6%), and nasopharynx (3%), (Figure 2).

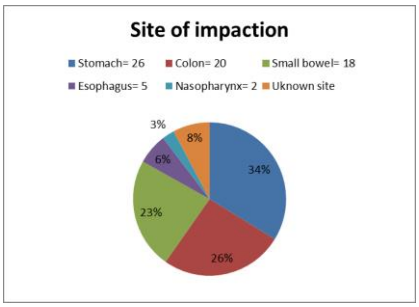


**Figure 2.** Site of foreign body impaction

The majority of foreign bodies (72%) were passed through the gastrointestinal tract without complication, 18 % of impacted foreign bodies were required extraction by the upper endoscope, and only 10% of cases removed surgically (Table 2).

**Table 2. The fate of foreign bodies ingested**

| Variables | n | % |
|---|---|---|
| **Passed naturally in stool** | 55 | 72 |
| **Removed by the upper endoscope** | 14 | 18 |
| **Removed surgically** | 8 | 10 |
| **Total** | 77 | 100 |

## Discussion

Foreign bodies ingested are considered a common, life-threatening problem that may face the doctor from internship to consultant level. The challenge of this problem may be how to deal with each case.

Out of 77 children, the prevalence of foreign body impaction was higher in girls (60%) than in boys (40 %). Other studies (1,4,5) indicate male predominance in (67%, 52%, and 53%) respectively. This may be due to a variety of hair and body accessories that are formed from beads and small toys which are mostly observed in girls with foreign bodies ingestion.

In this study, the peak age of foreign bodies ingested was 1-2 years, accounting for 55%. The majority of studies (1,5,6) reported that the peak age of impaction is 1-2 years.

In our series, batteries were the most common foreign bodies ingested accounting for 26% followed by magnets (13%), and coins in 6.5%. These findings were comparable with the result of Khurshid *et al.*, (7) which reports batteries to be the most common form of ingestion, which were seen in 39%, followed by coins (21%). The swallowed foreign objects by Oboodi *et al.*, (2) were coins (41%) followed by batteries (16%), by Adbikari *et al.*, (3) were coins (60%) followed by meat bone (15%), and other series found that the coins were swallowed in (26%) followed by metal objects (13%). Our result may be due to increased access to electronic toys that contain batteries and magnets with poor quality and no proper safety for securing the batteries and magnets.

In the present study, the most common site of foreign body impaction was the stomach (34%), followed by the colon (26%), small bowel (23%), unknown site (8%), esophagus (6%), and nasopharynx (3%). Oboodi *et al.*, (2) found that the most common region of impaction was

the esophagus (49%), followed by unknown site (21%), and stomach (15%). Another article by Adbikari *et al*., (3) reported that the pharynx and esophagus were the commonest sites of impaction. While, Khorana *et al.,* (5) found that the location of impaction accounting 37% of the esophagus, and 29% of the stomach. Our results may be due to the different nature of foreign bodies ingested compared to other series.

Dealing with foreign body ingestion is not an easy task, it depends on the size, nature, and location of foreign bodies. In this series, the majority of foreign bodies (72%) were passed through the gastrointestinal tract without complication, 18 % of impacted foreign bodies were required extraction by the upper endoscope, and only 10% of cases removed surgically. This result is consistent with those obtained by Khorana *et al*., (5) who found that 60 % of foreign bodies were passed spontaneously, 35 % were removed by the endoscope, and 1 % were removed surgically. In another study, Khurshid *et al.,* (7) found that around half of the cases do not need any intervention, and 62% underwent intervention. In Rodriguez *et al.,* (8), out of 2637 cases, 2259 were removed by endoscope and surgical intervention was done in 7 cases. This might be due to the different sites of impaction, and type of foreign body ingested compared to other series. In addition, most of the foreign bodies ingested beyond the stomach were spontaneously excreted in the stool.

Foreign bodies ingested in children are a serious emergency problem that needs to be evaluated. batteries were the most common foreign bodies ingested followed by magnets. The most common site of foreign body impaction was the stomach. Parents need to check the electronic toys that contain batteries and magnets in the market with proper safety for securing the batteries and magnets. Increasing awareness among parents to check the quality and safety protocols of electronic toys that contain batteries and magnets is needed.

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