

Original Research Article

Ingested sharp objects in children: is conservative management effective?

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ABSTRACT

Background: Ingestion of foreign bodies is commoner than aspiration in paediatric age group, especially in children less than 3 years.

Methods: Fifteen patients less than 12 years of age who were admitted with history of sharp foreign body ingestion from January 2014 to December 2015 were included in this study. These patients were retrospectively analyzed in terms of age, sex, duration of ingestion, type of ingested foreign body, symptoms, x-ray findings, average duration of stay and the time required to expulsion of the foreign body.

Results: The average age was 2.7 years. There were 7 males and 8 females. The average time of presentation was within 25 hours. Fourteen patients were asymptomatic at admission. One female child with history of ingestion of an open safety pin 8 days back had abdominal pain. The most commonly ingested foreign bodies were hairclips seen in 4 patients (26.66%). All foreign bodies were radio-opaque and seen in small bowel (8 patients) and stomach (7 patients). All objects passed out spontaneously within an average 2.5 days except one which was managed by endoscopic intervention.

Conclusions: Once foreign objects pass beyond esophagus, most traverse the gastrointestinal tract uneventfully. Conservative treatment suffices even for the ingested sharp objects in asymptomatic paediatric patients.

Keywords: Children, Ingested foreign bodies, Sharp

INTRODUCTION

Ingestion of foreign bodies is commonly encountered in the paediatric age group. Ingestion of foreign bodies is more common than aspiration in children.¹ Despite various safety measures and parental vigilance, ingested foreign body remains a real problem. It is secondary to the curious nature of children and the habit of inserting all objects in the surroundings into the mouth, especially in children younger than 3 years. The most common objects ingested are coins.²

Treatment depends on the type of the ingested object, its location and the body's reaction to it. Conservative

management may be sufficient in asymptomatic patients while some may require urgent intervention. Fortunately, most foreign bodies that reach the gastrointestinal tract pass spontaneously. Retrospective data of 15 consecutive patients of sharp/non-blunt foreign body ingestion managed at a tertiary referral centre in India is presented.

METHODS

This is a retrospective observational study from January 2014 to December 2015 on 15 pediatric patients who presented with complaints of foreign body ingestion. The inclusion criteria for the study were age below 12 years and history of ingestion of sharp/non-blunt objects. All

patients were admitted for observation after clinical assessment. Radiograph neck, chest and abdomen were done to locate the position of the foreign body and exclude aspiration of the foreign body, pneumomediastinum and/or pneumoperitoneum. These would warrant emergency intervention in the form of bronchoscopy, Intercostal Chest Drain insertion or laparotomy

The data of these admitted patients was retrospectively analyzed in terms of age, sex, duration of ingestion, type of ingested foreign body, symptoms, x-ray findings, average duration of stay and the time required to expulsion of the foreign body. If the foreign body was not expelled spontaneously within 2 days, then a serial radiographs were done to monitor the progress of the foreign body (as 1/3 of parents fail to identify object in stool).

Patients with history of ingestion of blunt and round foreign bodies namely coins who were asymptomatic were observed on an outpatient basis and were excluded from this study. The parents of these children were advised to monitor faeces and look for any symptoms of obstruction like pain, vomiting, constipation and abdominal distention.

RESULTS

All patients were from a lower middle income group. Primary care-giver at home was the mother or a close relative. None of these events occurred at playschool. All events occurred at home and were narrated by either the patient himself or by the sibling or family member as a suspicious ingestion which were confirmed by X-ray.

The most commonly affected age group was between 9 months to 4 years; the average being 2.7 years. There were 7 males and 8 females. The average time of presentation since ingestion was within 25 hours (range: 1 hour to 8 days).

Fourteen patients were asymptomatic at admission. One female child who had history of ingestion of an open safety pin 8 days back had history of abdominal pain. The most commonly ingested foreign bodies were hairclips seen in 4 patients (26.66%) followed by disc batteries, small nails, small screws (Figure 1) and safety pins in 2 patients each. The rest three were unusual foreign objects like a small pocket knife (Figures 2, 3) ear ring and a locket.

All foreign bodies were radio-opaque. At presentation, 7 were seen in the stomach and 8 were seen in the small bowel. All objects passed out spontaneously except one which was managed by endoscopic intervention. She had 8 days history of ingestion of an open safety pin which was persistently seen in stomach on serial x-rays. This was confirmed on Computed Tomography Scan (Figure 4). It was extracted by upper GI endoscopy.

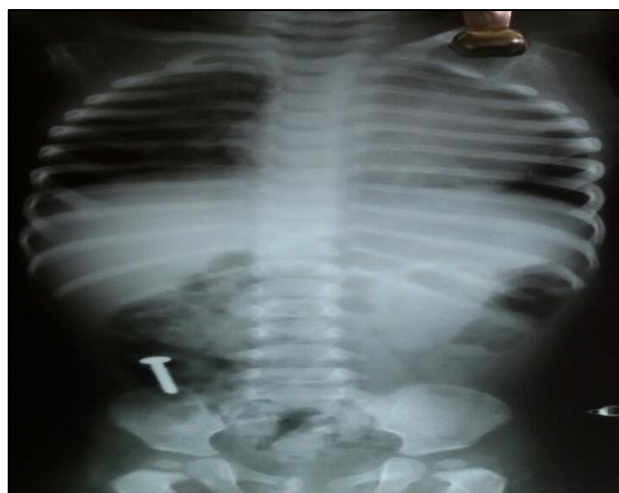


Figure 1: X-ray abdomen of ingested small screw in the small bowel.



Figure 2: X-ray abdomen of the ingested small pocket knife.



Figure 3: The expelled knife seen in X-ray in figure 2 expelled spontaneously and retrieved from the stools of the patient.

The average time taken for expulsion since ingestion of the foreign body was 2.5 days; the longest time taken was

5 days for a large hair pin and the shortest expulsion time was 1 day. Three patients expelled the body in one day; eight patients expelled the foreign body in 1 to 3 days and three required 3 to 5 days for expulsion.

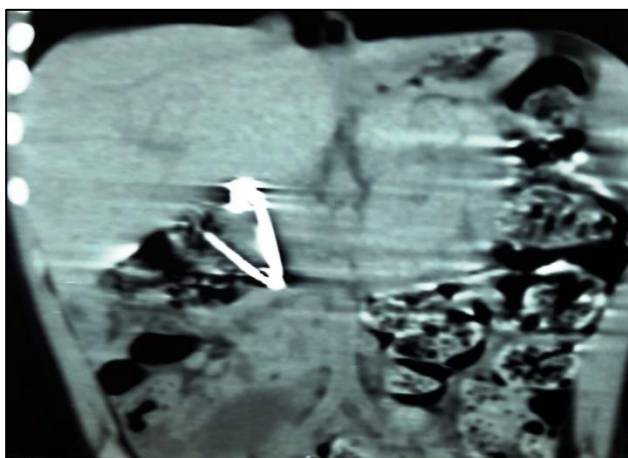


Figure 4: CT scan of ingested open safety pin in the stomach. This was retrieved endoscopically.

DISCUSSION

This communication describes expectant management of children with ingested gastrointestinal sharp/non-blunt foreign bodies. The most commonly affected age group was 9 months to 4 years reflecting the natural curiosity of this age group about surroundings.³ Common presentation is caretakers seeing their children actually ingest the foreign bodies or is based on their suspicion.⁴ In the latter case, parents bring their child so that he could be checked. Though most of the children presented within 2 hours in this study, delay in presentation in others may be because of the fact that some cases were referred to tertiary centre after being seen by local doctors.

Though not included in this study, coins are the most common ingested objects. Coins are commonly given by the parents to console their children, making them more susceptible to ingestion. Children mouth these objects due to the natural tendency to mouth everything. Hence, not only coins, but all small objects like poorly fitted batteries from electronic toys, loose plastic parts of the toys, small nails, screws, ear rings, pins and clips all are mouthed by the children. The child's immediate environment like carelessness of parents, feeding habits and socio-economic status all contribute to such incidents. Hence the importance of parental education and vigilance cannot be left unstressed.

Today, approximately 10 to 20 percent of children who ingest foreign bodies are managed with endoscopy.⁵ This is in contrast to the pre-endoscopy era where 93% to 99% were managed by conservative watchful observation. Only few required intervention. This study also supports the findings of the pre-endoscopy era. Almost all

asymptomatic patients with foreign object beyond the stomach can be managed by observation.⁶

Reports in literature state that about 90% foreign bodies that pass esophagus will pass spontaneously. Only sharp objects require endoscopic removal before they pass beyond duodenal curve as these are likely to cause complication or require surgical removal.^{7,8} The risk of complication by sharp object through gastrointestinal tract is as high as 35%.⁹

Impaction, perforation or obstruction often occurs at gastrointestinal angulations or narrowing. Hence patients with history of congenital gut malformation or previous surgeries are at increased risk of complications and should be monitored vigilantly. These patients are more likely to require operative/endoscopic intervention if there is failure of foreign object to progress.

Disc batteries remaining in the stomach for more than 48 hours have to be removed (as they would cause erosion and perforation) but once they pass duodenum, 85% are expelled in less than 72 hours.¹⁰ This is also true in this study where most of the ingested foreign bodies passed spontaneously in 2.5 days. The longest duration was 5 days taken by the patient with ingested large hair pin. Only one patient who was symptomatic, had delayed presentation and had non-progress of the foreign object (open safety pin) on x-rays required endoscopic retrieval.

Though observation suffices in patients with sharp object ingestion with the object beyond the stomach, failure to progress of the object should be monitored.

CONCLUSION

All children with foreign object ingestion should undergo initial radiograph evaluation and observation by inspection of stool. Once foreign object passes beyond esophagus, most traverse the gastrointestinal tract without complication. Conservative treatment suffices even for the ingested sharp/non-blunt objects in asymptomatic patients. However these patients need monitoring. Endoscopic intervention should be reserved for symptomatic patients and fixed location (non-progress) of the sharp objects.

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