

Sharp foreign bodies in the small bowel: Trial by fire

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ABSTRACT

Foreign body ingestion is seen in both adults and children, either accidental or intentional. These may be blunt or sharp, either single or multiple. Most objects are eliminated in stools, but some cause complications. Endoscopy can retrieve foreign objects from the upper gastrointestinal tract, and colon, but retrieval of foreign objects in the small bowel, especially sharp objects, is challenging. In our case series, ingestion was accidental in one patient and intentional in three. The cases were evaluated clinically to look for signs of complications. X-rays done at the time of presentation confirmed the presence of sharp foreign object(s) in the gut. Each case was managed conservatively, without surgical or endoscopic intervention. Psychiatry consultation was sought for those who had swallowed the objects with intent. Management depends on various factors, the location being an important determinant of the plan of action. Gaining access to objects in the small intestine is a challenge. Complicated cases may require surgery. For objects within the small bowel, in the absence of complications, expectant management can be followed.

Key words: *Sharp objects, Small bowel, Foreign body, Management*

Foreign body ingestion is of common occurrence. The exact global incidence is unavailable; however, thousands of cases are reported annually to authorized boards. It is mostly seen in children, in whom it is almost always accidental, as well as in adults, where it can be accidental or a deliberate act such as in patients with psychiatric disorders, developmental delay, alcohol intoxication, or in prisoners seeking secondary gain [1]. The foreign bodies or objects may vary from fish bones to sharp metallic objects, either single or multiple. According to the literature, 80% of such patients have an uneventful course during which the ingested objects are passed in stools, 20% require endoscopic intervention and 1% need surgery [2].

While flexible endoscopy is the best diagnostic and therapeutic approach for foreign bodies in the upper gastrointestinal tract with high success rates [3], there are no guidelines regarding the management of foreign bodies in the small bowel distal to the location of the ligament of Treitz. We present our case series where patients with sharp foreign objects in the small bowel were managed conservatively, without endoscopic, or surgical intervention.

CASE REPORT

Case 1

A 21-year-old female complained of mild throat pain and abdominal discomfort for 2 days. She presented with a history of having swallowed multiple metallic foreign objects, most of which were sharp in nature (iron nail, screw, and hairpin).

She had resorted to this act after a verbal altercation with her brother following a disappointing performance in one of her exams, with suicidal ideation. She disclosed the incident to her mother who then brought the patient to the surgical emergency department at our hospital, approximately 2 days after the ingestion. On examination, the patient was vitally stable. Throat examination revealed mild localized pharyngeal erythema with few linear abrasions. Abdomen was soft and unremarkable. Plain radiography revealed multiple pointed radio-opaque foreign objects within the small bowel with no evidence of bowel obstruction or pneumoperitoneum (Fig. 1a). Her blood tests were essentially normal.

The patient was kept under observation with due caution and counseling. Due to the lack of significant abdominal pain, the absence of peritoneal signs, and good general condition, a conservative line of management was followed, consisting of analgesics and the addition of psyllium husk to her regular diet. Serial plain radiographs taken at regular intervals showed the distal progression of foreign bodies (Fig. 1b and 1c). All the objects were expelled in stools within 3 days of the presentation without any complication. Psychiatry consultation was sought and the girl was discharged in good health on day four. The patient underwent counseling sessions and is doing well in the follow-up.

Case 2

A 19-year-old male, tailor by profession accidentally ingested a sewing needle while he held it between his teeth. He presented a

day later with a complaint of mild abdominal discomfort. Clinical examination was unremarkable. X-ray of the abdomen showed the needle within the gut (Fig. 2). However, there were no features of complications. He was managed conservatively with dietary modifications (high fiber diet, and bulk-forming laxatives). Serial X-rays were done which confirmed the expulsion of the needle after 3 days of ingestion.

Case 3

A 20-year-old female presented with a history of the upper abdominal pain since 1 day following ingestion of multiple sharp metallic nails with the intention of committing suicide. On examination, the patient's vitals were stable and the abdomen was soft, with no signs of peritonitis. X-ray of the abdomen revealed multiple radio-opaque shadows within the abdomen, consistent with metallic nails. There was no pneumoperitoneum. As the patient had no features of peritonitis, she was kept on an oral diet and non-operative, expectant management was followed. She was kept under close monitoring by periodic physical examination, and X-rays were done daily. The foreign bodies were passed in stools after 11 days of admission without any complications. The patient was referred to a psychiatrist and then discharged.

Case 4

A young female who was a known case of depressive disorder had swallowed a nail and was brought to the hospital after 2 days following a complaint of abdominal discomfort. A plain radiograph of the abdomen, done after a clinical evaluation, showed a single sharp linear foreign object (Fig. 3). She was kept under expectant care, provided symptomatic treatment, and serial radiographs of the abdomen were done. The foreign body was finally expelled in stools within 4 days. The patient was then referred to a psychiatrist before being discharged.

DISCUSSION

Foreign bodies in the gastro-intestinal tract are found in patients of all ages, consumed either accidentally or with intent. Among adults, foreign body ingestion is most often seen in the elderly,

alcoholics, mentally retarded, psychiatric patients and prisoners, the commonly ingested objects being coins (26.23%), unidentified metal objects (13.11%), bones (8.19%), batteries, and buttons (6.55%) [4]. Other unusual items include pins and screws, blades, knives, wristwatches, ornaments, keys, and even smoking pipes [5]. The patients may remain asymptomatic or may have complaints of pain in the central chest and abdomen, vomiting, or vague abdominal discomfort.

In any case of suspected foreign body ingestion, plain radiography of the chest and abdomen will aid to establish a diagnosis, identify configuration, number, size, and location of the foreign body and also contributes to documenting the findings. However, false-negative rates of plain radiography are as high as 47% and thin metal objects, wood, glass, plastic, aluminum, and fish or chicken bones may not be readily seen [6]. Computed tomography scan is superior to plain radiography for the detection of foreign bodies with a sensitivity of 100% and a specificity of 91% [7]. It is also useful for detecting complications such as perforation and abscess formation and has a higher sensitivity for faintly opaque objects that may be missed on a plain radiograph.

Location and the characteristics of the foreign body have an implication on the management. Observation without changes in dietary habits has been the recommendation by most authors for uncomplicated cases, who also suggest out-patient follow-up with periodic radiographs for such cases [3,8]. It is the treatment of choice for blunt, short (<6 cm), and narrow (<2.5 cm diameter) foreign bodies, especially once they have passed the pylorus [9]. A spontaneous passage can mostly be expected within 4–6 days. In rare cases, this may take up to 4 weeks [10].

Sharp objects carry a high risk of complications [11]. Some studies have shown that in the setting of intentional ingestion, the rate of endoscopic intervention may be much higher (63%–76%) and the need for surgical intervention ranges from 12% to 16% [1,12]. In every case, the risks of endoscopic or surgical retrieval must be weighed against the risk posed by the object in the gastrointestinal tract [8]. However, there are no clear guidelines for the management of sharp objects in the bowel. A small proportion of cases does complicate because of foreign body impaction, bowel obstruction, trans-mural migration (of sharp pointed objects), and a bowel perforation. Gastrointestinal perforations occur in up to 35% of those patients who have swallowed pointed

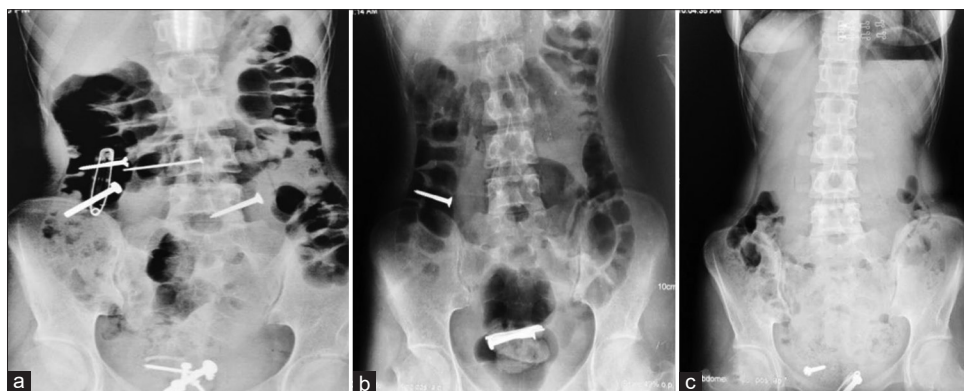


Figure 1: Abdominal radiograph at (a) presentation, (b) after 24 h and (c) 48 h of admission (case 1)

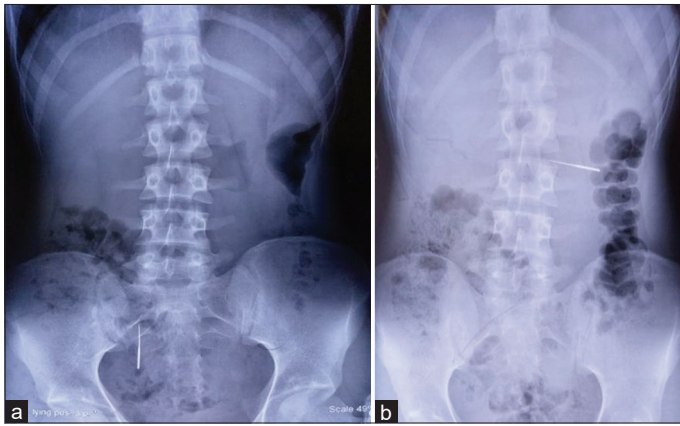


Figure 2: Plain radiograph at (a) presentation and after 24 h of admission (case 2)



Figure 3: Plain radiograph on admission (case 4)

metallic objects or other sharp objects [13]. Henderson and Gaston reported nine incidences of perforation in 800 cases of foreign body ingestion at Boston City hospital, and perforation occurred without signs of peritonitis; they also observed two asymptomatic patients with straight pins lodged in their spleens [14].

Flexible endoscopy is the best diagnostic and therapeutic approach for foreign bodies in the upper gastrointestinal tract, with success rates greater than 95% and complication rates of 0–5% [3]. Double-balloon enteroscopy is emerging as a useful minimally invasive tool that enables full endoscopic visualization and can also be used for the removal of foreign bodies from the small bowel [15]. It is minimally invasive, has fewer complications, and requires shorter hospitalization. However, the method requires a longer duration of sedation, due to the longer duration of the endoscopic procedure, as compared to laparotomy and laparoscopy [13]. Lack of expertise and of availability of this facility at most endoscopy centers are its major limitations.

Even though the literature shows that less than 1% of patients of foreign body ingestion require surgery, it has been an observation that intervention has been frequent with sharp objects than with blunt objects. Laparotomy is the current standard of care for complicated cases of gastrointestinal foreign bodies. However, in well-selected patients, laparoscopic surgery can also be done and the same is being increasingly employed for retrieval of foreign

objects, de-roofing of abscesses and primary repair of perforations, with or without aids such as endoscopy or fluoroscopy.

CONCLUSION

In the absence of guidelines regarding the management of sharp foreign objects in the gut, a conservative approach (wait-and-watch) can be adhered to before resorting to endoscopic or surgical retrieval. Management includes elicitation of history, clinical examination, and radiological investigations. The vigilance of the clinician to promptly identify complications and intervene accordingly is the mainstay while conservatively managing these cases.

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