



Colonoscopy for foreign body retrieval in ileocecal valve: a rare case report

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Abstract

Foreign body (FB) ingestion is a common emergency among the pediatric population. They usually pass spontaneously through the gastrointestinal (GI) tract. In rare cases, it may cause complications because of the impaction. That depends on the type of an FB, its location, the patient's age and the duration of impaction. Colonoscopy as management of FB ingestion in the ileocecal valve (IC) is rare in the medical literature review. Herein, we reported a case of an FB (thin needle-shaped FB 4 cm long) in the IC that was removed from the IC by colonoscopy. Although colonoscopic retrieval of impacted foreign bodies at the GI tract in children has been rarely reported in the literature review, it may be helpful in young children to avoid invasive surgical treatment.

BACKGROUND

Foreign body (FB) ingestion is a common emergency for all ages, especially for children [1]. In 2018, the American Association of Poison control centers documented 66 519 cases of FB ingestion. The majority are in children between 6 months and 3 years of age, predominant in the male gender [2]. In all, 98% of FBs ingestion in children is accidental, whereas the other rare causes are psychiatric deterioration (self-harm and suicidal ideation) or disability [1]. Children struggle with prescribing their symptoms accurately, making it harder for the pediatrician to reach the correct diagnosis quickly [3]. In 90% of the cases, FBs can pass through the gastrointestinal (GI) tract spontaneously, causing barely any harm. The complications are more likely to happen if the FB remains impacted for a long time and also depends on the type of FB (i.e. button batteries must be removed immediately because of their dangerous complications) [2]. In <10% of the cases, FB cannot easily pass the GI tract (the pylorus, stomach, duodenum, ileocecal valve (IC) or Bauhin's valve, Meckel's diverticulum and/or anus) and can cause symptoms varying from respiratory symptoms of coughing, stridor, choking to GI symptoms of vomiting, dysphagia, odynophagia, Globus sensation to being asymptomatic. Therefore, interventions in these higher-risk groups are required [3]. This object requires endoscopic retrieval in about 20% of cases, whereas 1% of cases may require surgical removal, but this depends on the type of FB, its location, the patient's age and the duration of impaction [4]. Therefore, FBs lodged in the esophagus must be removed endoscopically. Although the majority of FBs in the stomach will pass within 4–6 days, endoscopic removal is recommended in the cases of FBs that are asymptomatic or present for prolonged periods [1, 3]. There are clear guidelines

that FB should be removed when located in the GI tract proximal to the ligament of Treitz. FBs that have moved beyond the Treitz ligament usually pass without complications. If the object has not passed after 3–4 days, a colonoscopy is used in impacted caecal FBs, whereas surgical intervention is recommended when the FB is well beyond the duodenum [4, 5]. In the medical literature review, right-side colonic endoscopic retrievals of FB ingestion are uncommon. Therefore, indications for its use are not well documented because of the need for full bowel preparation for right-sided colonic FBs and the increased risk of bowel perforation [5]. We report a rare case of an inflatable air needle that was lodged in the IC valve in an asymptomatic 9-year-old male who required a colonoscopy.

CASE PRESENTATION

A 9-year-old boy was referred to the Pediatric emergency department 6 h after ingestion of an inflatable air needle (4 × 0.5) cm. The child was previously healthy and had no medical history. On examination, he had normal growth and vital signs. He was asymptomatic, with no signs of nausea, vomiting or abdominal pain. The abdomen examination was soft and normal with normal bowel sounds. There was neither rebound tenderness nor tenderness. X-ray of the chest and abdomen chest showed a thin needle-shaped FB 4 cm long at the inferior iliac angle (Fig. 1). The child was discharged with a normal diet. The parents were instructed to monitor the stools for the next few days and advised to return if the child developed symptoms of abdominal pain or if the FB did not pass within one week.

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Figure 1. X-ray of the chest and abdomen chest showed a thin needle-shaped FB 3 cm long in the inferior iliac angel.

Two weeks later, the patient returned with the complaint of the FB not passing. Initial investigation revealed only a mild leukocytosis of $12\,200/\text{mm}^3$. The patient was asymptomatic with normal clinical examinations. A simple abdominal radiograph showed the inflatable air needle located at the previous position. Colonoscopy under general anesthesia and after proper bowel preparation using a lavage relieved the inflatable air needle in the IC valve (Fig. 2). The inflatable air needle was retrieved successfully using the crocodile instrument (Fig. 3). The child was discharged on the same day without any complications.

DISCUSSION AND CONCLUSION

To date, only four cases in the literature reviews have described the endoscopic retrieval of impacted FB in the colon or IC in children. These cases have been reported rarely in adults. Two cases were described by Lee *et al.* [6] and the others registered in the Navia-López *et al.* study [7]. Table 1 summarizes these cases. Unlike in previous cases, the ingested FB in the current case was an inflatable air needle.

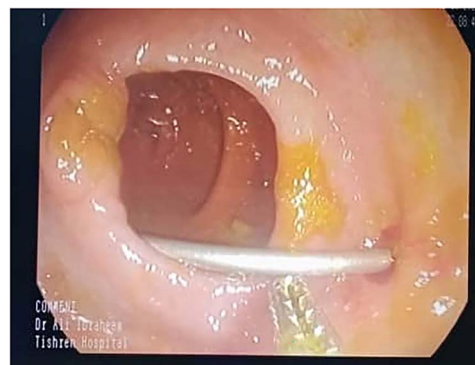


Figure 2. Colonoscopy relieved the needle inflatable air in the Bohan valve.



Figure 3. The instrument with the ingested FB that we used for needle inflatable air removal.

Radiographs are very important in the study of FBs ingestion, as they confirm the size, shape, location and number of ingested FBs [1]. Many FBs are radiolucent and plain. Therefore, the films appear negative, and others are opaque that typically made of medications, glass, metals and animal bones (except for fish) [3]. The radiographs have rates of false-negative in 47% of suspicion FB cases and 87% in food bolus impaction cases [6]. CT scan without contrast identifies FBs in 80–100% of cases. If patients are symptomatic and the X-rays are negative, the most accurate diagnosis and management tool of FBs ingestion is endoscopy, as it is nearly 100% because of direct visualization [5]. It is less traumatic, the most cost-effective, high success rate, is safe and has fewer complications that allow determining the location of the ingested FBs and visual observation of the factors predisposing to lesions caused by the FB or the method used to extract it [7]. In the current case, the patient swallowed an inflatable air needle, which was diagnosed with an X-Ray of the chest and abdomen chest.

Table 1. The cases in the literature review.

Author	Manifestation	Diagnosis	Treatment
Lee. E.J (2017)	4-year-old girl was referred 1 h after ingesting a 15 mm disc battery	Laboratory: mild leukocytosis Abdominal radiography showed a radiopaque disc battery in the IC valve	Colonoscopy: FB at the terminal ileum near the IC valve removed by magnet probe.
	A 10-month-old girl was referred 6 h after ingesting an open safety pin	Laboratory: mild leukocytosis with mild liver enzyme elevation Abdominal a radiography showed radiopaque 2-cm-sized open safety pin in the lower right abdomen near the IC valve	Colonoscopy: FB in the IC valve and removed using tripod forceps.
Navia-López L.A. (2022)	Two patients ingested sharp objects and button cell batteries in colons	Abdominal radiography	One case was removed by colonoscopy and the other surgery because of colonic perforation was carried.

The treatment is associated with more difficulty for endoscopic removal and higher risk.

Most of the case reports in the literature review had high leukocytosis. It may be because of the trauma of the tissues during the FB passing the GI system.

Although colonoscopic retrieval of impacted foreign bodies at the GI tract in children has been rarely reported in the literature review, it may be helpful in young children to avoid invasive surgical treatment.

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CONFLICT OF INTEREST STATEMENT

All of the authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

L.J.D. authored the article and reviewed the literature, A.M. collected the data and L.J.D. and M.F.M. made the final reading and formatting. A.I. made the linguistic criticism of the article and proofreading.

DATA AVAILABILITY

All data generated or analyzed during this study are included in this published article.

DECLARATIONS

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This case report did not require review by the Ethics Committee at Tishreen University Hospital, Latakia, Syria.

CONSENT FOR PUBLICATION

Written informed consent was obtained from the patient's parents for publication of this case report and any accompanying images. A copy of the written consent is available for review by the editor.

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