

Colorectal foreign body due to aspiration in children: The experience of a tertiary-level hospital

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ABSTRACT

Introduction: Foreign bodies resulting from aspiration are seen in children, especially those aged <5 years. Colorectal foreign bodies must be removed by colonoscopy because they may cause complaints or complications in children. This study aims to evaluate the clinical characteristics of children treated in a tertiary-level hospital for a diagnosis of colorectal foreign body.

Materials and Methods: The study included 12 children (50% male, 50% female), aged median 5 years (range, 0.6–17.0 years), who were diagnosed with a colorectal foreign body due to aspiration. The demographic data, clinical findings, and operation notes of the cases were examined retrospectively from the hospital records.

Results: The time from aspiration to presentation was a median of 15 days (range, 5 days–3 years). Colonoscopy was performed in 7 cases. The localization of the foreign body was the base of the cecum in 4 cases, the hepatic flexure in 2, and the descending colon in 1. The foreign body was removed with colonoscopy in 7 cases, with surgical intervention in 3, and with forceps in 2 where the localization was the distal rectum. In one case, an open-ended safety pin embedded in the appendix was surgically removed. In another case, a sewing needle had passed the right hepatic flexure, leading to subcapsular bleeding in the liver. The needle was removed with a surgical procedure. No complications were observed in any of the cases during or after colonoscopy or surgical procedures.

Conclusion: Pediatric cases with colorectal foreign bodies can be treated successfully and without serious complications with colonoscopy.

Keywords: Child, colonoscopy, colorectal, foreign body

Introduction

Colorectal foreign bodies can be seen in both children and adults. These foreign bodies include knife blades, food, bottles, rubber objects, sex toys, lamps, and glass pieces.

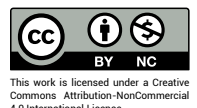
^[1] In recent years, colorectal foreign bodies have been reported to be seen more often in children. In the elderly, mentally retarded individuals, and children, foreign bodies are usually aspirated unintentionally.^[2] Of the foreign bodies swallowed by children, 80–90% emerge spontaneously

from the gastrointestinal system, but 20% may need to be removed with endoscopic methods. Surgical intervention to remove a foreign body or treat complications is required in 1% of cases.^[3] Foreign bodies stuck in the colon and rectum can cause complaints or complications in children, such as abdominal pain, perianal region pain, lower gastrointestinal system bleeding, perforation, penetration, or intestinal obstruction.^[4] Colorectal foreign bodies can be removed through endoscopic or surgical routes.^[5]



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The aim of this study was to retrospectively evaluate the clinical characteristics of pediatric cases treated in our clinic for a diagnosis of colorectal foreign body.

Materials and Methods

The study included cases who presented with the complaint of foreign body aspiration and were diagnosed with a colorectal foreign body in the Pediatric Gastroenterology, Hepatology, and Nutrition Polyclinic of Firat University Medical Faculty Hospital between 2010 and 2022. The files of the cases were examined in detail. The clinical, laboratory, radiological, and colonoscopic data obtained together with the treatment method applied were recorded on a study form.

To determine the localization of the foreign body, abdominal radiographs and abdominal tomography were taken. It was planned to perform colonoscopy on the cases determined to have a foreign body in the colon or rectum. Colon cleaning with enema and oral laxatives was performed for 2 days before the colonoscopy procedure. Before the colonoscopy procedure, informed consent was obtained from the parents of all the children. During the procedure, midazolam was used for sedation, and pethidine hydrochloride for analgesia. Pediatric colonoscopes (Olympus Lucera CV-260, Tokyo, Japan) were used during the colonoscopy procedure. Rat tooth forceps, crocodile forceps, and mesh forceps were used to remove the for-

eign bodies. After the procedure, sedation was terminated using flumazenil, and the patients were monitored for 6 hours. Cases that did not develop any complications were permitted to start oral feeding. Foreign bodies that could not be removed with colonoscopy were removed with a surgical method.

Data obtained in the study were analyzed statistically using IBM SPSS v.22 software. Percentages, mean values, and the Chi-square test were used in the statistical evaluations of the variables. Continuous variables were stated as mean±standard deviation (SD), (minimum–maximum) values, and categorical variables as number (n) and percentage (%). A value of $p < 0.05$ was accepted as the level of statistical significance.

Results

Evaluation was made of 12 cases, comprising 6 (50%) males and 6 (50%) females with a median age of 5 years (range, 0.6–17.0 years). The provinces from which the cases presented were 4 from Elazığ, 4 from Van, 2 from Bingöl, 1 from Tunceli, and 1 from Malatya. The mean duration of the complaints was 15 days (range, 5–1000 days).

The demographic characteristics of the cases, localization of the foreign body, and the treatments applied are shown in Table 1. The foreign body was removed with

Table 1. Demographic characteristics of the cases, localisation of the foreign body, and treatment applied

Case no	Age (years)	Gender	City of residence	Foreign body	Localisation of foreign body	Status of foreign body removal with colonoscopy	Other tools used in foreign body removal
1	0.75	Male	Van	Safety pin	Distal rectum	Not performed	Forceps
2	17	Female	Elazığ	Straight pin	Sigmoid colon	Yes	
3	5	Female	Van	Drawing pin	Cecum base	Yes	
4	0.75	Male	Van	Safety pin	Rectum	Not performed	Forceps
5	15	Female	Bingöl	Sewing needle	Hepatic capsule	Not performed	Surgical intervention
6	8	Male	Malatya	Fecaloma	Rectum	Not performed	Surgical intervention
7	15	Male	Bingöl	Safety pin	Cecum base	Yes	
8	5	Male	Elazığ	Nail	Cecum base	Yes	
9	8	Female	Elazığ	Coin	Cecum base	Yes	
10	5	Female	Van	Hair clip	Distal hepatic flexura	Yes	
11	1	Female	Elazığ	Safety pin	Appendix	Not performed	Surgical intervention
12	5	Male	Tunceli	Watch battery	Cecum base	Yes	

colonoscopy in 7 cases, with surgical intervention in 3, and with forceps from the distal rectum in 2. During colonoscopy, the foreign body localization was observed to be at the base of the cecum in 4 cases, in the hepatic flexure in 2, and in the descending colon in 1. A nail was determined in the base of the cecum in 1 case during the colonoscopy procedure (Fig. 1). A fecaloma 8 × 6 cm in size was determined in the rectum of 1 case (Fig. 2), and this was removed surgically under general anesthesia. In 1 case, an open-ended safety pin was observed to be embedded in the appendix, and this was removed surgically. In another case with a history of having swallowed a sewing needle 3 years previously, axial non-contrast CT showed that the needle had passed from the right hepatic flexure to be located in the liver parenchyma, and this laceration was causing subcapsular bleeding (Fig. 3). The needle was removed with a surgical procedure. No complications were seen in any of the cases during or after the colonoscopy or surgical procedures.

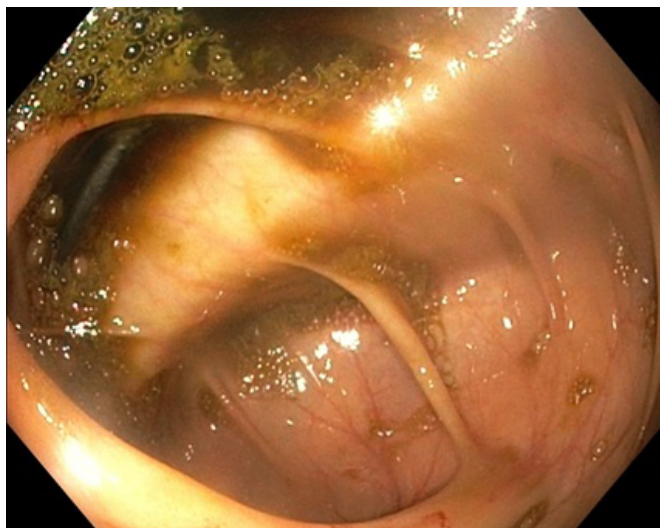


Figure 1. A nail observed at the base of the cecum during colonoscopic examination.

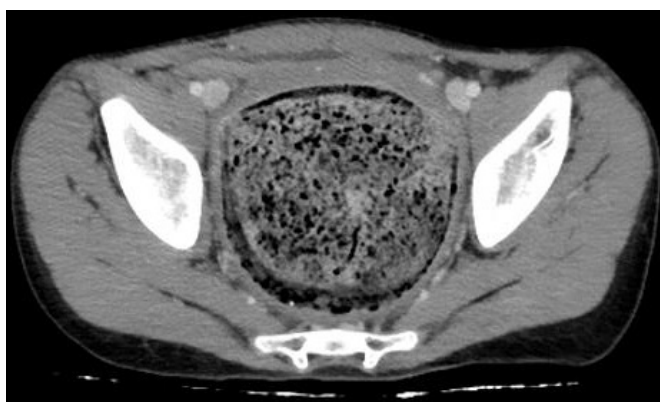


Figure 2. Fecaloma 8x6 cm in size located in the rectum.



Figure 3. Axial non-contrast computed tomography slice showing a needle passed from the right hepatic flexura and located in the liver parenchyma, and subcapsular bleeding caused by this laceration.

Discussion

The aim of this study was to evaluate the clinical, radiological, and colonoscopy findings together with the treatment methods and outcomes in pediatric cases determined to have a colorectal foreign body. The swallowing of a foreign body is seen more often in children younger than 5 years.^[6] Previous studies have reported that children who swallow a foreign body are more often male.^[6-8] However, there was no difference in the gender distribution of the cases in the current study. Most aspirated foreign bodies pass through the gastrointestinal system without any complications, but some may require removal with colonoscopy or a surgical procedure.^[5]

Foreign bodies stuck in the colon and rectum can cause complaints or complications in children, such as abdominal pain, perianal region pain, lower gastrointestinal system bleeding, perforation, penetration, or intestinal obstruction.^[4] Foreign bodies stuck in the colon can be easily and safely removed with colonoscopy.^[5] Unnecessary surgical interventions can be avoided with the use of colonoscopy.^[9] In addition, foreign bodies in the rectum can be removed with a rigid proctoscope or sigmoidoscope.^[10] In the current study, colonoscopy was performed on 7 cases after colon cleaning. During colonoscopy, the foreign body localization was observed to be at the base of the cecum in 4 cases, in the hepatic flexure in 2, and in the descending colon in 1. These foreign bodies were removed with “foreign body forceps,” and those in the distal rectum with forceps. No complications were observed in any of the cases.

Sharp objects such as sewing needles can sometimes advance as far as the liver and can lead to bleeding and pain.^[11] One of the current study cases had a history of having swallowed a sewing needle 3 years previously, and despite no previous complaints, presented with the complaint of pain in the upper right quadrant for the last 15 days. As a result of the examination and tests, it was determined that the aspirated needle had passed through the intestinal wall in the right hepatic flexure and had pierced the liver. This sewing needle was removed with a laparoscopic surgical procedure. As open-ended safety pins can become embedded in the cecum, these may require surgical removal.^[12] In one of the cases in this study, an open-ended safety pin was stuck in the cecum, and this was removed surgically. No complications were observed during this procedure. Foreign bodies in the rectum can lead to constipation and rectal leakage.^[10] Similarly, one of the current study cases had complaints of constipation and rectal leakage that had been ongoing for 2 years. On pelvic tomography, it was determined that there was a fecaloma 8×6 cm in size located in the rectum. This fecaloma was removed with a surgical procedure under general anesthesia. After the intervention, the complaints of constipation and rectal leakage completely recovered.

Conclusion

Foreign body aspirations can be frequently seen in children. As the aspirated foreign body can be spontaneously expelled with the feces, these children must be closely monitored. With radiological and endoscopic methods, early diagnosis and treatment can be made of foreign bodies with colorectal localization, thereby preventing morbidity and mortality. In selected cases that cannot be treated with endoscopic methods, surgical intervention may be necessary.

Disclosures

Ethics Committee Approval: Approval for this retrospective cohort study was granted by the Firat University Non-Interventional Research Ethics Committee (decision no: 2022/16-25, dated: 29.12.2022).

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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Informed Consent: This was a retrospective study with no requirement for informed consent.

Authorship Contributions: Concept - U.D., Y.D.; Design - U.D., Y.D.; Supervision - U.D., Y.D.; Fundings - U.D., A.M.K., Ş.A., F.A.; Materials - U.D., A.M.K., Ş.A., F.A.; Data Collection and/ or Processing - U.D., Y.D.; Analysis and/ or Interpretation - U.D., Y.D.; Literature Review - U.D., Y.D.; Writer - U.D.

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