MHA MEDIHEALTH ACADEMY

Surgery on Children

Case Report

doi:10.51271/SOC-0072

Silent damage: asymptomatic jejuno-cecal fistula following multiple magnet ingestion in a child

Oğuz Mehmet Çevik, Sevim Ecem Ünlü Ballı, Bilge Gördü, Fatma Bilgecan Şimşek, Mehmet Bahadır Çalışkan, Gökhan Berktuğ Bahadır*

Department of Pediatric Surgery, Gülhane Training and Research Hospital, University of Health Sciences, Ankara, Turkiye

Received: 26/02/2026 ◆ **Accepted**: 07/04/2026 ◆ **Published**: 27/04/2026

Cite this article: Çevik OM, Ünlü Ballı SE, Gördü B, Şimşek FB, Çalışkan MB, Bahadır GB. Silent damage: asymptomatic jejuno-cecal fistula following multiple magnet ingestion in a child. *Surg Child*. 2026;3(2):65-68. doi:10.51271/SOC-0072

***Corresponding Author:** Gökhan Berktuğ Bahadır, berktugg@gmail.com

ABSTRACT

Multiple magnet ingestion in children constitutes a hazardous condition that may result in significant gastrointestinal complications. Sometimes, clinical symptoms may be entirely absent. This study seeks to demonstrate that multiple magnet ingestion can be asymptomatic clinically yet cause severe intestinal damage, and to underscore the importance of early surgical assessment for magnets that remain stationary on serial imaging, irrespective of the presence of symptoms. A seven-year-old male patient was evaluated one week following the ingestion of seven small spherical magnets. The patient remained asymptomatic, exhibiting no abdominal tenderness or signs indicative of peritonitis. Serial abdominal radiographs revealed persistent clustering of the magnets in the right lower quadrant, with no evidence of interval progression. Due to the lack of radiographic progression, a laparoscopic exploration was performed in the fifth week post-ingestion, following resolution of an intercurrent upper respiratory tract infection. A jejuno-cecal fistula resulting from pressure necrosis was identified approximately 45 centimeters distal to the ligament of Treitz. The affected intestinal segments were exteriorized via an enlarged umbilical incision. The magnets were extracted, the edges of the fistula were debrided, and the jejunal and cecal defects were primarily repaired in two layers. An appendectomy was also performed owing to the proximity of the cecal defect to the appendiceal base. No bowel resection was deemed necessary. The postoperative course was uneventful. This case illustrates that the ingestion of multiple magnets can result in severe intestinal injury, even in the absence of symptoms. Metallic foreign bodies that persist in a stationary position on serial imaging necessitate surgical exploration irrespective of symptom presentation.

Keywords: Children, foreign bodies, intestinal fistula, laparoscopy, magnets, play and playthings

INTRODUCTION

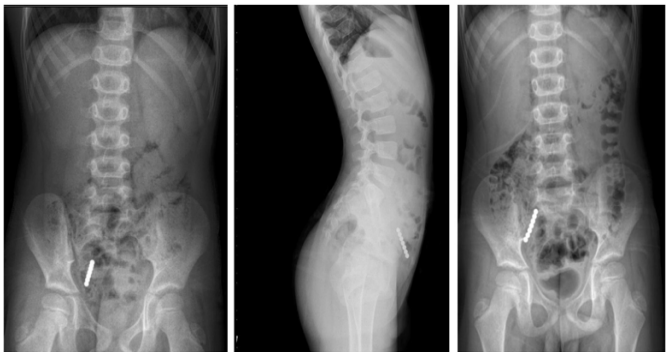
Foreign body ingestion constitutes a prevalent emergency within the pediatric demographic. Although the majority of foreign objects traverse the gastrointestinal tract without incident, the ingestion of multiple magnets at different instances presents a significant risk. Magnets possess the ability to attract each other through the intestinal wall, leading to their entrapment between segments of the intestine and resulting in tissue necrosis caused by compression, perforation, and fistula development.

Clinical manifestations may be minimal or entirely absent in cases where such complications arise. Consequently, there exists a potential for delays in both diagnosis and intervention. This report highlights a rare instance of a jejuno-cecal fistula that developed consequent to the ingestion of multiple magnets in a child who was entirely asymptomatic, along with an exploration of appropriate management strategies discussed.

CASE

A 7-year-old male patient with no known prior medical conditions was evaluated after reporting that he had swallowed seven small magnets following a bet with a friend. During the patient's presentation, it was learned that the incident occurred one week earlier. He had no complaints of abdominal pain, nausea, vomiting, fever, gastrointestinal bleeding, or changes in bowel habits (**Figure 1A**).

The patient was in good general condition. At presentation, his vital signs were stable: body temperature 36.4°C, heart rate 90 beats/min, respiratory rate 20 breaths/min, blood pressure



A B C

Figure 1. **A-B.** Abdominal A-P (**A**) and lateral (**B**) X-ray taken of the patient in a standing position at the time of admission to our clinic (7 days after swallowing). Demonstrating seven clustered spherical radiopaque magnets persistently localized in the right lower quadrant. **C.** Preoperative abdominal X-ray taken (30 days after swallowing). No change in the position of the contrast medium was observed.

110/70 mmHg, and oxygen saturation 98%. Initial laboratory evaluation showed no significant abnormalities. Abdominal examination was unremarkable, with normal bowel sounds and no signs of peritonitis or systemic infection.

One week after ingestion, the patient informed his family and presented to the hospital. An upright abdominal radiograph obtained on the day of presentation (day 7 after ingestion) demonstrated seven round radiopaque foreign bodies aligned in a linear configuration in the right lower quadrant/pelvic region. Because of the delayed presentation, the patient's asymptomatic status, and the clustered appearance of the magnets, the risks and benefits of conservative observation versus intervention were discussed with the family. Serial follow-up abdominal radiographs were obtained on the day of presentation and at 2, 7, 14, 18, 21, and 23 days after presentation (**Figure 1A, B**). (Corresponding to days 7, 9, 14, 21, 25, 28, and 30 after ingestion. On all radiographs, the magnets remained in the same right lower quadrant location and linear configuration, without separation or distal progression. In view of this persistent radiographic non-progression, surgical exploration was planned on the seventh day after presentation. However, because the patient had an active upper respiratory tract infection at that time, surgery was postponed until full clinical recovery for anaesthetic safety. As there were no signs of bowel obstruction or perforation and the patient remained entirely asymptomatic, close observation with serial radiographic follow-up was continued. After recovery from the upper respiratory tract infection, operative intervention was performed.

The patient underwent elective laparoscopic exploration. Intraoperatively, a fistulous communication was identified between the jejunum and cecum, approximately 45 cm distal to the ligament of Treitz, with magnets lodged across the tract. This caused pressure necrosis and localized erosion, establishing direct communication between the segments. No diffuse peritonitis or gross intra-abdominal contamination was observed. The umbilical camera-port incision was enlarged by approximately 2 cm, and the affected bowel loops were exteriorized. After careful separation, an opening in the jejunum was identified, providing direct access. Because the cecal defect was adjacent to the appendiceal base, appendectomy allowed removal of four magnets through the appendiceal lumen/stump, which avoided a separate cecal enterotomy. Finally, three magnets were removed directly through the jejunal opening (**Figure 2, 3**).

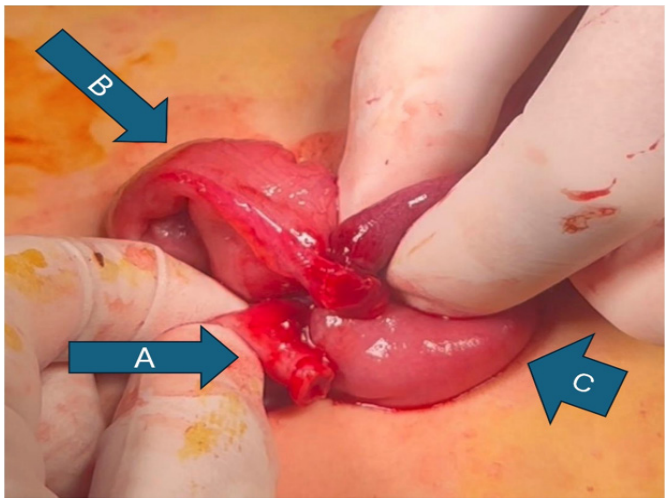


Figure 2. The jejuno-cecal anastomosis, which had formed a fistula, was brought out through the port inserted via the umbilicus under laparoscopic assistance. **A.** Post-appendectomy, **B.** Cecal loop, **C.** Jejunum loop adhered to the cecum with magnets

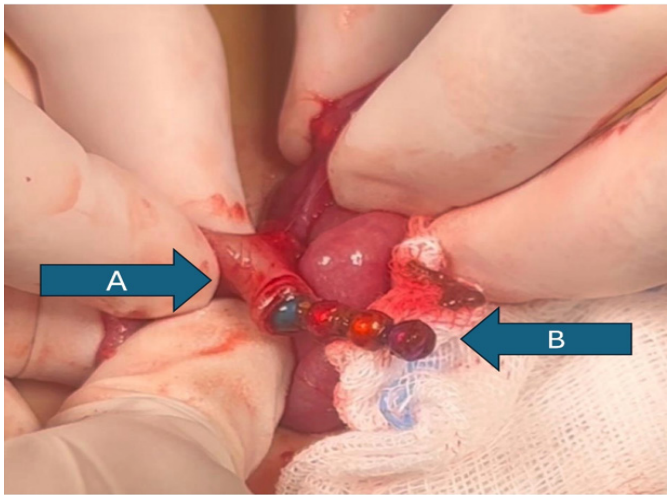


Figure 3. A. Removal of magnets from the cecum after appendectomy, B. Magnet

The fistula openings in both intestinal segments were debrided down to the limits of viable tissue and repaired primarily with absorbable sutures (4/0 90% glycolide and 10% L-lactide) in a double layer, thereby avoiding the necessity for resection. Due to the proximity of the cecal fistula opening to the appendix root, an appendectomy was performed. Intestinal viability was preserved, and no additional resection was required.

Follow-up

The patient's postoperative course was uneventful. He tolerated oral intake, bowel function returned to normal, and he was discharged on the third postoperative day with recommendations, without developing any postoperative complications. No problems were detected during outpatient follow-up visits.

DISCUSSION

Multiple magnet ingestion ranks among the conditions with the highest morbidity risk in pediatric foreign body ingestions. While a single magnet typically traverses the gastrointestinal tract without issue, the ingestion of multiple magnets at different times or their settlement in distinct intestinal segments can cause mutual attraction between intestinal loops. This interaction may result in compression-related ischemia, necrosis, perforation, and the formation of enteric fistulas.[1]

Although this pathological process generally manifests with symptoms during the acute phase, there may be delays in symptom onset or complete absence of symptoms. Guidelines and case series specifically highlight that compression necrosis can occur within hours, whereas gastrointestinal symptoms might not manifest until days or weeks later.[1] Consequently, the lack of clinical symptoms should not be regarded as a dependable indicator of a benign course.

A recent multicenter observational study demonstrated that, although most cases managed conservatively were asymptomatic, the complication rate was notably higher among the group necessitating surgical intervention.[2] Similarly, a systematic review published in 2025 reported that approximately 8% of patients who developed entero-enteric fistula due to multiple magnet ingestion were entirely asymptomatic.[3] These findings suggest that the potential for silent progression of severe intestinal damage should not be disregarded in clinical assessment.

In the scholarly literature, the lack of magnet displacement observed in serial radiographs is regarded as one of the most significant practical indicators necessitating surgical or endoscopic intervention. A multicenter study conducted in the United Kingdom found that 47.2% of 108 children who ingested multiple magnets required intervention, with the most prevalent reason being the lack of progression on serial imaging. The same study also reported intestinal perforation in 9.3% of cases and highlighted the importance of meticulous assessment, as "fixed" magnets imply that intestinal loops are adherent and interlinked.[4]

International guidelines also support early intervention. The ESGE/ESPGHAN (European Society of Gastrointestinal Endoscopy/The European Society for Pediatric Gastroenterology, Hepatology, and Nutrition) guidelines recommend removal of all endoscopically accessible magnets within 24 hours; for distal placements, they recommend close monitoring and surgical consultation if no progression is observed. The Royal College of Emergency Medicine (RCEM) and the North American Society for Pediatric Gastroenterology, Hepatology & Nutrition (NASPGHAN) algorithms also recommend frequent follow-up imaging, even in asymptomatic cases, and prompt intervention if no progression is evident.[1,6]

Delayed presentation or extended periods of conservative monitoring significantly elevate the risk of complications. A multicenter study conducted in 2024 reported a median interval from swallowing to presentation of 72 hours in the surgical group and 2 hours in the conservative group; the surgical cohort exhibited a perforation rate of 71.7%, an intensive care requirement of 20.8%, and a notably longer duration of hospitalization.[2] Furthermore, a single-center experience from China documented incidental detection of perforation 14 days later in an asymptomatic patient, with delayed presentation associated with an increased need for surgical intervention.[7] An 11-year cohort study from Turkiye also demonstrated that the presentation time was longer within the intervention group.[8]

The presented case exhibits two noteworthy features in the context of the existing literature. Firstly, the patient remained entirely asymptomatic despite the formation of a fistula. Although such cases are infrequently documented in systematic reviews, this subgroup holds significant clinical importance. Secondly, jejunocecal fistulas are exceedingly rare; within current reviews, this particular location has been documented in only isolated cases.[3]

In our case, the magnets remaining radiographically stable for 5 weeks, along with the small perforation size and the development of direct internal fistulization, explain the absence of peritonitis.[4] This finding is consistent with the localized damage mechanism described by Zheng et al.[7]

When these findings are evaluated collectively, it becomes evident that clinical symptoms do not constitute a dependable criterion for treatment decisions in cases of multiple magnet ingestion. Conversely, the absence of displacement of foreign bodies on serial imaging represents one of the most significant indicators of underlying severe intestinal damage.

CONCLUSION

The ingestion of multiple magnets constitutes a surgical emergency that can result in severe and potentially irreversible intestinal damage, even in the absence of clinical symptoms. The lack of movement of foreign bodies observed on serial radiographs indicates that the intestinal loops may be interlinked, and there may be occult perforation or fistulization. Consequently, regardless of symptom presentation, prompt surgical assessment and a proactive approach to exploration should be pursued in cases of multiple magnets without radiological evidence of progression.

ETHICAL DECLARATIONS

Informed Consent

Informed consent was obtained from the legal guardians of the pediatric patient described in this report. Where developmentally appropriate, assent was also sought from the child. The inclusion of vulnerable populations in this study adhered to national and international ethical guidelines. Extra care was taken to ensure voluntary participation, understanding, and protection of participant dignity and autonomy.

Peer Review Process

This report underwent external peer review.

Conflict of Interest

The authors declare no conflicts of interest.

Financial Disclosure

This case report did not receive any financial support.

Author Contributions

Concept/Design: GBB, SEÜB; Data Collection and/or Processing: OMÇ, BG, FBŞ; Analysis and/or Interpretation: OMÇ, MBÇ; Article Writing: OMÇ, GBB; Critical Review: GBB, OMÇ, SEÜB.

REFERENCES

1. Best Practice: Ingestion of Super Strong Magnets in Children - RCEM. Accessed January 8, 2026. https://rcem.ac.uk/best-practice/best-practice-ingestion-of-super-strong-magnets-in-children/
2. Alansari AN, Baykuziyev T, Soyer T, et al. Magnet ingestion in growing children: a multi-center observational study on single and multiple magnet incidents. *Sci Rep*. 2024;14(1):4575. doi:10.1038/s41598-024-55127-0
3. Kelaidi N, Dimopoulou K, Dimopoulou D, et al. Entero-enteric fistula following multiple magnet ingestion in children: a systematic review. *J Clin Med*. 2025;14(17):6235. doi:10.3390/JCM14176235/S1
4. Neville JJ, Harwood R, Bethell GS, et al. Magnet and button battery ingestion in children: multicentre observational study of management and outcomes. *BJS Open*. 2022;6(3):zrac056. doi:10.1093/BJSOPEN/ZRAC056
5. Tringali A, Thomson M, Dumonceau JM, et al. Pediatric gastrointestinal endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) and European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) Guideline Executive summary. *Endoscopy*. 2017;49(1):83-91. doi:10.1055/S-0042-111002
6. Kramer RE, Lerner DG, Lin T, et al. Management of ingested foreign bodies in children: a clinical report of the NASPGHAN Endoscopy Committee. 2015. doi:10.1097/MPG.0000000000000729
7. Zheng Y, Zhang Z, Yan K, et al. Retrospective analysis of pediatric patients with multiple rare-earth magnets ingestion: a single-center experience from China. *BMC Pediatr*. 2021;21(1):179. doi:10.1186/S12887-021-02642-Y
8. Varlıklı O, Akay MA, Sarıkaş NG, Metin S, Yıldız GE. The danger of magnet attraction: an 11-year cohort of pediatric intestinal complications due to magnet ingestion. *Turk J Pediatr*. 2025;67(5):720-731. doi:10.24953/TURKJPEDIATR.2025.6371