Laparoscopic-Assisted Trans-Anal Removal of Self-Inserted Foreign Body in the Sigmoid Colon: A Case Report and Literature Review

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ABSTRACT

We report a rare case of a 16-year male teenager who initially presented with abdominal bloating as the result of a self-inserted cylindrical-shaped metal tin in his sigmoid colon. The patient denied any history of psychiatric disease. He also denied any drug abuse or previous comorbidities. His abdomen was soft and nontender during the physical examination. No anal bleeding or injury was discovered on digital rectal examination. As routine trans-anal methods to extract the object failed, we performed laparoscopic surgery under general anaesthesia to remove the foreign body without complications. The patient was discharged three days after surgery and was doing well at one-month follow-up.

Key Words: *Laparotomy, Laparoscopic surgery, Foreign body*.

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INTRODUCTION

Rectal foreign bodies (RFBs) are rare cases but have severe consequences if the treatment is delayed. The incidence of RFBs has been increasing over the past decades, with a disproportionately higher occurrence rate in males.[1] Among the variety of aetiologies, self-insertion for sexual gratification is the leading cause, followed by involuntary ingestion, assault, *etc*.[2] The guidelines for treatment and post-extraction evaluation are lacking, due to their low incidence and diverse presentations from no symptoms to septic shock with pelvic abscess formation. Delayed diagnosis and intervention can lead to migration of the object or even bowel perforation. The management of RFBs can be further complicated by the great variability of shape, size, and texture, ranging from household items to masturbation devices. Herein, we report a case of a teenager who presented with a metal tin in the sigmoid colon. After multiple failed attempts to extract the object at the bedside, he eventually received laparoscopic-assisted trans-anal removal under general anaesthesia.

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CASE REPORT

A 16-year male teenager presented to the emergency department (ED) with bloating in the lower abdomen. A metal tin was inserted into his rectum approximately four hours prior. He tried to extract the foreign object at home, but his efforts were fruitless. He had no comorbidities and no history of any psychiatric disease.

His abdomen was soft. No tenderness or rebound pain was noted on palpation. No signs of peritonitis were revealed. He had no fever, nausea, or vomiting. His vital signs and bowel sounds were normal. X-ray of the abdomen displayed a cylindrical-shaped object in the pelvic cavity without free gas (Figure 1). The digital rectal examination was unrevealing. Multiple attempts to extract the object *via* the anus at the bedside failed. Preoperative laboratory tests were within normal range. The patient was admitted and shifted to the operating room (OR). CT scan revealed a rectangular-shaped object in the sigmoid colon.

After general anaesthesia, the teenager was placed in the lithotomy position. Trans-anal extraction by delivery forceps with simultaneous application of aggressive pressure in the lower abdomen was futile, as the foreign body was retained in the sigmoid colon. We decided to proceed with the laparoscopic approach. Firstly, a 10-mm port was inserted in the periumbilical area for laparoscope insertion. The abdominal cavity was inspected carefully for abscesses, haematomas, and ascites. Secondly, two 5-mm ports were placed in the right lower and upper quadrants to identify and localise the foreign object in the sigmoid colon.

Two laparoscopic forceps were used to compress the proximal colon repeatedly toward the anus. The foreign object was eventually extracted *via* the anus after lubrication without enterotomy (Figure 2).

The teenager's recovery was unremarkable, and he was discharged three days postoperatively with tolerance of normal diet and independent ambulation. At one-month follow-up, the patient recovered well and was free of symptoms. The patient gave written informed consent for publication of this paper.

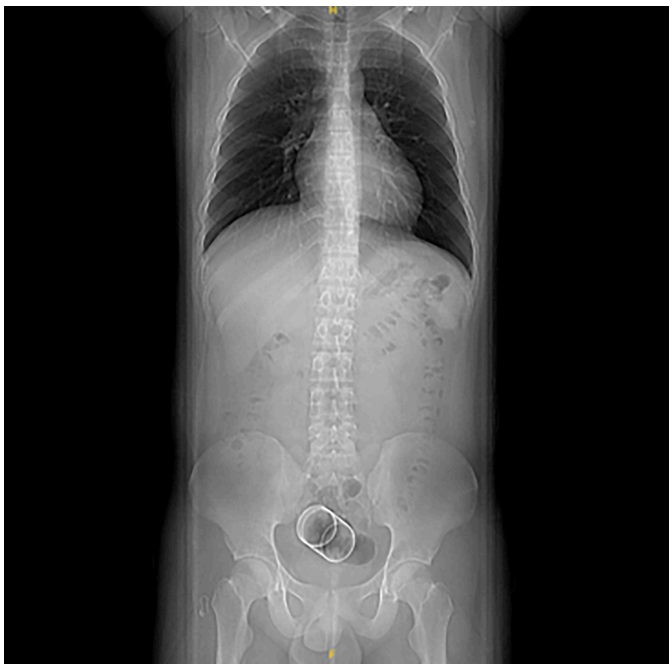

Figure 1: Abdominal x-ray shows a foreign body in the sigmoid colon.

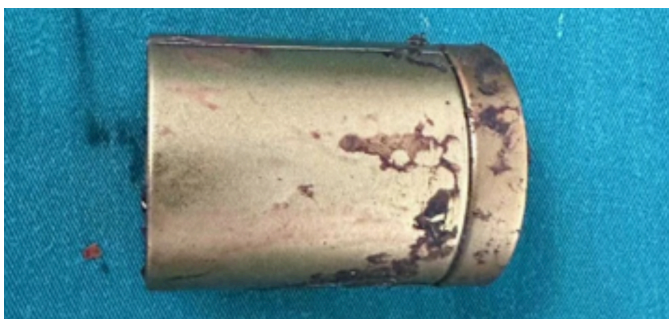

Figure 2: The metal tin extracted from the sigmoid colon.

DISCUSSION

The management of RFBs in the ED can be challenging on account of patients' diverse presentations and reluctance to share a detailed history. Patients may present with bloating, anorectal or abdominal pain, hematochezia, and constipation. RFB insertion has been reported in all age groups with a mean age in the mid-40s.[3] Delayed diagnosis and treatment can result in severe consequences, such as rectal perforation, pelvic abscess, septic shock, *etc*. Hence, a comprehensive history inquiry and thorough physical examination should be taken by the attending physician.

Urgent OR transfer with exploratory laparotomy is indicated if the patient presents with an acute abdomen. Primary anastomosis or diverting colostomy may be performed depending on the extent of the injury. Otherwise, a step-by-step algorithm for RFB removal has been recommended starting from the least invasive approach such as enema, trans-anal extraction using forceps, or obstetric vacuum, to emergency laparotomy as the last resort.[4] According to Lake *et al*.'s study, most RFBs can be extracted smoothly at the bedside.[5] However, bedside trans-anal extraction is not without complications, with mucosal injury the most common one, followed by perforation and infection.[6] Depending on the patients' condition, the procedure may be performed laparoscopically or *via* laparotomy under general anaesthesia. The decreased anorectal pressure under the effect of general anaesthesia and muscle relaxants facilitates the extraction of RFBs.

According to the Organ Injury Scaling 2020 update, most injuries caused by RFBs are categorised as grade I injuries, which were defined as focal wall thickening or haematoma without non-physiological free fluid.[7] When higher-grade blunt injury or penetrating injury occurs, enterotomy or diverting colostomy may be performed. Laparoscopic surgery allows for direct visualisation of the sigmoid colon and upper rectum for injury. The patient could be allowed for liquid diet the day after surgery and discharged early provided that no injury is found. Primary repair or diverting colostomy can also be performed laparoscopically as indicated, which is an advantage for patients with morbid obesity.[8]

Based on the diverse aetiologies of RFBs, the management can be challenging in the ED. Early diagnosis and intervention are associated with a better prognosis. Joint efforts with colorectal surgeons, anaesthesiologists and endoscopists should be made to improve bedside extraction rate and decrease perioperative complications. Emergency laparotomy is inevitable in cases where bedside manual extraction and minimal-invasive procedures fail.

PATIENT'S CONSENT:
Informed consent was obtained from the patient to publish the data concerning this case.

COMPETING INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
ZL: Drafting of the manuscript.
LR: Acquisition of data.
EL: Resources.
XP: Conceptualisation.
All authors approved the final version of the manuscript to be published.

REFERENCES

1. Bhasin S, Williams JG. Rectal foreign body removal: Increasing incidence and cost to the NHS. *Ann R Coll Surg Engl* 2021; **103(10)**:734-7. doi: 10.1308/rcsann.2020.7129.

2. Khan S, Khan S, Chalgari T, Akhtar R, Asad M, Kumar B. Case series: Removal of rectal foreign bodies. *Cureus* 2021; **13(2)**:e13234. doi: 10.7759/cureus.13234.
3. Kim JH, Um E, Jung SM, Shin YC, Jung SW, Kim JI, *et al*. The management of retained rectal foreign body. *Ann Coloproctol* 2020; **36(5)**:335-43. doi: 10.3393/ac.2019.10.03.1.
4. Cawich SO, Thomas DA, Mohammed F, Bobb NJ, Williams D, Naraynsingh V. A management algorithm for retained rectal foreign bodies. *Am J Mens Health* 2017; **11(3)**:684-92. doi: 10.1177/1557988316680929.
5. Lake JP, Essani R, Petrone P, Kaiser AM, Asensio J, Jr Beart RW. Management of retained colorectal foreign bodies: Predictors of operative intervention. *Dis Colon Rectum* 2004; **47(10)**:1694-8. doi: 10.1007/s10350-004-0676-4.
6. Brungardt JG, O'Dell RJ, Eaton SR, Bennett AW. Rectal foreign bodies: National outcomes after the operating room. *Int J Colorectal Dis* 2021; **36(2)**:265-9. doi: 10.1007/s00384-020-03756-y.
7. Tominaga GT, Crandall M, Cribari C, Zarzaur BL, Bernstein M, Kozar RA, *et al*. Organ injury scaling 2020 update: Bowel and mesentery. *J Trauma Acute Care Surg* 2021; **91(3)**:e73-7. doi: 10.1097/TA.0000000000003319.
8. Berghoff KR, Jr Franklin ME. Laparoscopic-assisted rectal foreign body removal: Report of a case. *Dis Colon Rectum* 2005; **48(10)**:1975-7. doi: 10.1007/s10350-005-0117-6.