

Magnetic Meckel's: an unusual case report of foreign body ingestion

Authors: S. Lindley, S. Pathak, M. Mulchandani, S. Dalton & R. Sutton

Location: Royal United Hospital, Bath, UK

Citation: Lindley S, Pathak S, Mulchandi M, Dalton S, Sutton R. Magnetic Meckel's: An unusual case report of foreign body ingestion. JSCR 2012 3:7

ABSTRACT

Foreign body ingestion in children is common. Most items pass spontaneously, however rarer cases may result in obstruction and or perforation. Ingestion of multiple magnetic items can be more troublesome, as a consequence of the ability of the items to attract across different sections of bowel, or by coalescing to form a larger foreign body. Very few cases of foreign body ingestion have led to the presentation of a complicated Meckel's diverticulum. We present of a case of an adolescent boy with intestinal obstruction secondary to multiple magnetic foreign body ingestion and sequestration within a Meckel's diverticulum.

INTRODUCTION

Foreign body ingestion is common in children. Most items small pass spontaneously, however some may lead to intestinal obstruction, volvulus, intusseption, and perforation (1,2). Once the foreign body enters the small bowel, 80-90% of patients pass the object spontaneously (3). In the minority, objects have reportedly perforated terminal ileum, diverticulae, the appendix, and very rare cases have unmasked a previously unknown Meckel's diverticulum (4,5). Meckel's diverticulum is a congenital blind ending pouch, reminiscent of an unobliterated vitelline duct. The 'rule of twos' states that a Meckel's diverticulum is 2 inches in length, found 2 feet proximal to the ileocaecal valve, occurs in 2% of the population and causes complications in 2% of those in possession (1). In addition to the established rule of twos; of those presenting with complications of a Meckel's diverticulum, 2% have a perforation secondary to foreign body ingestion (6). Previous case reporters have urged for caution when dealing with ingestion of multiple magnets. Multiple ingested magnets can attract across adjacent loops of bowel and cause pressure necrosis and fistulation (7). A review of 20 cases involving ingestion of multiple magnets showed that 19 required surgery and 16 of these sustained bowel perforation (8). We describe an adolescent boy who presented with abdominal pain and signs of obstruction. The patient had swallowed several metallic balls which sequestered in his Meckel's diverticulum. There was an area of necrosis and localised perforation as well as an obstructing band arising from close to this perforation.

CASE REPORT

A 16-year-old boy presented via an out of hours GP to a large district general hospital with a 1 week history of mild abdominal distension, vomiting, and worsening central abdominal pain.

Examination revealed a soft abdomen with umbilical tenderness. There were no signs of abdominal wall hernia. The abdominal film (figure 1) demonstrated a collection of approximately ten small spherical radiopaque objects positioned in the pelvis. There was evidence of gross small bowel distension proximal to this. The chest film was unremarkable. Considering the radiological findings, the patient was asked specifically about having swallowed foreign bodies. After being showed the abdominal film, the patient reluctantly confessed to having swallowed several metallic balls approximately 4 to 6 weeks beforehand. Inflammatory markers were all within the normal range, and the patient remained cardiovascularly stable and afebrile.



An emergency laparotomy via a right iliac fossa transverse incision was performed. On entering the abdomen, grossly dilated loops of small bowel were found. The terminal ileum was normal. The point of transition was the mid ileum with a wide neck Meckel's diverticulum, containing some metallic balls. Foreign bodies were visible through a perforation distal to the diverticulum. There was also a band arising close to the perforation, which was in communication with the jejunum. This band was trapping loops of small bowel and acting as the site of obstruction. A portion of the jejunum appeared non-viable. There was small bowel contamination in the pelvis. The incision had to be extended to facilitate access. The band was divided and a limited small bowel resection of the jejunum was performed along with Meckel's diverticulectomy. Extensive washout was performed. A tube drain was inserted and abdomen was closed in layers. The patient had an uncomplicated recovery.





DISCUSSION

Most emergency and paediatric practitioners manage ingestion of small foreign bodies conservatively. It is well established that alkali batteries however, are potentially dangerous, and should be removed. Recent literature suggests that, swallowing multiple metallic foreign bodies should be considered as potentially harmful as alkali batteries (9), due to their ability to splint adjacent sections of bowel causing pressure necrosis and subsequent perforation (7). Our case is not complicated by magnetic components trapping adjacent loops of bowel. We suggest that individually, each ball had little difficulty entering the small bowel, but due to magnetism, were able to coalesce and act as a large foreign body, causing small bowel obstruction and perforation. This unique case highlights the dangers of ingested magnetic foreign bodies in a different way to previous reported cases of multiple magnets causing pressure necrosis by magnetic attraction across different sections of bowel. This case shows how magnetic items can sequester in the bowel, causing complications seen more commonly with larger foreign bodies. This case is unusual in that it is both a presentation of a Meckel's diverticulum and a complication of magnetic foreign body ingestion. There are no reported cases with a similar presentation in the literature. In children found to have ingested foreign material, a clear history is not always volunteered. Younger children may be unable to give a clear history and older children are often reticent about divulging information (2). Our case demonstrates that even adolescent children who can recall swallowing foreign bodies, do not volunteer information until specifically questioned, or shown radiographic evidence. In adolescents and young children with an atypical history of abdominal pain, foreign body ingestion should be considered. In these cases, children should be specifically asked whether they recall swallowing anything. Where there is evidence of multiple magnetic foreign body ingestion, patients should be managed aggressively to prevent the sequelae of complications. Furthermore, a mid-line laparotomy should be used as the incision of choice to facilitate access (10).

REFERENCES

1. [Rosswick RP. Perforation of Meckel's Diverticulum by Foreign Bodies. Postgraduate Medical Journal. 1965;41:105-107](#)
2. [Kircher MF, Milla S & Callahan MJ. Ingestion of magnetic foreign bodies causing multiple bowel perforations. Pediatric Radiology. 2007;37:933-936](#)
3. [Nandi P, Ong GB. Foreign body in oesophagus: review of 2394 cases. British Journal of Surgery 1978;65:5-9](#)

4. [Chan KW. Perforation of Meckel's diverticulum caused by a chicken bone: a case report. Journal of Medical Case Reports. 2009;3:48](#)
5. [Yaqci G, Cetiner S, Tufan T. Perforation of Meckel's diverticulum by a chicken bone, a rare complication: report of a case. Surgery Today. 2004;34:606-608](#)
6. [Park JJ, Wolff BG, Tollefson MK, Walsh EE, Larson DR. Meckel diverticulum: the Mayo Clinic experience with 1476 patients \(1950–2002\). Annals of Surgery. 2005;241:529-533](#)
7. [Oestreich AE. Multiple magnet ingestion alert. Radiology 2004;233:615](#)
8. [Centers for Disease Control and Prevention \(CDC\). Gastrointestinal injuries from magnet ingestion in children – United States, 2003–2006. Centres for Disease Control and Prevention Morbidity and Mortality Weekly Report. 2006;55:1296–1300](#)
9. [Vijaysadan V, Perez M & Kuo D. Revisiting Swallowed Troubles: Intestinal Complications Caused by Two Magnets—A Case Report, Review and Proposed Revision to the Algorithm for the Management of Foreign Body Ingestion. Journal of the American Board of Family Medicine. 2006;19:511-516](#)
10. [Seiler CM, Deckert A, Diener MK, Knaebel HP, Weigand MA, Victor N, Büchler MW. Midline versus transverse incision in major abdominal surgery: a randomized, double-blind equivalence trial \(POVATI: ISRCTN60734227\). Annals of Surgery. 2009;249:913-920](#)