

Paediatric ingestion of one hundred small high-power magnets—the dangers of the online marketplace

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Foreign body ingestion is common in paediatric patients.¹ Most foreign body ingestions pass spontaneously without causing injury, and only a minority require intervention. Ingestion of multiple magnetic objects, however, can have serious consequences such as pressure necrosis, perforation and fistulation and thus the majority (75–87.5%) of patients require surgical or endoscopic intervention.^{2–4} Accessibility to high-power magnets is a rising concern for our paediatric population, which may be due to the ability to purchase from online marketplaces at inexpensive prices.⁵

We present the case of a 13-year-old boy admitted to hospital with 4 days of generalised abdominal pain. He disclosed ingesting approximately 80–100 5x2mm high-power (neodymium) magnets about 1 week prior, which were purchased from an overseas online marketplace (Temu™). On examination his abdomen was maximally tender in the right lower quadrant with guarding.

Abdominal X-ray revealed four linear chains of magnets localised to the right lower quadrant of the abdomen (Figure 1). These appeared to be in separate parts of bowel adhered together due to magnetic forces. There were no features of bowel obstruction or pneumoperitoneum. Computed tomography (CT) imaging was distorted by metallic artefact from magnets although it did not reveal any pneumoperitoneum.

The patient went forward for exploratory laparotomy. Intraoperative findings were of several chains of magnets at different segments of small bowel and caecum. These were adhered at multiple points in the right lower quadrant causing pressure necrosis (Figure 2, Figure 3). In total there were two areas of pressure necrosis of the caecum and two areas of the small bowel. An ileocolic resection and two small bowel wedge

resections were performed to retrieve magnets (Figure 4). Intraoperative image-intensifier revealed no further magnets remaining in abdomen. There was no intra-abdominal contamination. A nasogastric was placed intraoperatively due to risk of ileus.

Post-operative recovery was complicated by anastomotic staple-line bleed and post-operative ileus, which were both managed conservatively without requiring reintervention. The patient was discharged on post-operative day 8 after successfully progressing diet.

Conclusion

Ingestion of multiple magnets can have serious consequences including pressure necrosis, perforation, obstruction, fistula and sepsis.^{2–4} Given the majority are managed with surgical intervention, this can lead to further complications later in life including adhesional bowel obstruction, abdominal hernia and chronic pain.^{6,7} Preventative strategies are important to reduce risk of harm to paediatric patients.⁸

Both Australia and New Zealand product safety laws have outlined a permanent ban on the sale of small high-powered magnets.^{9,10} While these laws can be enforced locally, it is more difficult to regulate products supplied by overseas merchants on large-scale online marketplaces. These platforms are easily accessible especially by children, with purchases being inexpensive and not always requiring age verification. This case highlights not only the dangers of magnet ingestion but also the dangers of the online marketplace for our paediatric population. Despite current product safety laws in New Zealand, there is alarming difficulty in enforcing regulations on products purchased from overseas online marketplaces, which remains a serious concern.

Figure 1: Abdominal X-ray with four linear chains of magnets in the right lower quadrant.

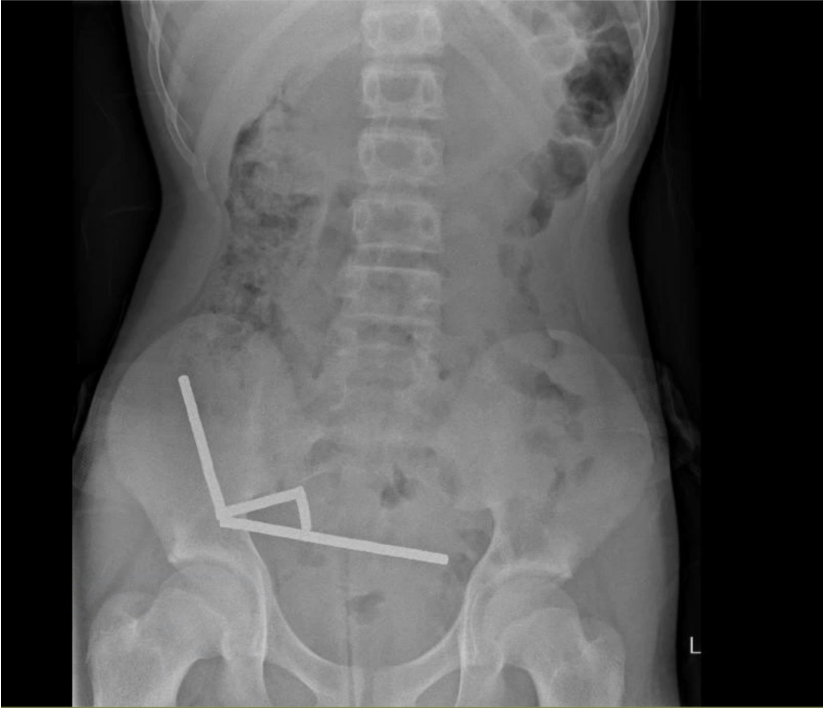


Figure 2: Intraoperative image with arrow pointing to two segments of bowel adhered by magnets.

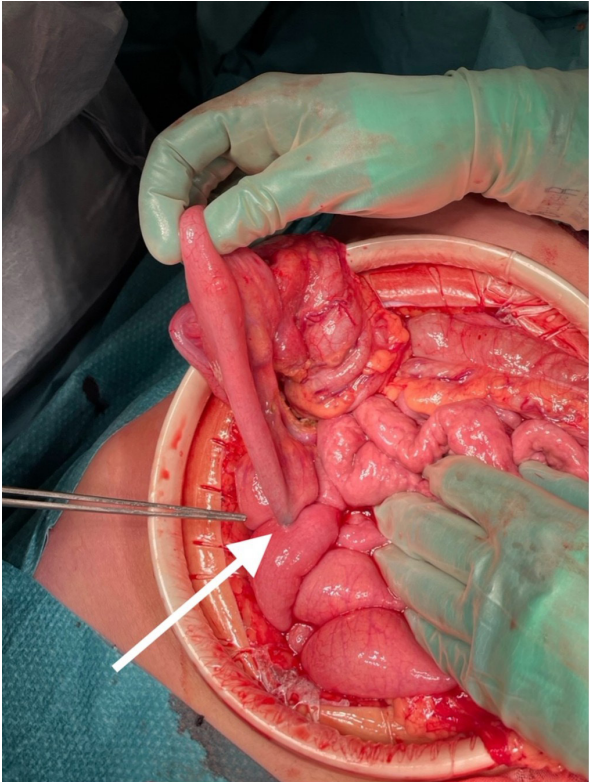


Figure 3: Intraoperative image with circle indicating area of pressure necrosis on the caecum and arrow pointing to chain of magnets in the terminal ileum.

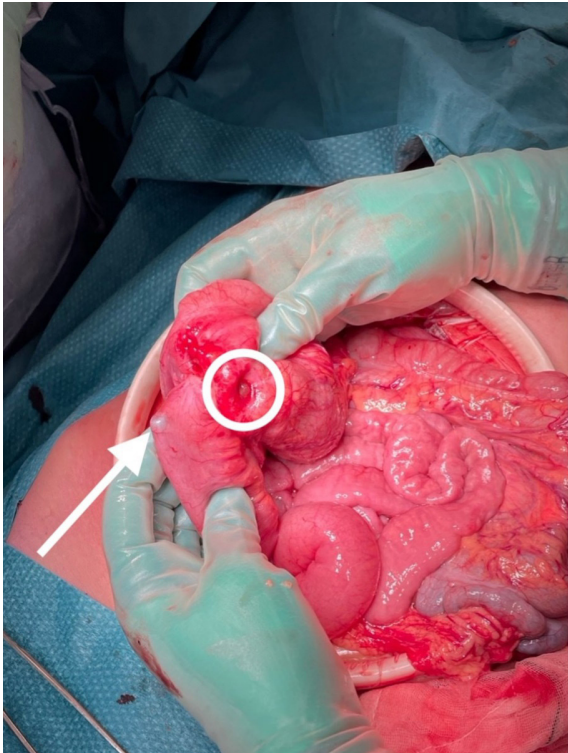
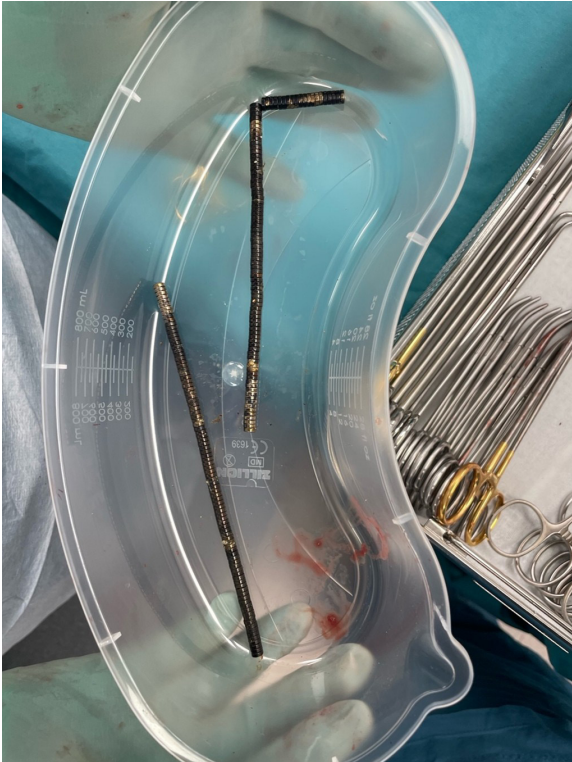


Figure 4: Approximately 80–100 high-powered magnets retrieved from operation.



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