CASE REPORT

Multiple magnet ingestion and gastrointestinal morbidity

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Foreign body ingestion is common but multiple magnet ingestion is rare. When more than one magnet is ingested, gastrointestinal complications may occur. The magnets are attracted to each other across the bowel wall and this may lead to pressure necrosis, perforation, fistula formation, or intestinal obstruction. We report a case of perforation following the ingestion of 12 small magnets. Clinicians who care for children should be aware of this hazard.

A 9 year old girl presented with a four day history of left sided abdominal pain with vomiting and diarrhoea. The vomiting eventually became bilious. On clinical examination, she was pyrexial with a soft, undistended abdomen and tenderness in the left flank and suprapubic region. There was no percussion tenderness or guarding. A plain radiograph

Figure 1 Radiograph of the abdomen showing distended loops of bowel in the upper abdomen and an opaque cylindrical structure in the lower abdomen.

of the abdomen revealed distended loops of bowel in the upper abdomen and an opaque cylindrical structure in the lower abdomen (fig 1). On closer questioning it transpired that she had ingested 12 small powerful magnets, each measuring 7 mm × 5 mm, on separate occasions a week before her illness. The white blood cell count was normal but the blood biochemistry was grossly deranged (sodium 128 mmol/l, potassium 3.2 mmol/l, chloride 82 mmol/l, urea 22.4 mmol/l, creatinine 130 µmol/l).

Following fluid resuscitation, antibiotics, and nasogastric drainage, a laparotomy was performed. There was obvious peritoneal contamination and five ileal perforations were identified. The 12 magnets had adhered to one another, forming a cylindrical structure that was lying free in the peritoneal cavity (fig 2). The perforations were oversewn and the peritoneal cavity was lavaged with normal saline.

In the postoperative period she was seriously ill. She had a prolonged postoperative ileus requiring total parenteral nutrition for a week. Ultimately, however, she made a full recovery. The magnets were for general industrial use and our patient had acquired them from other children.

DISCUSSION

Foreign body ingestion is a common clinical problem in paediatrics with 80% of cases involving children between the ages of 6 months and 3 years.¹ Commonly ingested objects include coins, toy parts, jewellery, batteries, needles and pins, and fish and chicken bones.² In 80–90% of cases, spontaneous passage through the gastrointestinal tract occurs once the foreign body has entered the small bowel,^{3–5} so that surgical intervention is not usually necessary. Upper gastrointestinal foreign bodies are amenable to retrieval by endoscopy^{2–5} or Foley balloon catheter extraction.⁶

Multiple magnet ingestion is especially hazardous, because individual magnets tend to interact through the bowel wall. A review of the published literature revealed previous cases of children aged 2–3 years in whom obstruction, perforation, fistula formation, and adhesions occurred.^{1–7} Magnets attract one another forcefully, and through pressure necrosis can cause

Figure 2 Cylindrical structure of the magnets found in the peritoneal cavity.

serious bowel injury. In all previously reported cases, surgical intervention was necessary. In our patient, the magnet ingestion was intentional and was reportedly intended to allow the application of jewellery, so as to mimic the practice of body piercing.

In conclusion, multiple magnet ingestion can lead to serious gastrointestinal complications and paediatricians should be aware of the special hazards associated with this.

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