

Double magnet ingestion in a child

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Introduction

Children between 6 months and 6 years are more prone to have an accident from foreign body ingestion and aspiration¹. Toys are made more attractive by using magnets, which may be single or multiple and when ingested can result in serious gastrointestinal injuries such as perforation of a hollow viscus, fistulisation, pressure necrosis of the intestinal wall or intestinal obstruction, volvulus and sepsis². We report a case of multiple magnet ingestion which was retrieved from the gastrointestinal tract without complications.

Case report

A healthy 1 year and 6-month-old boy presented with vomiting and abdominal pain after taking food, with a history of ingestion of double magnets while playing with his sister the previous day. On examination, the abdomen was soft, with epigastric tenderness. Signs of peritonitis were absent. Abdominal radiography in the antero-posterior view revealed two radiopaque shadows of 2.5cm x 1.5cm in the upper abdomen at the left upper quadrant. No free air or other signs of perforation were detected (Figure 1)

The child was kept nil orally and resuscitated with intravenous fluids. Gastroduodenoscopy was performed to retrieve the magnets (Figure 2).

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Figure 1: Skilagram of abdomen showing two foreign bodies attached to each other

On endoscopy, one magnet was in the first part of the duodenum and was attached to the wall. The other magnet had slipped further distally, probably into the jejunum. Both magnets had attracted each other and were joined together with a portion of the intestinal wall in between them. A magnet of size 2.5 x 1.5cm was present in the duodenum and was retrieved endoscopically. Underlying ulcerations and friable oedematous adjacent mucosa were noted in the duodenal wall without any evidence of perforation or fistulisation. As a solitary magnet was innocuous, the second magnet was left behind in the distal intestine, probably jejunum, with a plan of watchful expectancy. Parents were advised to search in the stool, and the second magnet was found the next morning. There were no post-procedure complications, and the child was discharged after 2 days.



Figure 2: A. Endoscopic view of magnet located in duodenum B. Removal of magnet endoscopically

Discussion

Around 10–20% of ingested foreign bodies need no intervention and less than 1% require surgical removal^{3,4}. Ingestion of a single magnet can be managed conservatively but multiple magnets present a greater risk¹. Diagnosing multiple magnets and magnets with metal is difficult if they are attached to each other inside the body. Complications arise when a wall of the intestine is trapped between them, as in the present case. This can result in severe gastrointestinal injury, abdominal infection, formation of a false passage, twisting of the gastrointestinal tract, intestinal obstruction, decreased blood perfusion and death⁴. Radiological investigations can be misleading, as occurred in the described case. The intestinal wall trapped between the magnets or a magnet and a metallic foreign body may not be visible radiologically leading to a false sense of security. For patients with multiple magnet ingestion who are symptomatic, an aggressive surgical approach can prevent significant morbidity and mortality⁵. In the present case, as we intervened early, we were able to save the patient from pressure necrosis of the intestinal wall leading to perforation and peritonitis.

Once the magnet is inside the oesophagus, stomach, or proximal small bowel, an endoscopy is needed to retrieve it and to see the possible damage caused by the magnet. For patients with no symptoms, serial skiagraphy of the abdomen is done, and one has to observe whether the magnetic body remain in same location or wait for spontaneous passage of the magnetic body in the stool. If the magnetic body fails to move or there are gastrointestinal symptoms, endoscopic or surgical intervention is required. Magnets are passed in the faeces without complications in many patients with magnet ingestion⁴.

Parents should be aware of the consequences of these toys containing magnets. It is not easy to distinguish whether the foreign body ingested is metallic or magnetic. Delays in diagnosis and treatment can lead to serious or fatal outcomes. Infants, toddlers, and at-risk children should not play with toys or objects with small magnets or metals. Improved regulations and magnet safety standards need to be implemented during manufacture of these toys. Special care is needed for children with autism, developmental delay, neurologic disorders or attention deficit hyperactivity disorder⁵.

Conclusion

The patient was managed with gastroduodenoscopy and the ingested magnetic foreign body was removed as soon as he became symptomatic. The radiograph revealed two radio-opaque shadows. Multiple magnetic foreign bodies should be promptly removed to prevent more dangerous complications. Removal of a single magnet is sufficient; the other magnet can be left behind if difficult to retrieve.

References

1. Dereci S, Koca T, Serdaroglu F, Akcam M. Foreign body ingestion in children. *Turk Pediatri Arsivi* 2015; 50: 234–40. <https://doi.org/10.5152/TurkPediatriArs.2015.3164> PMID: 26884693 PMCID: PMC4743866
2. Binder L, Anderson WA. Paediatric gastrointestinal foreign body ingestions. *Annals of Emergency Medicine* 1984; 13(2): 112–7. [https://doi.org/10.1016/S01960644\(84\)80573-9](https://doi.org/10.1016/S01960644(84)80573-9) PMID: 6691612

3. Velitchkov NG, Grigorov GI, Losanoff JE. Ingested foreign bodies of the gastrointestinal tract: retrospective analysis of 542 cases. *World Journal of Surgery* 1996; **20**(8): 1001-5.
<https://doi.org/10.1007/s002689900152>
PMid: 8798356
4. Lin A, Cham LCN, Hon KLE, Tsui SYB, Pang KKY, Cheung HM, *et al.* Magnetic foreign bodies ingestion in children: The attractive hazards. *Case Reports in Pediatrics* 2019; **2019**: 3549242
<https://doi.org/10.1155/2019/3549242>
PMid: 31183238 PMCID: PMC6512031
5. Rosenfield D, Matt Strickland M, Fecteau A. Magnet ingestion by a 3-year-old boy. *Canadian Medical Association Journal* 2013; **185**(1): 972-4.
<https://doi.org/10.1503/cmaj.121847>
PMid: 23479692 PMCID: PMC3735745