



# Quit screwing around: magnetic retrieval of an appendiceal foreign body

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## BACKGROUND

Appendiceal foreign bodies are uncommon but can lead to serious adverse events such as appendicitis and perforation. Patients can remain asymptomatic for many years before these adverse events develop. Data on incidence and optimal management are limited and largely restricted to case reports in both adults and children.<sup>1-6</sup> In a review spanning 100 years with 250 identified case reports, objects that were sharp, thin, stiff, and pointed increased the risk of adverse events.<sup>7</sup> Timely intervention is recommended before the development of localized inflammation or perforation. Laparoscopic appendectomy has traditionally been the treatment of choice in these cases, but endoscopic retrieval has emerged as an alternative approach given advances in endoscopic technique and endoluminal devices.

## CASE

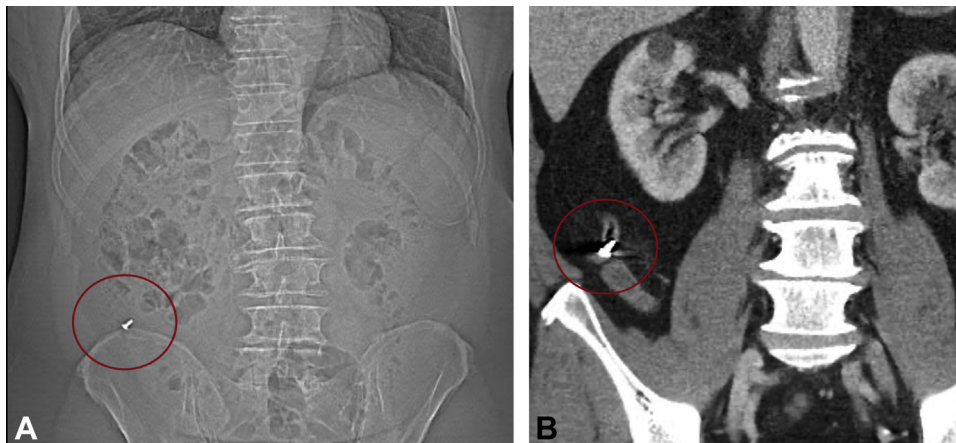
A 65-year-old male carpenter presented for evaluation of back pain and radiculopathy. A CT of the lower spine was ordered, and scout films incidentally visualized a radio-opaque, sharp foreign body in the right lower quadrant, suggestive of a metallic screw. A subsequent CT scan confirmed the location of the screw in the appendiceal

lumen (Fig. 1). The patient had a vague recollection of possible ingestion, but the exact timeframe was unknown. He was asymptomatic and did not endorse any abdominal pain. Surgical consultation was obtained with initial plans for appendectomy. However, he was first referred to gastroenterology by the surgical team to attempt endoscopic retrieval.

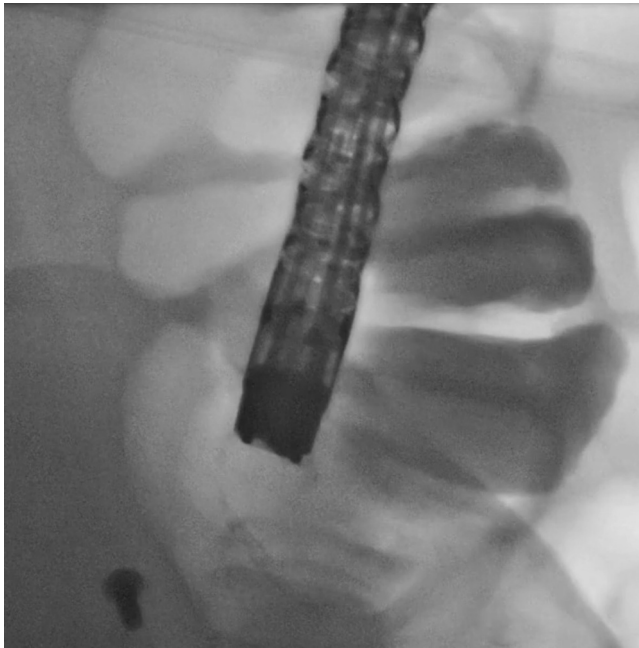
## PROCEDURE

A CF-HQ190 (Olympus, Tokyo, Japan) adult colonoscope fitted with a cap was used to intubate the cecum and visualize the appendiceal orifice. Because of its location in the distal appendix, the screw could not be visualized directly but was seen on fluoroscopy (Fig. 2). Initial attempts at removal included intubation of the appendiceal lumen and flooding of the appendix with water, as well as blind retrieval using a standard polypectomy snare and rat tooth forceps. After multiple unsuccessful attempts, it was decided that magnetic-based removal may be effective in retrieving the metallic screw (Video 1, available online at [www.giejournal.org](http://www.giejournal.org)).

Nasal bridle kits stocked in many endoscopy units consist of strong magnetic-tipped catheters to facilitate bridle exchange across the nasal septum to secure nasogastric tubes. The magnetic tip from the end of the nasal



**Figure 1.** Scout film (A) and CT of the abdomen (B) showing a metallic screw in the right lower quadrant.

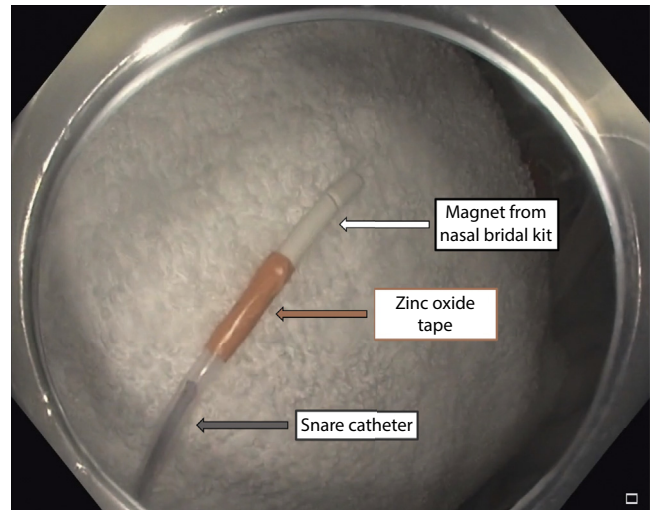


**Figure 2.** Screw in the distal appendix as seen on fluoroscopy.

bridle was cut, fitted to a standard snare catheter, and secured using zinc oxide tape (Fig. 3). The catheter, now equipped with a magnet on the distal end, was introduced through the working channel of the colonoscope and advanced into the appendix. The catheter was maneuvered to allow contact with and extraction of the metallic screw with withdrawal of the catheter.

## OUTCOME

The patient did well postprocedurally, and appendectomy was deferred. Surgical intervention is planned to address his initial symptoms of back pain and radiculopathy. Endoscopic retrieval of appendiceal foreign bodies can be challenging because of limited visualization, small luminal diameter, and variable anatomy. Appendiceal position is highly variable, and the appendix has been described as “the only organ with no anatomy.”<sup>8</sup> It is most commonly in a retrocecal position but can also be found paracecal, subcecal, pelvic, or retroileal. In this case, the screw was in the distal portion of a long, paracecal appendix and was localized with fluoroscopy. Endoscopists should consider various options for successful foreign body removal, using fluoroscopy when available. When conventional methods are unsuccessful, the use of innovative, cross-platform devices like the magnetic catheter described here may prevent the need for abdominal surgery.



**Figure 3.** Novel magnetic catheter derived from nasal bridle kit.

## DISCLOSURE

*Dr Law is a consultant for ConMed and Medtronic; and receives royalties from UpToDate. All other authors disclosed no financial relationships.*

## REFERENCES

1. Antonacci N, Labombarda M, Ricci C, et al. A bizarre foreign body in the appendix: a case report. *World J Gastrointest Surg* 2013;5: 195-8.
2. Balch CM, Silver D. Foreign bodies in the appendix. Report of eight cases and review of the literature. *Arch Surg* 1971;102:14-20.
3. Geddes TG, Fernandez B, Duffy BL. Foreign body in the appendix. *Br Med J* 1972;2:114.
4. Hartin CW Jr, Lau ST, Caty MG. Metallic foreign body in the appendix of 3-year-old boy. *J Pediatr Surg* 2008;43:2106-8.
5. Sama CB, Aminde LN, Njim TN, et al. Foreign body in the appendix presenting as acute appendicitis: a case report. *J Med Case Rep* 2016;10: 129.
6. Song YS, Covarrubias DA, Nardi PM. Foreign body appendicitis. *AJR Am J Roentgenol* 2009;193:W154-5.
7. Klingler PJ, Seelig MH, DeVault KR, et al. Ingested foreign bodies within the appendix: a 100-year review of the literature. *Dig Dis* 1998;16: 308-14.
8. Ellis H, Mahadevan V. Anatomy of the caecum, appendix and colon. *Surgery (Oxf)* 2014;32:155-8.

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