Single-balloon endoscopy for removing a foreign body in the small bowel (with video)

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a laparoscopic cholecystectomy performed 14 years earlier. Her laboratory test results revealed a minimally elevated aspartate aminotransferase level at 50 U/L (normal 15-46 U/L) but were otherwise normal. MRCP showed a filling defect within a fluid-filled structure that would normally correspond to the gallbladder, although this patient had undergone cholecystectomy (A). ERCP revealed a large filling defect with a metallic clip in its center within the gallbladder remnant (B). Attempts to remove the stone endoscopically were not successful because the cystic duct lumen was too narrow and the valves were prominent. The patient underwent successful laparoscopic surgical resection of the gallbladder remnant and gallstone (C).

DISCLOSURE
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Commentary
Surgical sutures and staples or clips, fragments of drainage tubes, gauze, food material, and parasitic ova all can serve as a nidus for stone formation, either in the common bile duct or the gallbladder remnant. Wu et al coined the term cat’s eye calculus in 1993 for a stone forming around a surgical clip, because of its resemblance to a cat’s eye gemstone, the chrysoberyl. That characteristic linearity also has been described in the cat’s eye nebula in the constellation Draco and in persons with the “cat eye” syndrome, a very rare malformation involving chromosome 22. In those individuals, vertical colobomas give an appearance resembling that of cat’s eyes. Stones in the gallbladder remnant present the same clinical picture as stones in an intact gallbladder, except treatment may be more difficult because of altered anatomy or adhesions. In the present case, the prominent spiral valves, described by the German anatomist Lorenz Heister in his classic anatomy textbook Compendium Anaticum, seemed to make the task of the endoscopist more difficult. That, however, is not their main role—they may function in preserving patency of the narrow, tortuous cystic duct. It took 14 years, but the patient now should be free of problems from gallstones, unless, of course, the surgeon knowingly or unknowingly dropped some stone fragments. Stay tuned....

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A 12-year-old girl with a history of having accidentally swallowed a sewing needle was admitted to the hospital emergency department. She was asymptomatic at the time of admission. An abdominal radiograph demonstrated the needle in the upper left portion of the abdomen without signs of pneumoperitoneum (A). An endoscopy was performed with a single-balloon endoscopy system (ie, the video endoscope [Olympus Exera II SIF–180; Olympus, Inc, Tokyo, Japan] that has a 200-cm working length, a 9.2-mm outer diameter, and a 2.8-mm working channel); a 140-cm flexible overtube was also used. Identifying the needle at the angle of Treitz was possible, which was in the longitudinal orientation and had perforated the mucosa for approximately 5 mm at one end (B, Video 1, available online at www.giejournal.org). By using biopsy forceps (C), we pulled the tip of the needle back into the lumen and extracted the foreign body through the overtube, thereby avoiding damage to the upper part of the digestive tract. After removing the needle, the endoscope was reintroduced through the overtube to inspect the jejunal mucosa. Minimal laceration and subepithelial hematoma was observed. The needle measured 4.5 cm in length (D). An abdominal radiograph that was performed after finishing the procedure did not reveal pneumoperitoneum. The patient recovered uneventfully, and she was discharged the following day.

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**Commentary**

Foreign body ingestions are the result of either an accidental or purposeful ingestion. Which of these two types was the result described in this article cannot be judged from the information provided. However, taking care of this adolescent will be critical after she is discharged from the hospital. I would be less concerned if she were older or if she was a seamstress, but this was not the case. Fortunately, a perforating needle creates only a tiny hole that muscular contractions seal over when it is removed; therefore, pneumoperitoneum is usually small and absent infection, and is not a major problem. Removing the needle, however, can be problematic, although the use of an overtube certainly improves the safety of the procedure. As for the single-balloon endoscopy system, this relatively new technique makes it easier to advance into the relatively proximal, deeper recesses of the small intestine, and also easier to navigate segments of the bowel that were previously unreachable, except intraoperatively or by double-balloon endoscopy. Arthur Clark, the English science fiction writer, said the following: “Any sufficiently advanced technology is indistinguishable from magic.” Well, this advanced technology was, indeed, magic: it took the needle this girl made disappear and made it reappear.

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