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Ingested Foreign Body in the Sigmoid Colon: Detection and Localization by CT Colonography

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A SEVENTY-SIX YEAR OLD FEMALE PRESENTED to her gastroenterologist for a workup of iron deficiency anemia, hematochezia, and newly diagnosed celiac disease. Other symptoms included fecal incontinence and anal discomfort thought to be related to hemorrhoids as well as mild bilateral lower abdominal pain. A colonoscopy revealed an endoluminal tubular foreign

body firmly embedded at either end in the colonic wall approximately 18 cm from the anal verge. At this point the risk of perforation with immediate colonoscopic foreign body retrieval was deemed to be high and removal was deferred until after a surgical consultation was obtained. CT colonography was ordered for preoperative evaluation prior to planning for

a combined endoscopic and laparoscopic approach to foreign body removal.

CT colonography (virtual colonoscopy) demonstrated a five cm long radiodense linear foreign body traversing the lumen of the distal sigmoid colon (Figures 1 and 2). The foreign body was calcific in density with the morphology of an ingested bone. Both ends of the foreign



Figure 1. Coronal Slab Maximum Intensity Projection (MIP) from a CT Colonography demonstrating a 5 cm curvilinear radiodense foreign body traversing the lumen of the distal sigmoid colon (white arrows). Both ends of this foreign body are deeply embedded in the focally thickened colonic wall. Inset image in the upper right corner shows the ingested bone in more detail.

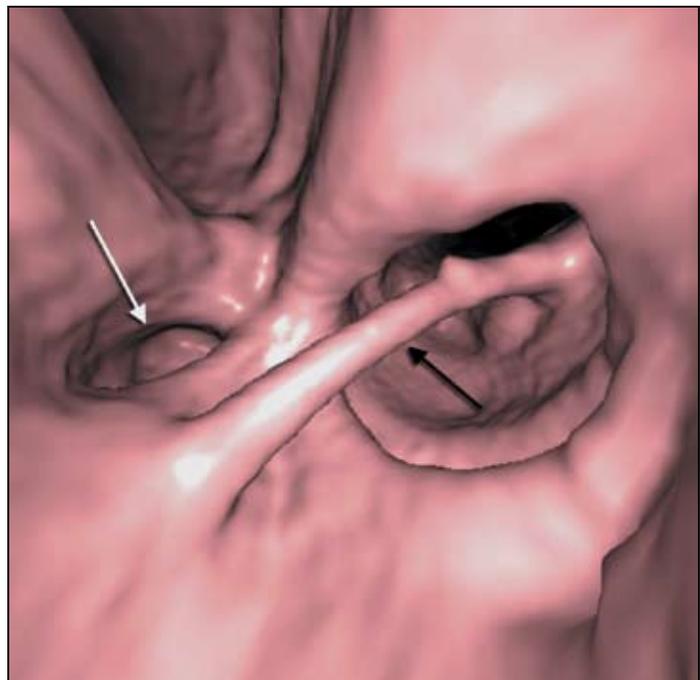


Figure 2. 3D Endoluminal Volume Rendering from the CT Colonography showing the ingested bone lodged transversely within the lumen of the distal sigmoid colon (black arrow). There are also multiple adjacent diverticuli (white arrow points to an adjacent diverticulum).



Figure 3. Specimen photograph of the chicken bone after endoscopic removal (which required breaking it into two pieces).

body projected deep into the colonic wall and were associated with focal colonic wall thickening. As the ends of the bone did not project into the pericolonic fat, it was felt the foreign body had not yet perforated completely through the sigmoid wall. Colonic wall thickening may imply some chronicity and fibrosis. No adjacent abscess or evidence of perforation was present.

A combined endoscopic and laparoscopic approach was performed under general anesthesia in case the foreign body perforated the colon or could not be removed using an endoscopic approach. Laparoscopy confirmed the absence of any adjacent abscess or adhesions and aided in occluding the proximal sigmoid colon for colonoscopy. Colonoscopy confirmed a black tubular foreign body in the distal sigmoid colon with one end embedded within a diverticulum. Colonic wall fibrosis was present at both ends making removal of the foreign body difficult. An endoscopic snare was eventually used to dislodge and remove the foreign body after breaking it in two. Gross examination of the foreign body revealed it to likely represent an ingested chicken bone. Sterile saline was instilled into the peritoneal cavity and the distal colon was insufflated confirming no post-surgical leak.

The vast majority of ingested foreign bodies pass through the gastrointestinal tract without incident. About 10% may require endoscopic retrieval while less than 1% require surgery. Similarly, less than 1% result in perforation. Complications can also include bowel obstruction, severe hemorrhage, abscess, and sepsis.

Patients generally remain asymptomatic unless there is a complication. Metallic objects with the notable exception of aluminum, as well as most animal bones except fish bones are radiopaque on radiographs and CT. Sharp long objects are the most likely to perforate and the most common sites of perforation or obstruction include the gastroesophageal junction, duodenum, ileocecal valve or appendix, and the colonic flexures. Patient populations

predisposed to foreign body ingestions include children, the elderly, and the mentally handicapped.¹

If a sharp foreign object is swallowed and localized proximal to the ligament of Treitz, endoscopy is recommended for prompt removal. If the foreign body passes further into the small intestine, daily radiographs are recommended with surgical intervention considered if no progress is made after three days or the patient becomes acutely symptomatic.^{2,3} If the foreign body is localized to the colon, colonoscopic retrieval should be the procedure of choice. However, surgery remains an option in cases of failed endoscopic removal or in the setting of perforation or obstruction.⁴ While laparotomy had been the accepted surgical approach in the past, laparoscopy has more recently been accepted as an alternative with combined laparoscopic and endoscopic approaches described with success in the past.⁵

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