ACG CASE REPORTS JOURNAL

CASE REPORT | ENDOSCOPY

Endoscopic versus Surgical Intervention for Jejunal Bezoar Formation

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ABSTRACT

Bezoar-induced small bowel obstruction is a rare entity, but it should be highly suspected in those with prior abdominal or bariatric surgery. The cornerstone of treatment for intestinal bezoars has been surgical exploration to relieve the obstruction. We present a patient with obstructive jejunal phytobezoar formation that was relieved via an endoscopic approach rather than a surgical modality.

INTRODUCTION

Bezoars are aggregates of undigested foreign material that accumulate in the gastrointestinal (GI) tract, particularly in the stomach and the narrowest points of the small bowel. There are currently four classifications of bezoars: phytobezoars, composed of vegetables and fibers[1]; trichobezoars, resulting from ingestion of hair[2]; lactobezoars, composed of milk curd; and pharmacobezoars, an accumulation of drugs and medications.[3-6] Reports of bezoars causing GI obstruction dates as far back as the late 18th century.[7] Depending on the size and location of a bezoar, some may remain undetected, while others present with symptoms such as abdominal pain, nausea, vomiting, GI bleeding, and ileus or small bowel obstruction.[8] While traditionally removed via a surgical approach[3,9], there are a select few cases of obstructive intestinal bezoars successfully managed via endoscopic removal. Endoscopic treatment of bezoars causing intestinal obstruction is challenging and scarcely reported in the literature.[4,8]

CASE REPORT

A 60-year old diabetic woman with a past cholecystectomy (1993) complicated by a bile duct injury requiring a Roux-en-Y hepaticojejunostomy (1994) presented with 2 days of nausea, bilious emesis, and diffuse abdominal pain. Physical examination revealed mild diffuse abdominal tenderness and hypoactive bowel sounds. Computed tomography (CT) of the abdomen and pelvis revealed a large (9–10 cm) mass suggestive of a bezoar at the level of the jejunojejunal anastomosis (J-JA) (Figure 1). A push enteroscopy revealed circumferential solid feculent and vegetable material (12 cm in diameter) obstructing the jejunal lumen (Figure 2). It was just proximal to the J-JA site, 90 cm from enteroscope entry. A biopsy forceps combined with aggressive water irrigation was used to dissolve the bezoar (Figure 2). While the patient symptomatically improved, persistent bezoar formation on repeat imaging led to a second push enteroscopy two days later. The previously identified bezoar was significantly smaller in size and was further fragmented via biopsy forceps and a polypectomy snare (Figure 3). The patient was instructed to drink a cola beverage and/or papaya juice, and she was discharged home with complete resolution of her symptoms. She remained symptom-free at 1-month follow-up.

ACG Case Rep J 2018;5:e87. doi:10.14309/crj.2018.87. Published online: December 5, 2018.

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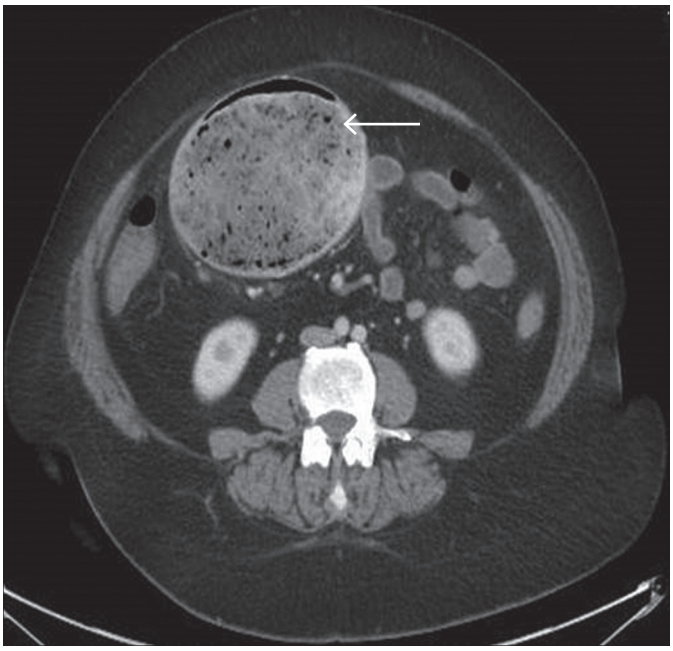

Figure 1. Computed tomography image suggestive of a 9–10 cm bezoar (white arrow) in the mid small bowel.

DISCUSSION

Bezoar formation is a rare cause of intestinal obstruction.[8] When found, they are commonly associated with patients who have impaired gastric motility as a result of prior gastric surgery, such as Billroth I or II operations, or diabetic gastroparesis.[1,3,7,9] Bezoars similarly occur in cases of anastomotic strictures after gastric or bowel surgery.[2] For these reasons, the patient in this case, who was diabetic with a prior history of a hepaticojejunostomy, was particularly susceptible to bezoar formation as a cause of her small bowel obstruction. Nevertheless, only 4% of small bowel obstructions are due to bezoars in the GI tract[8], and therefore clinicians must maintain a high level of suspicion in the appropriate patient population. Early diagnosis is crucial because obstructive bezoars can cause severe complications, including GI ulceration and pressure necrosis.[8]

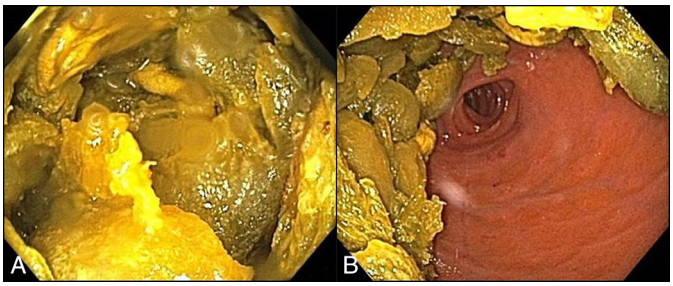

Figure 2. Endoscopy showing (A) the initial jejunal bezoar and (B) the bezoar after breaking it with biopsy forceps and water irrigation.

Radiological imaging remains paramount in aiding diagnosis. CT with contrast enhancement, which has a sensitivity of 90% and a specificity of 57% in recognizing bezoars, is now the gold standard in diagnosing bezoars as the cause of small bowel obstruction.[5] On CT, small bowel phytobezoars typically appear as a well-defined, ovoid, intraluminal mass containing mottled gas, with dilated intestinal loops proximally collapsing distally.[6,10] Abdominal CT is effective for excluding other causes of intestinal obstruction and to detect the presence of intra-abdominal free-fluid, the level of obstruction, and development of intestinal infarction.[11] These findings assist in directing conservative versus surgical or endoscopic treatment strategies.[5,11]

Management of phytobezoars depends on their anatomic location. Gastric bezoars are typically managed endoscopically with mechanical fragmentation via biopsy forceps, polypectomy snares, lithotripsy, or argon plasma coagulation.[12-17] Surgical removal is considered when one or more of these methods have failed.[18] Intestinal bezoars, on the other hand, are conventionally treated via surgical intervention.[8,18-20] The optimal surgical management includes laparoscopy for small to moderate bezoars or exploratory laparotomy for larger bezoars with enterotomy and evacuation.[8] Endoscopic treatment of intestinal bezoars causing obstruction is challenging and has been reported rarely in the literature. This may be due to inaccessibility, technical difficulties, and risk of perforation.[4,8]

For example, in a review of fifteen case reports of phytobeozar formation after Roux-en-Y gastric bypass (RYGB), all gastric pouch bezoars were treated endoscopically, whereas bezoars at the jejunojejunostomy or other small bowel locations were treated with surgical intervention.[18] There are only a few case reports documenting successful endoscopic removal of intestinal bezoars. One such case involved a terminal ileum bezoar treated with colonoscopic fragmentation,[21,22] and the other a proximal jejunal phytobezoar fragmented via antegrade double-balloon enteroscopy (DBE).[23]

In combination with endoscopic or surgical management, anecdotal treatment for gastric bezoars includes oral or endoscopic injection of a cola beverage, which helps dissolve the bezoar due to its acidity.[24] Bezoar dissolution may also be achieved with papain, an enzyme extracted from the *Carica papaya* plant.[18] Upon resolution of symptoms (whether achieved endoscopically, surgically, or even via conservative measures such as cola dissolution), nutritional counseling to prevent further bezoar formation remains paramount. Emphasis should be placed on sufficient chewing and avoiding excessive intake of high-fiber food.[18]

This case is unusual in that it is perhaps the first report of a patient with a prior hepaticojejunostomy presenting with a

Figure 3. Interval decrease in the size of bezoar seen on repeat endoscopy. (A) Bezoar, (B) breaking of the bezoar with forceps and snare, and (C) normal jejunum after complete breakdown of the bezoar.

phytobezoar at the jejunojejunal anastomosis who was successfully treated endoscopically. Surgical intervention would likely have resulted in a higher complication rate, increased expense, a longer recovery period, and length of hospital stay. The successful outcome in this case suggests that endoscopic management is feasible as an initial treatment for small intestinal bezoars. The location in the small bowel and its accessibility are key aspects to consider when deciding on the optimal approach. If endoscopic attempts fail or are not possible, surgery should undoubtedly remain the treatment of choice. Therefore, the decision to consider initial endoscopic decompression/management must be made in collaboration with the surgical service to optimize patient care and ultimately patient outcomes.

DISCLOSURES

Author contributions: D Berg wrote the manuscript. RC Chakinala provided the images and edited the manuscript. G Veillette and B Schorr-Lesnick edited the manuscript. D Berg is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Previous presentation: The abstract of this case report was submitted at the 2018 ACG Annual Meeting; October 5-10, 2018; Philadelphia, Pennsylvania.

Received July 8, 2018; Accepted September 11, 2018

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