



Abstract

Bezoar-Related Ileus Secondary to Endoscopic Fragmentation

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Bezoar is a hardened mass of food or foreign objects found in the gastrointestinal system, which occasionally causes obstruction and ileus. Bezoar, if present in the stomach, should generally be treated with conservative methods. During endoscopic treatment, bezoar is usually fragmented and removed. An uncommon complication of endoscopic treatment is gastrointestinal obstruction because of unremoved fragments. We report a 78-year-old female with ileus after endoscopic fragmentation of bezoar.

Keywords: Bezoar, ileus, endoscopic treatment

Introduction

Bezoar is defined as a hardened mass of accumulated food or foreign objects found in the gastrointestinal system, and it is frequently seen in the stomach. They are generally seen in patients who have had previous gastric surgery or peristaltic and/or functional disorders of the stomach. Bezoar is classified as phytobezoar, trichobezoar, or lactobezoar depending on its content. Phytobezoars are the most common type and generally caused by indigestible fruit seeds from fruits such as oranges and dates (1, 2). Bezoar rarely causes gastrointestinal obstruction. In this paper, we present a case of intestinal obstruction after endoscopic fragmentation of gastric bezoar. The clinical and radiological features and treatment options of gastric bezoar are delineated.

Case Report

A 78-year-old female patient was admitted to the gastroenterology ward with nausea, vomiting, and oral intake disorder, and a lack of appetite. The patient had diabetes mellitus, coronary artery disease, and chronic renal failure. Her medical history included gastric surgery 15 years ago and a coronary by-pass operation 8 years ago. On physical examination, well-healed upper midline incision of gastric surgery and an incision of median sternotomy were seen. There were no rebound or defense signs on abdominal examination. Other routine examinations revealed no abnormalities. Routine laboratory tests revealed leukocytosis, and treatment with 1×2 g sulbactam-ampicillin and 2×200 mg ciprofloxacin was initiated. All other laboratory tests were normal. On endoscopic examination, a giant-sized bezoar and food remnants mixed with bile were observed in the corpus of the stomach. Endoscopic fragmentation of bezoar was performed with the snare technique (Figure 1). Antrum was resected with the gastroenterostomy line distal to the loop opening. The patient's complaints persisted even after endoscopic treatment. A control endoscopic examination was made and bile and food remnants were observed in the stomach. After aspirating 1–1.5 l liquid, the bezoar was observed. Endoscopic fragmentation was repeated. During treatment, excess bile reflux into the stomach from the distal part of the bezoar was seen and treatment was stopped.

Computed tomography (CT) (Activion 16-row CT scanner; Toshiba Medical Systems, Otawara, Japan) was performed so that the obstruction could be visualized. Axial contrast CT scan of the abdomen showed a low-density intraluminal well-defined mass with mottled gas pattern at the proximal jejunum concomitant with distal small intestinal dilatation (Figure 2).

Ileus was diagnosed, and the patient was operated (Figure 3). The patient was discharged postoperatively with no complaints.

Discussion

After gastric surgery, the frequency rate of bezoar formation is 5%-12% (3). As a result of truncal vagotomy, gastric motility and acid secretions decrease, ultimately leading to bezoar for-

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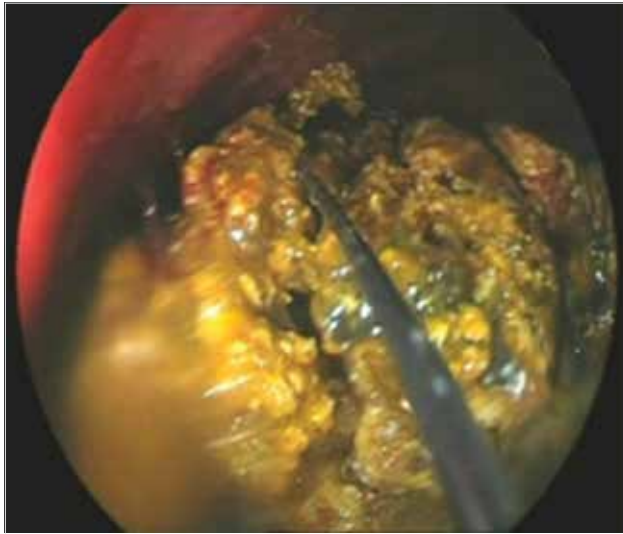


Figure 1. An endoscopy examination shows a giant gastric bezoar which is attached by snare at gastric corpus



Figure 2. Axial CT images show bezoar located intraluminal in the proximal ileum (arrow)



Figure 3. During operation, migrated bezoar fragment is seen in level of proximal jejunum

mation. Clinical symptoms vary depending on the location of the bezoar. The patient may have no complaints or may have non-specific gastrointestinal complaints including acute abdomen. The leading complaints in phytobezoar cases are epigastrium bloating and discomfort, weight loss, nausea and vomiting, upper gastrointestinal bleeding, and dysphagia (4). Bezoars

in the stomach and/or small intestine rarely cause partial or full intestinal obstruction.

Ultrasonographically, bezoar appears as an intraluminal solid mass with hyperechoic surface and arc-like acoustic shadowing (2). The general belief is that ultrasonography has limited sensitivity for gastric bezoars. On CT, bezoars have a characteristic “mottled gas pattern” (5). CT displays a mottled appearance due to internal air bubbles in the mass with defined edges and low-density signal for the lumen with small intestine dilated proximal to the mass, and normal or collapsed distal to the mass. The thickness of the bowel wall and free fluids in the abdomen can be examined using CT. If the bowel wall is thicker than normal, it indicates a risk of intestinal ischemia. Air in the bowel wall (pneumatosis) is an indicator of necrosis.

Phytobezoars in the stomach can generally be treated with conservative methods. Proteolytic enzymes, such as cellulase, pepsin and acetylcysteine, may be used for treatment, and cellulase has been reported to be the most effective (6). Phytobezoars are generally resistant to chemical dissolution because of their stiff structure. As a result, they are usually removed endoscopically or surgically (7). Endoscopic examination is used for both identification and treatment of bezoar. Large phytobezoars may need to be broken or fragmented and the fragments removed singly. Some may require 3–4 sessions for complete removal. A complication of conservative treatment is the migration of bezoar fragments to small intestine that may cause ileus. Bezoar-related ileus is generally a consequence of incomplete removal of fragments. The size of unremoved fragments plays an important role in intestinal obstruction. In addition, they can accumulate and grow in the small intestine, thus leading to intestinal obstruction (8). Bezoar-related ileus cases that were treated by chemical dissolution and also endoscopic treatment have been reported (8-10). For phytobezoars that resist conservative treatment, most trichobezoar cases, and for blockage due to bezoar, surgical treatment is recommended, in which the bezoar is fragmented and pushed down toward the cecum. In cases where this is not possible or in situations with circulation disorders of the small intestine, enterotomy and resection of the affected bowel segment may be performed.

Conclusion

In cases involving a history of gastric operations, chronic diseases such as diabetes, elderly patients with oral dental problems, or mentally retarded patients presenting with gastrointestinal disorders, gastric bezoar should be considered as the differential diagnosis. Following conservative treatment of gastric bezoars, physicians should be aware of the risk of ileus secondary to unremoved bezoar fragment.

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