



Resolving Duodenal Gastric Outlet Obstruction: A Case Report of Successful Management of Phytobezoar Impaction in a Duodenal Diverticulum

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Abstract

Gastric outlet obstruction (GOO) is a clinical syndrome characterized by hindrance in the passage of gastric contents into the duodenum, with various etiologies including bezoars. Phytobezoars, composed of undigested food fibers, represent a rare but significant cause of GOO. Herein, we present a case of a 34-year-old female with recurrent vomiting and early satiety, diagnosed with GOO caused by an impacted phytobezoar in the duodenum. Despite initial unsuccessful attempts at endoscopic removal, alternative techniques led to successful extraction. Postprocedure evaluation revealed a large duodenal diverticulum. Our experience underscores the complexity of managing duodenal phytobezoars and highlights the efficacy of combined therapeutic approaches. Heightened awareness among gastroenterologists regarding this condition is essential to optimize patient outcomes. Recurrence prevention strategies include dietary modifications and periodic endoscopic interventions for challenging cases.

Keywords

- ▶ gastric outlet obstruction
- ▶ phytobezoar
- ▶ endoscopy
- ▶ duodenal diverticulum

Case Presentation

In this case report, we present a 34-year-old female patient who was admitted to our hospital with symptoms of recurrent vomiting, early satiety, abdominal distention, and epigastric discomfort. Upon examination, she displayed signs of dehydration and mild epigastric tenderness. Initial laboratory investigations, including a complete blood count and a basic metabolic panel, were all within normal limits. Subsequently, a contrast-enhanced computed tomography (CT) scan was ordered, revealing distension and filling of the fourth part of the duodenum with a bezoar, accompanied by mucosal edema, surrounding fat stranding, and mild reactive fluid suggestive of a sealed-off loculated perforation (→Fig. 1A, B).

An upper gastrointestinal endoscopy was performed, uncovering a large, firm mass obstructing the third and fourth parts of the duodenum, identified as an impacted phytobezoar (→Fig. 2).

We attempted to remove it using a basket, but it would not budge because the phytobezoar was stuck to the wall of the duodenum. Additionally, the basket became lodged between the phytobezoar and the duodenal wall. Consequently, we cut off the upper part of the basket. We then used electrocautery (polypectomy snare and needle knife) to break the phytobezoar into pieces and removed it with the assistance of a polypectomy snare (→Fig. 3A, B).

Post-removal endoscopy confirmed the resolution of the obstruction, with evidence of mucosal injury but no perforation. A relook endoscopy conducted the following day

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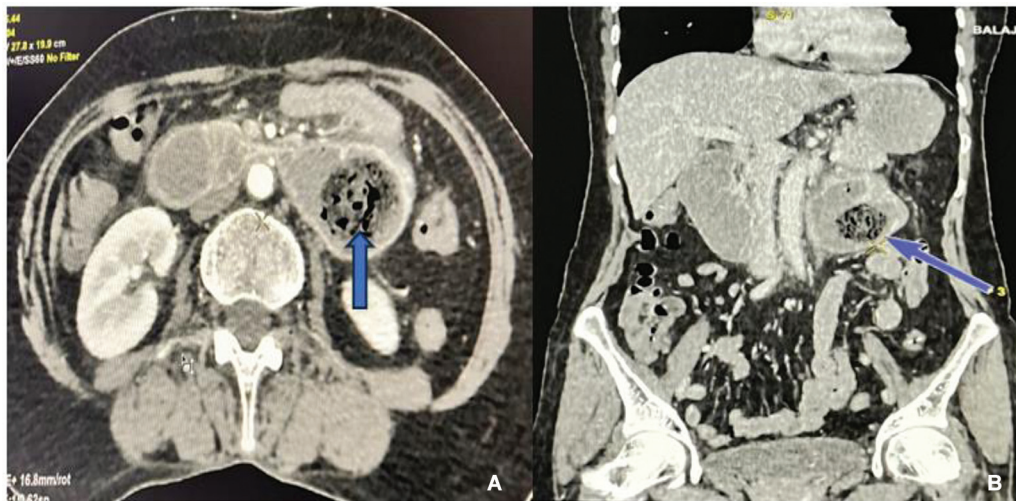


Fig. 1 (A, B) Computed tomography showing the intraluminal round bezoar and mottled gas pattern were seen in the duodenal segment. Wall thickening due to inflammation was seen at the obstruction site (arrow).

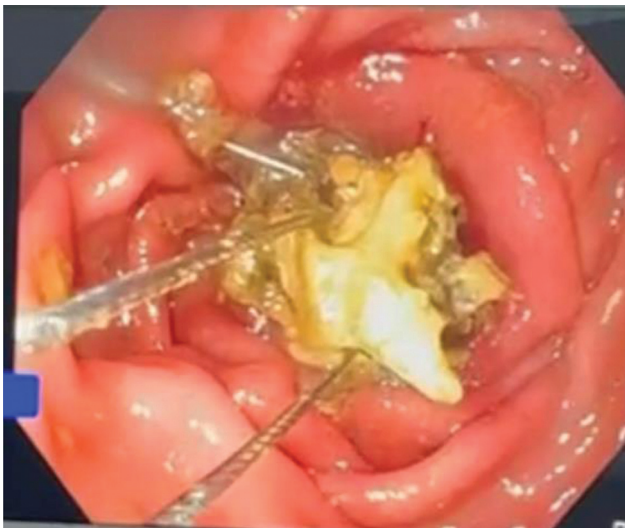


Fig. 2 Upper gastrointestinal endoscopic view of the duodenal bezoar with an impacted basket that obstructed the D3–D4 part and was removed using a large polypectomy snare.

revealed a large diverticulum in the fourth part of the duodenum, likely contributing to the retention of food particles and subsequent phytobezoar formation (► **Fig. 4**).

Following the procedure, the patient's symptoms improved significantly, and she was discharged with dietary recommendations to avoid high-fiber foods and to consume smaller, more frequent meals.

Discussion

Bezoars present a diverse array of pathological entities, with phytobezoars and trichobezoars being the most frequently encountered types. Clinical manifestations vary widely, ranging from asymptomatic cases to presentations involving epigastric pain, gastrointestinal bleeding, perforation, or small bowel obstruction. While small bowel obstructions constitute a significant portion of hospital admissions, phytobezoars are a rare etiology, accounting for only 0.4 to 4% of all cases. Primary small bowel bezoars typically manifest as intestinal obstructions, often becoming impacted in the

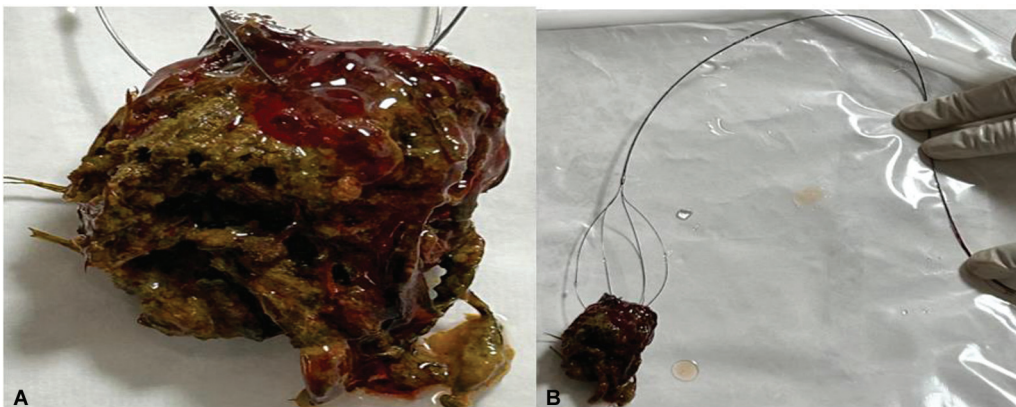


Fig. 3 (A, B) The fully extracted phytobezoar with a broken Dormia basket.

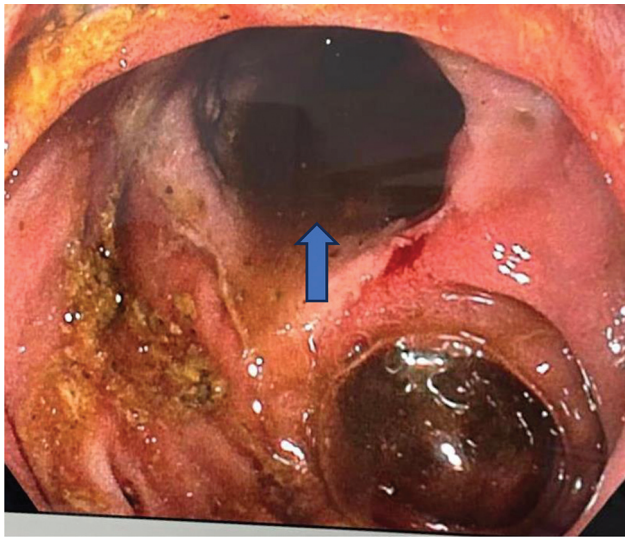


Fig. 4 Endoscopic image showing large duodenal diverticulum (arrow).

narrowest segments of the small bowel, most commonly the terminal ileum, followed by the jejunum.¹ In this context, duodenal diverticula, although relatively uncommon, warrants attention, particularly concerning phytobezoar-induced obstruction. Despite the rarity of duodenal phytobezoars themselves, their potential migration from the stomach to the duodenum underscores the necessity for thorough evaluation and management.² Various imaging modalities facilitate the identification and localization of bezoars, aiding in treatment decision making based on clinical findings. Recent advancements in imaging techniques, notably contrast-enhanced CT, have significantly improved the diagnosis of intestinal obstructions caused by phytobezoars.

Initial management of bezoar-induced obstruction mirrors that of obstructions from other etiologies, emphasizing intestinal decompression and fluid–electrolyte replacement to address associated fluid deficits and electrolyte imbalances.

Endoscopic interventions have emerged as the cornerstone of treatment for bezoar-induced obstruction. Mechanical disintegration methods, including mechanical lithotripters, large

polypectomy snares, electrosurgical knives, drilling, laser destruction, and Dormia baskets for extraction, alongside chemical dissolution techniques employing saline solution, hydrochloric acid, sodium bicarbonate, and Coca-Cola lavage, have been reported in the literature. However, there is no consensus regarding management. Due to complications and operative trauma, surgical treatment for duodenal phytobezoars is rarely necessary.

In conclusion, we report a rare case of duodenal obstruction caused by a persimmon phytobezoar within a duodenal diverticulum, emphasizing the complexity of surgical treatment in such instances. Our experience demonstrates the safety and feasibility of a combined therapeutic approach involving endoscopic fragmentation and mechanical disintegration methods, including mechanical lithotripters, large polypectomy snares, and Dormia baskets for extraction. This comprehensive strategy not only leads to shorter hospital stays but also minimizes operative trauma. We advocate for heightened awareness among gastroenterologists regarding this rare yet clinically significant condition.

Recurrence of phytobezoars is common unless the underlying predisposing condition is addressed. Preventive measures, such as avoiding high-fiber foods and administering prophylactic medications to enhance gastric emptying, along with psychological or psychiatric follow-up, particularly in patients with underlying psychiatric conditions, are essential. In challenging and recurrent cases, periodic endoscopic interventions with repeated mechanical disruption may be necessary.

Declarations

Authors declare there is no conflict of interest.

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