

High Intestinal Obstruction Secondary to Phytobezoar. A Rare Cause of Acute Abdomen: Case Report

Dra. Ethel Cassandra Ramírez Ortiz^{*1}, Dr. Javier González Chavira², Dr. Jorge Andrés Myers Esmenjaud³, Dr. Federico Armando Castillo González⁴

¹Instituto Tecnológico y de Estudios Superiores de Monterrey campus Monterrey, México.

²Universidad Anáhuac Querétaro, México.

³Universidad Popular Autónoma del Estado de Puebla, México.

⁴Universidad Veracruzana, México.

ABSTRACT

Introduction: Bezoars are rare accumulations of indigestible material in the gastrointestinal tract. Phytobezoars, formed from plant fibers, can cause small bowel obstruction, even without classic risk factors such as prior gastric surgery. This report presents a case of high intestinal obstruction due to phytobezoar in an otherwise healthy patient.

Case Presentation: A 55-year-old man presented with severe colicky abdominal pain (VAS 8/10), nausea, vomiting, and abdominal distension. Contrast-enhanced CT revealed distal ileal obstruction with a heterogeneous intraluminal mass. Conservative management with nasogastric decompression failed due to high output and feculent vomiting. Laparoscopy showed a 10 × 7 × 6 cm phytobezoar (vegetable fibers and seeds) 50 cm proximal to the ileocecal valve. Enterotomy, extraction, primary closure, and lavage were performed without resection. The patient recovered uneventfully and was discharged on postoperative day 7.

Discussion: Phytobezoars commonly obstruct at the terminal ileum and are linked to delayed gastric emptying or high-fiber intake, though primary small bowel cases occur without predisposing factors. CT is the gold standard for diagnosis (high sensitivity/specificity). Surgical enterotomy is effective when conservative measures fail.

Conclusion: Phytobezoar should be considered in acute intestinal obstruction, even without risk factors. Prompt CT imaging and individualized surgical extraction provide efficient resolution.

KEYWORDS: Bezoars, Small Bowel Obstruction, Imaging Methods, Enterotomy, Laparoscopic Intervention, Surgical Complications.

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I. INTRODUCTION

A bezoar is defined as a collection of indigestible material within the gastrointestinal tract (1), caused by the accumulation of ingested indigestible materials such as vegetables, fruits, and hair. The first scientific definition was provided by Baudamant in 1779 with the publication of a trichobezoar case. In 1854, Quain named “bezoar” the mass of intragastric food residue found at autopsy.(11)

Bezoars are classified according to their content into four main types: those composed of vegetable fibers, fruits, and psyllium (phytobezoar); those secondary to hair ingestion (trichobezoar); those caused by medications, mostly sustained-release capsules, enteric-coated aspirin, and

sucralfate (pharmacobezoar); those from dairy products (lactobezoar)(2); and polybezoars, which result from ingested foreign bodies. The most common type is the phytobezoar, consisting of indigestible food residues such as cellulose and hemicellulose. (11)

Trichobezoars are generally observed in individuals with trichophagia (11), most commonly in women with psychiatric disorders. Their most frequent location is the stomach, followed by the small intestine, typically 50 to 70 cm proximal to the ileocecal valve (3). The diagnostic suspicion is usually based on clinical presentation, supported by a thorough history and physical examination; however, definitive diagnosis is made by endoscopy in cases of gastric

High Intestinal Obstruction Secondary to Phytobezoar. A Rare Cause of Acute Abdomen: Case Report

phytobezoar or intraoperatively in intestinal phytobezoar cases. The management of phytobezoars is not standardized, as it is individualized for each patient. However, the three most commonly reported approaches in the literature are: extraction after fragmentation of the bezoar, enterotomy or gastrostomy to decompress and remove the bezoar, and finally gastric or intestinal resection (9). This case report addresses the diagnostic and therapeutic protocol in a tertiary-level hospital.

II. CASE REPORT

A 55-year-old male with no relevant past medical history for the current condition. His symptoms began on the day of admission with generalized colicky abdominal pain of intensity 6/10 on the verbal analog scale (VAS), increasing to 8/10, accompanied by anorexia, nausea, and one episode of vomiting gastrointestinal contents. Upon arrival at the emergency department, vital signs showed tachycardia and

tachypnea. Physical examination revealed an neurologically intact patient, mucocutaneous pallor, unremarkable chest and cardiopulmonary findings, distended abdomen that was soft and depressible, decreased peristalsis in intensity and frequency in all four quadrants, tenderness to moderate and deep palpation in the epigastrium and right lower quadrant, without signs of generalized peritonitis; the remainder of the physical examination was normal. Weight 74 kg, height 174 cm, body mass index (BMI) 24.4.

As part of the diagnostic workup, complete blood count and blood chemistry were performed with results within normal parameters. A contrast-enhanced computed tomography scan demonstrated a transition zone with reduced caliber in the distal ileum and a heterogeneous intraluminal image; high intestinal occlusion was reported (Figure 1).

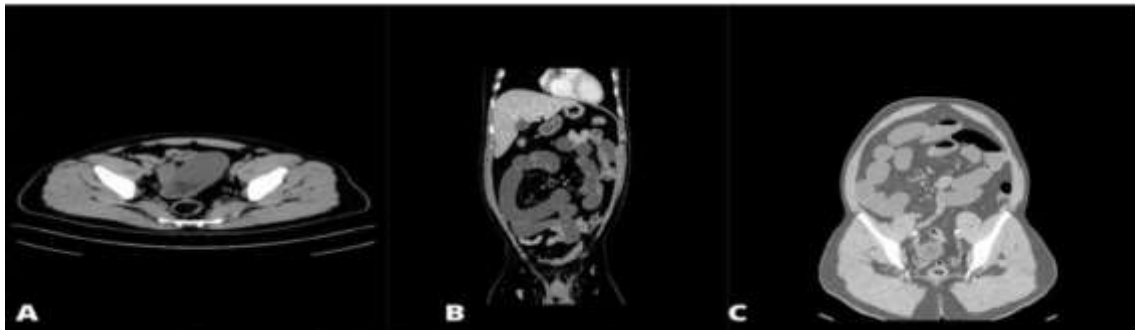


Figure 1: A) Non-contrast abdominal CT scan with axial section at the level of the iliac crests, demonstrating dilation of a distal jejunal loop with heterogeneous intraluminal content. B) Abdominal CT scan in the venous phase with coronal section showing dilation of the jejunal and ileal loops. C) Abdominal CT scan in the arterial phase with multiplanar reconstruction demonstrating a transition zone with decreased caliber in the distal ileum and a heterogeneous intraluminal image.

A nasogastric tube (NGT) was placed in the emergency department, draining 350 ml in the first hour with gastrointestinal content characteristics. Conservative management was initiated for 24 hours, with an output of 650 ml through the NGT; however, the patient developed feculent vomiting 20 hours after NGT placement. Due to the tomographic findings and their correlation with the clinical picture, the patient was scheduled for diagnostic laparoscopy. Upon entering the abdominal cavity, free inflammatory fluid was identified, intense peritoneal reaction, and edema of intestinal loops proximal to the transition site, located 50 cm from the ileocecal valve. Enterotomy was performed, revealing a conglomerate of vegetable fibers and seeds that were extracted from the lumen, measuring $10 \times 7 \times 6$ cm proximal to the transition site (Figure 2). Primary closure in two layers was carried out, followed by abdominal cavity lavage; no intestinal resection was required, as there were no areas of ischemia or necrosis in the intestinal loops. However, due to fecal spillage during enterotomy, a Blake drain was placed toward the pelvic cavity.

In the postoperative course, the patient progressed without complications, passing stools 48 hours after surgery. An

intestinal transit study was performed 72 hours post-procedure, showing adequate passage of contrast medium to the intestinal loops with jejunal dilatation up to 45 mm; in the second projection 4 hours later, complete transit of contrast was reported with a reduced caliber zone in the distal ileum (Figure 3). One week after the intervention, the patient was discharged home without the need for reoperation or additional complementary studies.

III. METHODS

This is a single-center case report conducted in a tertiary-level hospital. The diagnostic and therapeutic approach followed standard clinical protocols for acute abdominal pain and suspected intestinal obstruction. Diagnostic methods included:

- Clinical history and physical examination.
- Laboratory tests: complete blood count (CBC) and blood chemistry panel.
- Imaging: contrast-enhanced computed tomography (CT) of the abdomen and pelvis.

High Intestinal Obstruction Secondary to Phytobezoar. A Rare Cause of Acute Abdomen: Case Report

- Initial conservative management: nasogastric tube decompression, intravenous fluids, and electrolyte replacement.
- Surgical intervention: diagnostic laparoscopy converted to open enterotomy under general anesthesia. No experimental interventions were performed; all

procedures were part of routine clinical care. Patient data were collected retrospectively from electronic medical records, with informed consent obtained for publication. No statistical analysis was applied, as this is a descriptive case report.



Figure 2. A) Transition point in the distal ileum. B) Phytobezoar measuring 10 × 7 × 6 cm.

IV. RESULTS

A 55-year-old male patient presented with acute generalized colicky abdominal pain (initial VAS 6/10, progressing to 8/10), anorexia, nausea, and one episode of vomiting gastrointestinal contents. Vital signs on admission showed tachycardia and tachypnea. Physical examination revealed mucocutaneous pallor, abdominal distension, decreased bowel sounds, and tenderness in the epigastrium and right lower quadrant without signs of generalized peritonitis. Anthropometric data: weight 74 kg, height 174 cm, BMI 24.4 kg/m².

Laboratory results (CBC and blood chemistry) were within normal limits. Contrast-enhanced CT demonstrated a transition zone with luminal narrowing in the distal ileum and a heterogeneous intraluminal mass consistent with high intestinal obstruction (Figure 1). Nasogastric tube placement yielded 350 mL of gastrointestinal content in the first hour, increasing to 650 mL over 24 hours of conservative management. However, feculent vomiting developed 20 hours post-placement, prompting surgical intervention.

Intraoperative findings during diagnostic laparoscopy included free inflammatory fluid, intense peritoneal reaction, and proximal intestinal loop edema. The transition site was identified 50 cm proximal to the ileocecal valve. Enterotomy revealed a 10 × 7 × 6 cm conglomerate of vegetable fibers and seeds (phytobezoar), which was extracted (Figure 2). Primary two-layer closure was performed, followed by abdominal lavage. Due to fecal spillage, a Blake drain was placed in the pelvic cavity. No bowel resection was required, as no ischemia or necrosis was present.

Postoperatively, the patient progressed uneventfully, with bowel movements resuming at 48 hours. An oral contrast transit study at 72 hours showed adequate passage with jejunal dilatation up to 45 mm and a persistent narrowed zone in the distal ileum (Figure 3). The patient was discharged

home one week after surgery without complications, reintervention, or additional studies required.

V. DISCUSSION

A bezoar is defined as a collection of indigestible material within the gastrointestinal tract. Its complications include small bowel obstruction, colonic obstruction, intestinal ischemia, and perforation (1). The incidence of bezoars has been decreasing. Bezoars are responsible for 0.4%–4% of cases of mechanical intestinal obstruction, although the true incidence is unknown (11). Most affected patients are young women with psychiatric disorders.

The size of the bezoar depends on its type and the duration of evolution. In most cases, there is a single bezoar, with multiple bezoars occurring in only 5% of cases (3). Phytobezoars account for 40% of reported bezoar cases, and more than 60% progress to intestinal obstruction (4).

They are associated with multiple risk factors, such as delayed gastric emptying (especially in diabetic patients), chronic gastritis, previous gastric surgery, excessive intake of high-fiber foods, poor mastication, ingestion of hard-to-digest solid materials, intestinal motility disorders, among others.

Disorders of gastric motility and hypoacidity after gastric surgical procedures constitute the underlying mechanisms for bezoar formation. Bezoars located in the stomach may transit readily through the small intestine and provoke intestinal obstruction symptoms, particularly in individuals with pyloric dysfunction secondary to pyloroplasty or extensive gastrojejunostomy. Primary bezoars of the small bowel almost invariably cause obstruction, with the terminal ileum representing the most common site of impaction (11).

The clinical case discussed in this article had no known risk factors. Bezoars may be asymptomatic or present with various gastrointestinal symptoms and signs, such as abdominal discomfort, dysphagia, or anorexia. In cases of

High Intestinal Obstruction Secondary to Phytobezoar. A Rare Cause of Acute Abdomen: Case Report

obstruction, they can manifest severe acute abdomen signs, vomiting, abdominal distension, hypotension, mental disorientation, and shock. Almost all patients have poorly localized abdominal pain similar to ischemic pain (11).

Abdominal pain occurs in 70% of patients, nausea and vomiting in 64%, weakness and weight loss in 38%, constipation or diarrhea in 32%, and hematemesis in 6% (3). Recent advances in imaging methods have facilitated the diagnosis of ileus (11). Phytobezoars can be observed on plain radiography, ultrasonography, or abdominal computed tomography. In the majority of patients with mechanical intestinal obstruction, plain abdominal radiographs reveal air-fluid levels. Nonetheless, these studies lack utility in distinguishing mechanical obstruction from other causes of ileus (11).

Ultrasonography identifies the etiology in 88–93% of bezoar-induced ileus cases, where bezoars typically produce hyperechoic foci with posterior acoustic shadowing. Despite this capability, ultrasonography remains controversial owing to its marked operator dependence and requirement for substantial experience (11).

Contrast-enhanced computed tomography (CT) represents the most effective modality for precisely determining both the location and underlying cause of bowel obstructions (11). CT has a sensitivity of 81% to 96% and a specificity of 96% for establishing the diagnosis, allowing identification of size, shape, and location (3). A larger diameter measured by CT is a poor prognostic factor and guides treatment (5-6). Tomographic findings described in most cases are rounded or ovoid masses with mottled gas within the content at the obstruction site (7). Preoperative CT assessment in patients with suspected bezoar-induced intestinal obstruction is helpful for determining the timing of surgery. When a bezoar is detected on CT, surgery is generally performed within 48 hours. CT allows diagnosis of complications such as perforation, necrosis, and ischemia secondary to bezoar-induced obstruction (11).

The initial treatment of bezoars causing obstruction does not differ from that for obstructions of other etiologies. The first step is intestinal decompression and fluid-electrolyte replacement (11).

The stomach is the most common location for bezoars. The initial treatment modality is a combination of chemical therapy (using papain for its proteolytic activity and cellulase to break glycosidic bonds) plus endoscopic therapy, which resolves 90% of gastric bezoar cases; surgical treatment is reserved for failures, complications, or when endoscopy is inaccessible (8).

The three most commonly reported surgical approaches are: extraction after bezoar fragmentation, enterotomy or gastrostomy to decompress and extract the bezoar, and finally gastric or intestinal resection, reserved for complications such as necrosis or perforation (5). Surgical management can be open or laparoscopic, with laparoscopy being the most used; however, it requires good training due to dilated intestinal

loops. Factors to consider for laparoscopy include the number and size of bezoars, presence of complications (perforation and peritonitis), and prior abdominal surgeries. Enterotomy and partial intestinal resection are associated with higher morbidity and mortality compared to endoscopic management (9).

The decision to perform enterotomy varies with experience. Surgeons commonly use the “milking” method to manually advance intestinal contents proximally or distally. However, this technique may cause serosal or mesenteric laceration. The location of the bezoar (duodenum, jejunum, or ileum) plays an important role in selecting the surgical intervention, with enterotomy being more successful if the bezoar is proximal. A recently described technique involves single-balloon enteroscopy, where balloon inflation fragments the bezoar, allowing adequate transit for subsequent evacuation (10).

VI. CONCLUSION

Phytobezoar is a rare entity in general surgical practice and should be considered among the various causes of intestinal occlusion. It must be properly suspected from the outset with a good history and physical examination, along with a joint approach with the imaging department to integrate the diagnosis. Contrast-enhanced computed tomography is the best imaging study for localization and decision-making regarding surgical intervention as treatment. Management should be individualized for each patient, always aiming for the most efficient resolution of the pathology.

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