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Gastric Bezoar Following Vagotomy and Billroth I Resection Presenting as Gastric Outlet Obstruction: Case Report

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1. Introduction

A bezoar refers to a mass of indigestible material that accumulates within the gastrointestinal tract, most commonly in the stomach. These masses are categorized based on their composition. Phytobezoars are formed from plant-derived fibers such as cellulose and lignin, commonly found in high-fiber fruits and vegetables. Trichobezoars are composed of ingested hair and are typically associated with psychiatric or behavioral conditions. Pharmacobezoars arise from the aggregation of undigested medications or supplements, while lactobezoars consist of inspissated milk curds, usually occurring in infants.

Bezoar formation is strongly linked to altered gastric physiology. Surgical procedures such as vagotomy and partial gastrectomy (including Billroth I reconstruction) can significantly reduce gastric acid secretion and impair normal gastric motility. These physiological changes create an environment that favors the retention and accumulation of undigested material within the stomach. Although such surgeries are less commonly performed today due to advances in medical management of peptic ulcer disease, patients who previously underwent these operations remain at risk for long-term complications.

Clinical presentation is highly variable. Some patients remain asymptomatic, while others may experience nonspecific symptoms such as epigastric discomfort, bloating, early satiety, or nausea. In more severe cases, bezoars can cause mucosal injury leading to ulceration, gastrointestinal bleeding, or mechanical obstruction, particularly gastric outlet obstruction. Because symptoms often mimic other gastrointestinal or hepatobiliary disorders, diagnosis is frequently delayed. Endoscopy is considered the most effective diagnostic tool and also provides a therapeutic opportunity for fragmentation or chemical dissolution. Surgical removal is reserved for cases where less invasive measures fail.

2. Case Presentation

A 55-year-old male presented with a prolonged history of intermittent upper abdominal pain, predominantly occurring after meals and progressively worsening over several months. The pain was accompanied by nausea and episodic vomiting. His medical history was significant for peptic ulcer disease, for which he had undergone vagotomy and Billroth I partial gastrectomy approximately 25 years earlier.

On examination, the patient was stable with normal vital signs. Abdominal evaluation revealed mild tenderness in the right upper quadrant without guarding, rigidity, or signs of acute peritoneal irritation. Laboratory investigations were largely unremarkable, showing normal liver enzymes and renal function tests. A slight elevation in bilirubin and mild anemia were noted.

Given the initial clinical suspicion of hepatobiliary pathology, imaging studies were performed. Abdominal ultrasound demonstrated biliary sludge without evidence of acute cholecystitis and a mildly dilated common bile duct. A plain abdominal radiograph showed no signs of bowel obstruction. Further evaluation with CT scan and MRCP did not reveal any definitive obstructive lesion. A HIDA scan confirmed normal gallbladder function. The patient was initially managed conservatively with intravenous fluids, bowel rest, and antiemetic therapy, resulting in temporary symptomatic improvement and discharge.

However, symptoms recurred three months later with increased severity. The patient now reported vomiting of undigested food shortly after meals, strongly suggestive of gastric outlet obstruction. Due to this progression, an upper gastrointestinal endoscopy was performed. This revealed a large intragastric mass consistent with a bezoar occupying a significant portion of the stomach.

Multiple attempts were made to fragment the mass endoscopically using standard retrieval and disruption techniques; however, the bezoar was too dense and resistant to endoscopic breakdown. As a result, surgical intervention was undertaken. A laparoscopic gastrotomy was performed, and the bezoar was successfully extracted using a retrieval bag. The mass measured approximately 10 × 10 × 3 cm and was composed of a mixture of hair fibers and undigested food material, consistent with a mixed phytotrichobezoar. The postoperative course was uneventful, and the patient experienced complete resolution of symptoms.

3. Discussion

Bezoars represent an uncommon but clinically important cause of gastrointestinal obstruction. Historically, they were once

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believed to possess medicinal or protective properties; however, this misconception was later disproven. In modern medicine, bezoars are recognized as pathological accumulations resulting from impaired digestion and altered gastrointestinal motility.

Previous gastric surgery is one of the most significant risk factors for bezoar development. Procedures such as vagotomy and Billroth I reconstruction alter normal gastric function by reducing acid secretion and impairing coordinated gastric emptying. These changes allow undigested food particles and foreign materials to accumulate and compact over time, eventually forming bezoars.

Although relatively rare, bezoars can lead to significant complications. They may remain silent for long periods or present with vague and nonspecific symptoms, making diagnosis challenging. In some cases, they may cause gastric mucosal injury, ulceration, or obstruction. In this patient, the condition initially mimicked biliary disease, contributing to diagnostic delay.

Endoscopy plays a central role in both diagnosis and management. It allows direct visualization of the lesion and provides options for non-surgical treatment such as enzymatic dissolution or mechanical fragmentation. However, large, hard, or mixed-composition bezoars may not respond to these methods. In such cases, surgical removal remains the definitive treatment. Minimally invasive approaches, such as laparoscopic gastrotomy, are preferred due to reduced postoperative morbidity and faster recovery.

4. Conclusion

This case illustrates a rare delayed complication of gastric surgery presenting as bezoar-induced gastric outlet obstruction. It highlights the importance of maintaining a high index of suspicion in patients with a history of gastric surgery who present with nonspecific upper gastrointestinal symptoms. Early endoscopic evaluation is essential for accurate diagnosis, while surgical intervention remains an effective and safe option when conservative and endoscopic treatments are unsuccessful.

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