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Case Report

Biliopancreatic Limb Obstruction After One Anastomosis Gastric Bypass (OAGB); A Very Rare and Fatal Event: A Case Report and Literature Review

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Abstract

The biliopancreatic limb (BPL) obstruction occurrence after one anastomosis gastric bypass (OAGB) has not been well described in the literature.

Keywords: One Anastomosis Gastric Bypass; Biliobezoar; Biliopancreatic Limb Obstruction; Bariatric Surgery

Abbreviations

OAGB: One Anastomosis Gastric Bypass; RYGB: Roux-en Y Gastric Bypass; BPL: Biliopancreatic Limb; BMI: Body Mass Index; CT: Computed Tomography; DD: Duodenal Diverticulum; MBS: Metabolic and Bariatric Surgery; SBO: Small Bowel Obstruction: T2D: Type 2 Diabetes

Introduction

One Anastomosis Gastric Bypass (OAGB) is the second most commonly performed MBS worldwide after Roux-en-Y Gastric Bypass (RYGB). Small bowel bezoars, which are masses consisting of accumulated ingested material, make up a small percentage of small bowel obstructions (SBO) [1,4,6]. Gastric bezoars are often found after gastric operations due to reduced gastric motility and delayed gastric emptying [2]. The development of bezoars may be influenced by multiple predisposing factors [3]. many case reports show gastric bezoar in a patient with a history of bariatric surgery who presented with acute weight loss [5]. Bowel obstruction following bariatric surgery may require different management strategies and have distinct outcomes [7]. Biliopancreatic limb obstruction after MBS poses diagnostic challenges due to nonspecific symptoms. CT scan is the preferred modality for evaluation, and early diagnosis and treatment are crucial in reducing associated morbidity and mortality [8]. Although there have been several reported cases of biliary bezoars in non-bariatric patients [2], none were similar to our patient. Here, we report a case of biliopancreatic limb obstruction caused by a biliobezoar that formed in the duodenal diverticulum and then migrated to involve the small bowel after OAGB, necessitating emergency surgical intervention.

Case Presentation

A 65-year-old female patient post-MBS reached our hospital with acute abdomen, nausea, and vomiting, she had a history of insulin-dependent type II diabetes and hypertension. She had undergone laparoscopic OAGB surgery 5 years prior, which resulted in the resolution of her diabetes and hypertension and a significant reduction in body mass index (BMI) with 82% excess weight loss. She presented to the emergency department with acute onset abdominal pain and distention, primarily in the epigastric region.

An initial upper GI system endoscopy was performed and reported as normal. Subsequently, a CT scan of the abdomen with oral and IV contrast was conducted, revealing a distended gastric remnant and duodenum. The scan showed a large second part duodenal diverticulum (DD) with a bezoar causing occlusion at the level of the fourth part of the duodenum. In addition, there was inflammation and thickening of the bowel wall distal to the biliobezoar [Figure 1].

On clinical examination, the patient had severe tenderness in the epigastric region, but her vital signs were normal. Laboratory tests showed normal ranges for hemoglobin level, white blood count, and liver and renal function tests. A retrospective examination of her previous diagnostic investigations revealed that she had been taking Ursodeoxycholic Acid tablets for six months but had not undergone a cholecystectomy yet.

As the patient's condition worsened, immediate laparoscopic intervention was decided. Diagnostic laparoscopy revealed a distended gastric remnant with a patchy gangrenous-like area [Figure 2]. Gross visualization of the small bowel from the ligament of Trietz to the ileocecal valve showed no abnormalities. Attempts were made to remove the bezoar by milking, but they were unsuccessful.

In a subsequent step, a remnant gastrostomy was created for damage control, gastric remnant decompression, and diversion of the contents. The definitive surgery was planned for a later stage. A post-operative CT scan confirmed the placement of the gastrostomy. The patient resumed a regular diet two days after surgery and had a daily discharge of bilious content through the gastrostomy.

She was discharged from the hospital in good condition on postoperative day 5. After surgery, her abdominal distension was relieved, but she experienced periodic abdominal pain. A follow-up CT scan performed after 4 weeks showed the passage of the bezoar into the jejunum [Figure 3]. Subsequently, the patient underwent laparoscopic intervention, and an enterotomy was performed to remove the 5x3 cm-sized bezoar with a cholelithiasis-like structure [Figure 4]. The patient started a post-operative liquid diet three days after surgery and was discharged on postoperative day 4.

Although the benefit of diverticulectomy was unclear as the diverticulum had remained stable for several decades, it was not performed in this case. The patient was discharged in good condition on a liquid diet. The daily discharge through the gastrostomy was reduced to 250 ml, and after two weeks, the gastrostomy was eventually removed at an outpatient visit.

After one month, the patient reported no eating disorders or abdominal discomfort, despite being on a regular diet. This case report highlights the first instance of biliopancreatic limb obstruction caused by the migration of a biliobezoar from a large DD after OAGB. The unique presentation of acute weight loss and the need for emergency surgical intervention illustrates the importance of considering bezoar formation as a potential complication in patients with a remote history of bariatric surgery.

Early recognition and accurate diagnosis, aided by imaging modalities like CT scans, are crucial for prompt intervention and prevention of complications. Surgical intervention, such as the placement of a remnant gastrostomy, can effectively decompress the gastric remnant and provide content diversion. Careful decision-making regarding diverticulectomy should be considered based on the stability and symptoms associated with the diverticulum.

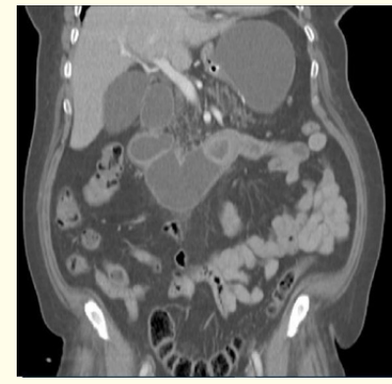

Figure 1: CT of the abdomen/pelvis depicting a duodenal diverticulum, distended gastric remnant, and duodenum proximal to the bezoar, and showing bezoar.

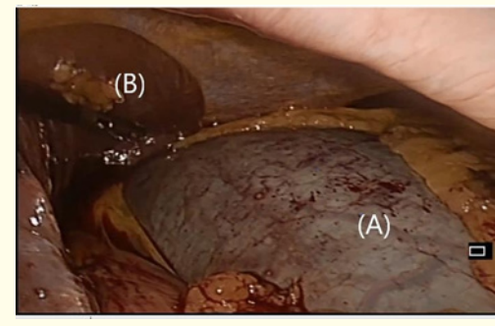

Figure 2: (A) distended gastric remnant, (B) left lobe of the liver.

Figure 3: Bezoar passed down to the jejunum.

Figure 4: Biliobezoar

Discussion

Biliopancreatic limb obstruction resulting from biliobezoar formation following OAGB is an exceptionally uncommon occurrence, primarily observed in individuals diagnosed with T2D and DD. When diagnosing post-bariatric SBO, a CT scan is the preferred diagnostic method. Notably, a documented case has detailed the occurrence of gastro-lithiasis obstructing gastrointestinal anastomosis after RYGB in patients who were both T2D sufferers and smokers [1,4,6].

Primary small bowel obstruction accounts for only 0.44% of all cases of SBO. The occurrence of a biliary bezoar is an exceedingly rare phenomenon among individuals who have previously undergone cholecystectomy, with the first documented case reported in 1995, involving patients who developed biliary phetobezoars 15 years post-cholecystectomy [2,5]. In this context, we present a case involving a woman with a medical history encompassing OAGB, T2D, and hypertension, who presented with severe upper abdominal pain.

Among patients diagnosed with bezoars, a substantial 85.7% were found to have one or more predisposing factors, such as a history of prior gastric surgery, T2D, or DD. Of this group, approximately 66.7% ultimately necessitated surgical intervention [3,8]. In our specific case, we conducted an emergency laparoscopy procedure.

In the study, it was found that non-operative management achieved a success rate of 72% among patients in the non-bariatric group with SBO, while surgery was required for 62% of patients in the bariatric group with SBO ($p < 0.01$). Notably, among those in the bariatric group, laparoscopic procedures were favored over open surgery, with a frequency of 5% versus 2%. Furthermore, bariatric patients underwent surgery on average within 24 hours, in stark contrast to the non- bariatric group, where the average time to surgery was 3.3 days ($p < 0.01$) [7].

We are presenting a case involving a 65-year-old female patient who was admitted to our hospital with an acute abdomen. The initial evaluation, which included a CT scan, led to the decision to perform a laparoscopic gastrostomy. However, the definitive treatment is performed in the surgical procedure as the second step.

Conclusion

This case emphasizes the significance of maintaining a high index of suspicion for bezoar-related complications in patients with a history of bariatric surgery. Timely diagnosis and appropriate management are essential in achieving successful outcomes and minimizing morbidity.

Conflicts of interest

None.

Sources of Funding

None.

Ethical Approval

None.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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