



Multiple Complex Complications After Redo Bariatric Surgery (Infrequent Complication: Fistula Between the Splenic Artery and the Remnant of the Stomach): A Case Report

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ABSTRACT: With the epidemic prevalence of obesity in today's society, bariatric surgery has become very popular in treating severe obesity. Although the complications of this surgery have decreased with the advancement of medicine and post-treatment care, there are still complications that can lead to death if neglected. In this case report, we present a 44-year-old patient who underwent redo bariatric surgery. She was discharged from the hospital in good general condition but returned a few days later with a major complaint of abdominal pain and sudden bleeding from the upper gastrointestinal tract. After performing CT and endoscopy and considering the results, the patient underwent laparotomy, which showed a fistula between the splenic artery and the remnant of the stomach. After surgery and after the recovery period, the patient was discharged from the hospital. In this case report, we describe for the first time an uncommon and unique complication following redo bariatric surgery. We suggest that a fistula between the splenic artery and the remnant of the stomach should be considered in patients with abdominal pain and upper gastrointestinal bleeding who underwent redo bariatric surgery.

KEYWORDS: Bariatric surgery, obesity, fistula, gastrointestinal hemorrhage, complications

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Introduction

Today, obesity has increased dramatically in societies.¹ In addition to the problems that overweight people have, it also brings many costs to the health system. Therefore, bariatric surgery, which changes the structure of the gastrointestinal tract to treat overweight, has been widely used to effectively treat this problem.^{2,3} Studies showed the success of this method in a mean weight loss of more than 60%.⁴ With the advancement of medicine and postoperative procedures, the rate of complications of this method has decreased significantly in recent years. Still, it does not mean that surgeons can neglect these complications because they can lead to life-threatening conditions if ignored.^{5,6} In this case report, we present a 44-year-old patient who underwent redo bariatric surgery and suffered a rare complication of a fistula between the splenic artery and a remnant of the stomach after surgery.

Case Presentation

The patient was a 44-year-old woman weighing 103 kg with a body mass index of 41.79; she decided to undergo classical laparoscopic gastric bypass surgery. The patient's medical history was hypothyroidism, diabetes mellitus II (borderline), gastroesophageal reflux (GERD), and hypertriglyceridemia. In her drug history, she was under treatment for levothyroxine and

losartan. She had a history of abdominoplasty and vertical banding gastroplasty (VGB) 10 years ago when weight was 140 kg; during these years, she lost 60 kg at first and then regained weight approximately 20 kg. The patient had no complications after the first surgery.

After performing redo bariatric surgery, the patient was discharged and remained on the diet until the fifth day of recovery when she sensed epigastric discomfort and pain. For this, she underwent an abdominal CT scan. The CT scan was reported to be normal by the radiologist. On the 10th day after the post-update, she went to the hospital with massive sudden upper gastrointestinal bleeding. In the emergency room, she was stable with Hgb = 12 (g/dL) and was intubated due to the risk of aspiration during the endoscopic procedure. The surgeon reviewed the CT scan and observed that the remnant part of the stomach was full of fluid (Figure 1).

During the endoscopy, a large clot was detected in the pouch, the investigators did not find the source of the bleeding, but they placed 2 clips on the suspicious site and managed the bleeding. During the endoscopy procedure, the patient was hydrated with 2-L isotonic normal saline and was admitted to the ICU afterward. After 4 hours, she began to bleed from her oral cavity and her blood pressure dropped. The vital signs of the patient included: Blood pressure (BP): 80 sys/pulse rate¹:



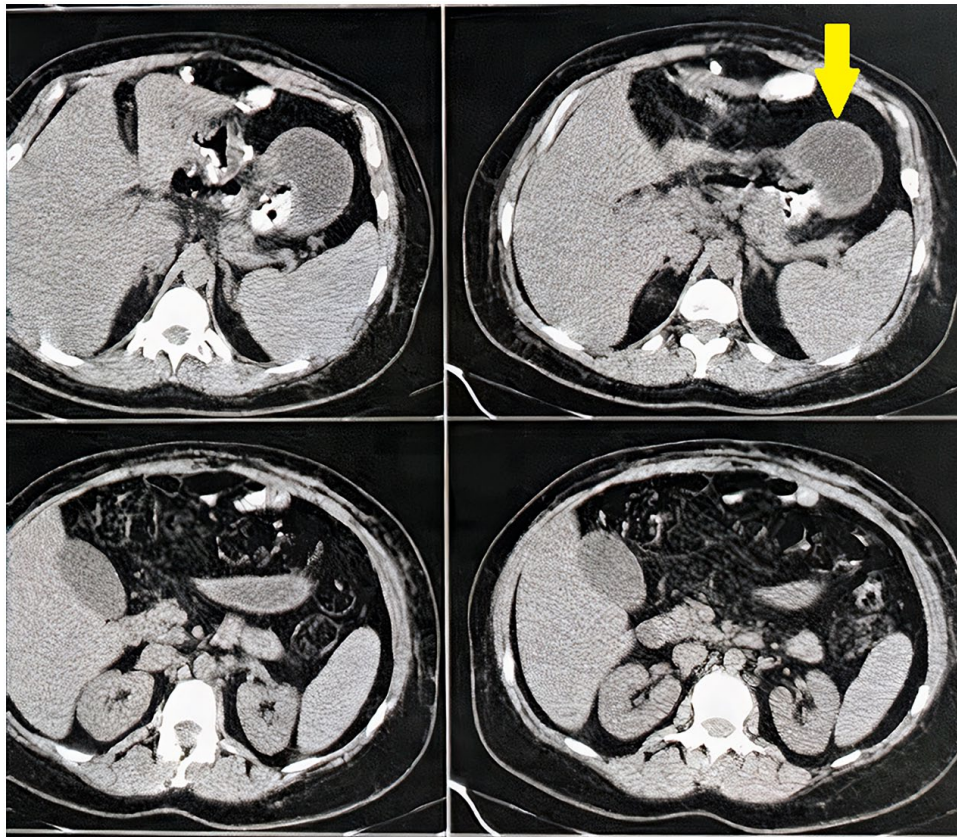


Figure 1. CT scan: the remnant part of the stomach is full of fluid.

125 beats/minute, and on examination, the abdomen was distended and the percussion was dull. The nasogastric tube was fixed and 500cc of bright blood was emitted. The lab tests included the following.

Hgb: 6.5 (g/dL)

WBC: $1.5 (\times 10^9/L)$

Plt: $180 (\times 10^9/L)$

CRP: 46 (mg/L)

ESR: 20 (mm/hour)

PT, PTT, and INR: normal

Due to the patient's situation and shock condition, the surgery was performed. At first, laparoscopy was performed, but due to lack of good vision, the patient underwent laparotomy with an 8 cm incision in the upper midline. During surgery, we found that the small intestine in both the alimentary and biliary limbs was distended and congestive, the stomach pouch was open iatrogenic, and a large clot was seen in pouch without any visible source.

Meanwhile, with hypotensive status and ongoing bleeding loss, we packed the upper abdomen. After removing the pack, we found a fistula between a part of the splenic artery and an

island of stomach remnants. The island was fistulated to the rest of the remnant due to the high pressure of the compact pouch.

At first, the team controlled the bleeding by repairing the anterior part of the splenic artery ruptured with 5/0 prolene sutures. We resected the remnant, then inserted a jejunostomy tube and the abdomen closed. The pouch was repaired with a sizer, and the omentoplasty was performed by laparoscopic maneuver. During surgery, the patient received fivepacks of cells to replace the amount of blood she had lost. The patient was sent to the ICU after surgery. After 1 week, GI secretions came from an abdominal wound that favored pouch leakage. On a new abdominal CT scan, necrosis was observed in the peripheral part of the splenic part (Figure 2).

The patient underwent medical therapy for the leakage and partial splenic necrosis. After being stable and no fever was detected, the patient went to the surgical ward. After 4 weeks, the discharge from the wound disappeared. There was no evidence of splenic abscess.

After 3 months, the excess weight loss (EWL) was 58%, which was no different compared to other patients who underwent bypass surgery. This case was a new experience for our surgery group department.

Discussion

With the epidemic prevalence of obesity in today's society¹ and the discovery of the relationship between conditions such

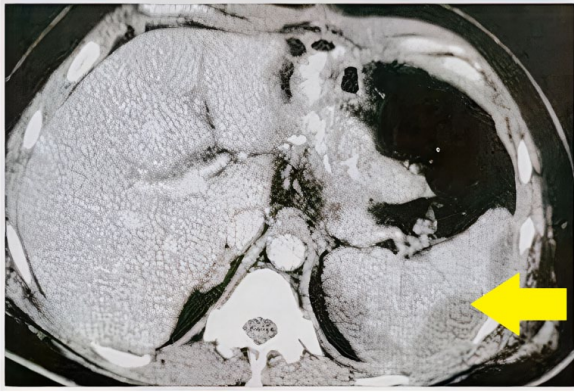


Figure 2. CT scan: necrosis in the peripheral part of the splenic part.

as type 2 diabetes mellitus, cardiovascular disease, dyslipidemia, hypertension, cholelithiasis, gastroesophageal reflux disease (GERD),

Bariatric surgery has become very popular.⁷⁻⁹ Many studies have shown the effect of bariatric surgery on resolving the complications associated with obesity. For example, the benefits of this surgery is the reduction of oxidative stress in patients, which in particular leads to the regulation of glucose fluctuations.¹⁰ Complications of bariatric surgery have declined dramatically in recent years, from 10.5% in 1993 to 7.6% in 2005.^{5,6} But this does not mean that we can ignore these complications because these minor complications can turn into life-threatening complications if neglected. Complications vary depending on the surgical procedure but generally include leak, ileus, obstruction, and GI hemorrhage tract.^{11,12}

Leakage and fistula are important and common drawbacks after bariatric surgery. Leakage (occurs in 0.7%-5% of cases) can manifest as a fistula (gastrocutaneous, gastropleural, gastrosplenic), a rare complication. Fistulas also occur in 0.2% to 2.5% of patients.¹³ In managing this complication, depending on the location and characteristics of the fistula, drainage of any abdominal collections, endoscopic treatment, and surgery may be warranted. Surgical techniques may also include resection of the fistula and the affected stomach.¹⁴

Diagnostic modalities in these patients can be endoscopy and CT scan, which can help better understand problem and then decide on treatment.¹⁵ In patients undergoing restrictive procedures, especially VBG, revision is required due to regaining weight (like the patient in this case report) or the presence of obesity-related complications. However, revision surgery is confronted with a dilemma among surgeons, as the second surgery has a higher risk of morbidity and mortality, and the choice of the second type of bariatric surgery remains challenging. Research has shown that the Roux-en-Y Gastric Bypass (RYGB) is the best choice, which has a lower risk of complications than other methods.¹⁶⁻¹⁸

The patient in this case report was an obese person with obesity-related complications, including GERD and diabetes

mellitus. After bariatric surgery, the patient presented principal abdominal pain complaints, which is recommended to always consider the following differential diagnosis in the face of these patients by physicians: biliary disease; anastomotic strictures; marginal ulceration in gastrojejunal anastomosis, and internal hernia.¹⁹ Although fistula between the splenic artery and the remnant of the stomach is an infrequent complication, it is always recommended to be considered in patients with abdominal pain and gastrointestinal bleeding to prevent its life-threatening conditions.

Conclusions

In this case report, we describe for the first time an unusual and infrequent complication following redo bariatric surgery. We suggest that a fistula between the splenic artery and the remnant of the stomach should be considered in patients with abdominal pain and upper gastrointestinal bleeding who underwent redo bariatric surgery.

Finally, we conclude that it is better to resect the stomach remnant in a redo surgery to convert VBG to classic gastric bypass. Herald bleeding is significant to be considered in these specific patients. Also, in partial spleen necrosis, even in iatrogenic conditions, it is better to be managed by medical therapy than surgical procedures.

Author Contributions

Mehdi Tavallaei, MD, and Mohammadreza Abdolhosseini, MD, contributed to the study concept and design, supervising of study and final approval of the submission; Arsh Haj Mohamad Ebrahim Ketabforoush, MD, and Parynaz Parhizgar (medical student), contributed to the patient record, data interpretation, drafting of the main article, and final submission approval. The authors verify that the manuscript is original.

Research Ethics and Patient Consent

Written informed consent for patient information and images to be published was provided by the patient.

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