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Case report

Emergency reversal of gastric bypass for missed diagnosis of internal hernia and bowel ischemia in a pregnant woman

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To date, bariatric surgery represents the "gold standard" treatment for the obese population. Eighty percent of laparoscopic Roux-en-Y gastric bypass (LRYGB) procedures are performed in females of childbearing age [1,2]. The mortality rate is .23% after LRYGB, and 10-15% of the LRYGB mortalities are due to small bowel obstruction secondary to internal hernia (IH) [3–10]. This complication increases with higher intra-abdominal pressure during pregnancy. This original case reports the impact of a missed diagnosis of small bowel obstruction by IH in a pregnant woman with previous LRYGB and the surgical management of digestive reconstruction in this dramatic situation.

Case presentation

A 36-year-old woman with a surgical history of antecolic antegastric surgery about 2 years prior was 17 weeks pregnant. The patient presented to the regional hospital for abdominal pain and vomiting 24 hours before her consultation in our institution. These first symptoms were treated medically and were attributed to pregnancy. Because of decreasing abdominal pain and nausea, the patient was sent home. She then consulted the emergency unit of our center and was hospitalized for recurrent abdominal pain, vomiting, and hematemesis. Blood tests revealed inflammation without anemia or alteration of hepatic function tests or bilirubin. A gastric hemorrhage by complication of gastric peptic ulcer was the first suggested diagnosis. Endoscopy was performed because hematemesis was the patient's principal symptom and the patient's history of LRYGB was unknown.

In the emergency room, an endoscopy was performed and showed necrosis of the gastrojejunostomy without hemorrhage (Fig. 1A). After endoscopy, a digestive ischemic complication was suspected, and a computed tomography (CT) scan was performed to visualize the digestive arteries and decide whether surgery required digestive and vascular specialists. An abdominal CT scan showed antecolic antegastric Roux-limb strangulation with signs of ischemia and some fluid in perisplenic and perihepatic areas and in the pelvis (Fig. 1B). The patient was transferred to the operating room. Before surgery, fetal vitality was confirmed by an obstetrician.

Surgical management

A median laparotomy was performed. During the operation we found small-bowel strangulation by IH through the Petersen's space, intersecting the antecolic antegastric Roux-limb (Fig. 1C). The Roux limb was necrosed, including the gastrojejunostomy and jejunojejunostomy. The necrotic bowel was removed, and a total of 1.5 m of gastrojejunostomy and jejunojejunostomy were resected. We decided to reverse the gastric bypass for 2 reasons: her normal body mass index before pregnancy and the risk of metabolic disorder after resection of 1.5 m of small bowel.

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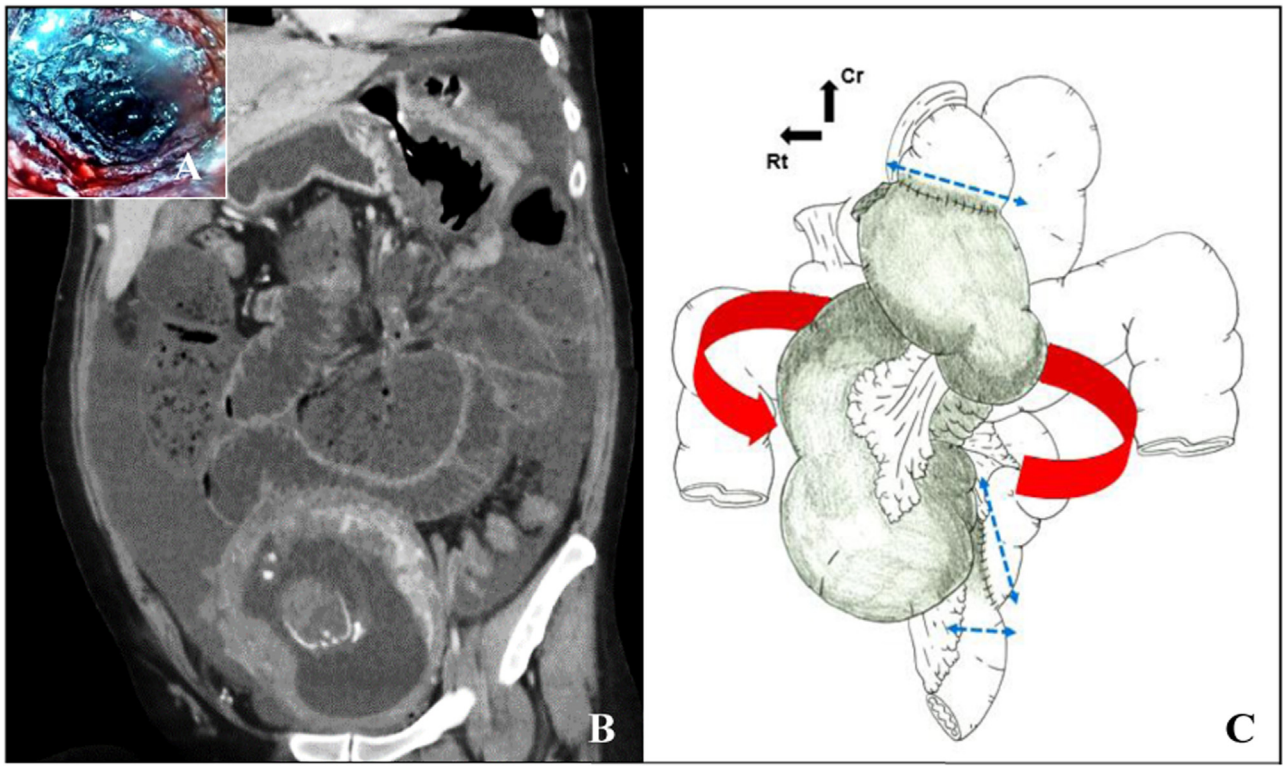

Fig. 1. Roux-Limb strangulation through the Petersen's space. (A) Endoscopic view showing necrosis of the gastrojejunostomy. (B) Abdominal computed tomography scan showing Roux-limb occlusion, with ischemic signs and some fluid. (C) Schematic view showing the Roux-limb strangulation through the Petersen's space and the margin resection (blue lines).

Intestinal continuity was established though a gastro-gastric circular mechanic anastomosis and a jejunojejunostomy running suture (Fig. 2A, B). Abdominal drainage was used. The patient was then hospitalized in the intensive care unit for 2 days. She was managed by the obstetric team in postoperative day (POD) 3, and a fetal extraction was performed for fetal death. No postoperative complication occurred, and an anticoagulant therapy was initiated postoperatively. Esogastric X-ray performed on POD 7 did not show anastomosis leakage and allowed diet recovery (Fig. 3A, B). Drains were removed on POD 9. The patient was discharged after 12 days.

Discussion

Small bowel obstruction occurs in 1%–5% of LRYGB [3–10]. Together with the growing popularity of LRYGB, there has been an increase in the incidence of IH. Possible sites for IH are the spaces between the mesentery at the jejunojejunostomy (JJ space), the Roux limb and the gastrojejunostomy (Petersen's space), and, in the retrocolic route, the extra defect created in the mesocolon. IH is one of the most common complications of LRYGB, and its incidence increases in pregnancy. A predisposing factor for the development of IH in these patients may be the rapid and massive weight reduction, which results in decreased intraperitoneal fat and may in turn enlarge mesenteric defects. Causes include complete blockage or partial narrowing of the gastrojejunal or jejunojejunal anastomosis, acute angulation of the Roux limb, and narrowing of the Roux limb at the level of the transverse mesocolon. After bariatric surgery and massive weight loss, women may experience a fertility rebound. Some suggest that the risk of IH increases as the pregnancy progresses because of the increase in abdominal pressure and the cranial displacement of the abdominal contents [2]. The number of pregnant women with prior bariatric surgery is increasing; handling this patient group calls for special attention [2,11].

As described in the Leal-González et al study, patients may experience symptoms ranging from mild and intermittent abdominal cramping to acute small bowel obstruction [2]. Abdominal pain in pregnant patients can be difficult to interpret; hence, diagnosis can be particularly difficult and thereby delayed. Abdominal ultrasound cannot be used to diagnose the condition, and CT scan is of limited value in pregnant patients as the uterus may displace the intestine and make interpretation difficult. Moreover, CT scan has a high degree of both false-negative and false-positive findings in patients with a history of LRYGB. Furthermore, exposing the fetus to radiation should be avoided.

Surgical exploration of patients with suspected IH should be performed without delay. A reluctant operative decision may result in the development of a closed loop obstruction,