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Case Report

Jejunojejunal intussusception in a pregnant woman after Roux-en-Y gastric bypass: case report

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ABSTRACT

The Roux-en-Y gastric bypass is a surgical procedure used in the treatment of morbid obesity. However, it may come with late complications, such as the intussusception, whose risk can be increased by pregnancy. Diagnosis is made with the combination of clinical and imaging data and is treated surgically. Reduction and enteropexy alone are associated with an increased risk of recurrence and jejunojejunostomy revision is mandatory when facing bowel ischemia. We share a clinical case of a pregnant patient, at 33 weeks and 3 days gestation, who had this complication and had to be submitted to cesarean section and small bowel resection.

Keywords: Intussusception, Roux-en-Y, Bypass, Pregnancy

INTRODUCTION

The Roux-en-Y gastric bypass (RYGB) is a both restrictive and malabsorptive procedure, since it reduces the gastric reservoir and includes the creation of a gastrojejunal and a jejunojejunal anastomosis in a Roux-en-Y fashion, creating an alimentary limb, a biliopancreatic limb and a common (Roux) limb. Several complications are associated with this surgical procedure, including ulceration, anastomotic leak and obstruction either due to adhesions, internal hernia or intussusception.[1]

Intussusception refers to the invagination or telescoping of a portion of small bowel inside another adjacent part of the bowel and it can be retrograde (towards proximal) or anterograde (towards distal). This may cause obstruction, ischemia and perforation of the bowel, if left untreated.[2] In this article we present a RYGB related intussusception case in a pregnant woman, which constitutes itself a challenging situation.

CASE REPORT

We present a case of a 36-year-old female with a past medical history of morbid obesity and was submitted to a laparoscopic Roux-en-Y gastric bypass 8 years before the present episode. Six months after the bariatric surgery, the patient was again operated by minimally invasive surgery, this time due to intestinal obstruction caused by postoperative adhesions. At the moment the patient is 33 weeks and 3 days pregnant, with an uneventful pregnancy so far. The patient came to the emergency department with complaints of abdominal pain, vomiting and constipation for the past two days. On observation the abdomen was distended and painful in the lower quadrants, without signs of peritonism. Blood work showed leukocytosis (23,280/µl) and elevated C reactive protein (17.88 mg/dl) and lactate levels (2.8 mmol/l). After inserting a nasogastric tube, the patient felt some pain relief after draining 200 ml of enteric content. An abdominopelvic tomography scan (CT) was done and revealed images suggestive of an intestinal

intussusception associated with bowel ischemia (Figures 1 and 2). Since the pregnancy was already at 33 weeks and 3 days, weighing the risk of a premature delivery, the patient was taken to the operating room with both general surgery and obstetric teams for emergency surgery. Whilst under subarachnoid block we performed an infraumbilical median laparotomy and cesarean delivery.

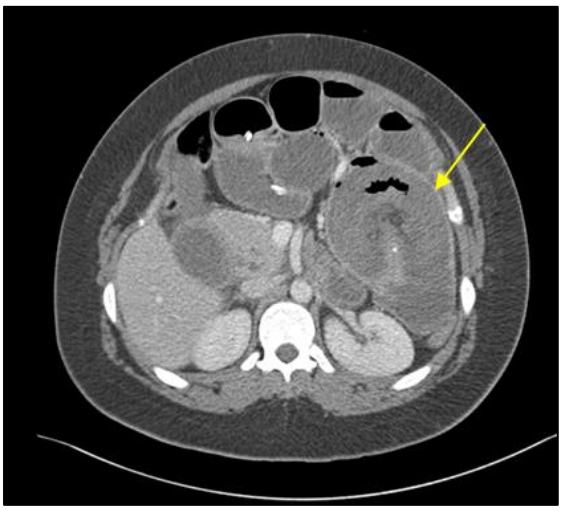

Figure 1: CT scan showing small bowel intussusception (yellow arrow).

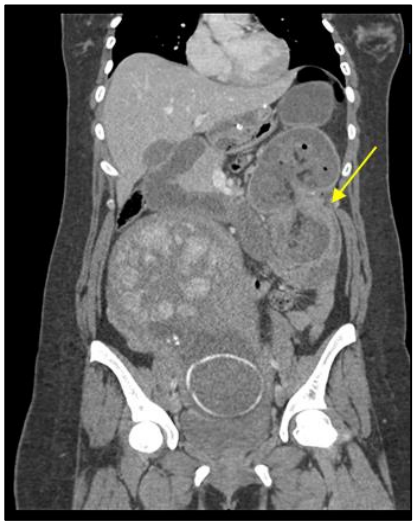

Figure 2: CT scan showing small bowel intussusception (yellow arrow).

The newborn had Apgar indexes of 7/8/9 and a birth weight of 2090 grams. After being put under general anesthesia, we extended the laparotomy upwards and, after some adhesiolysis, found a distention of the biliopancreatic limb associated with a retrograde intussusception of the Roux limb. To fully reduce the intussusception, we had to perform an enterotomy. Since there was frank bowel ischemia, we performed an enterectomy of approximately 80 cm of small bowel and refashioned the jejunojejunostomy with a side-to-side manual anastomosis (Figures 3 and 4). Aside from a superficial operative wound infection, postoperative period was uneventful. The patient was discharged five days after the surgery, being able to tolerate food intake. The newborn also had a favorable progress. Pathology examination of the surgical specimen did not reveal any lesions or tumors.

Figure 3: Intraoperative image, showcasing the ischemic bowel segment.

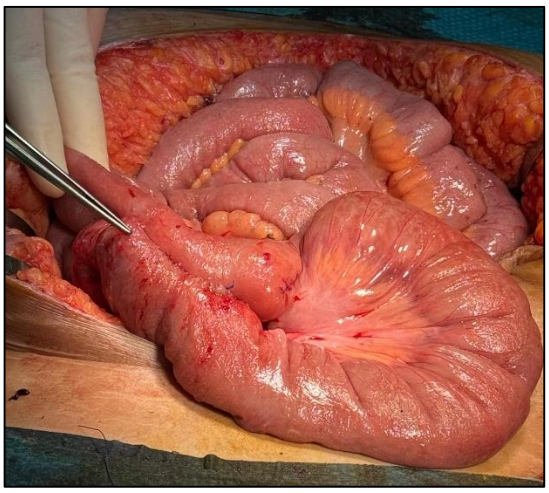

Figure 4: Intraoperative image, forceps pointing to the reconstructed anastomosis.

DISCUSSION

Intussusception is a rare cause of intestinal obstruction in the adult and, most of the times, is caused by the presence of a polyp or a tumor. After a RYGB, the occurrence of intussusception is also rare, and may present many years after the surgery, with a reported prevalence of 0.1–0.3% in these patients, and usually is not associated with a neoplastic lesion.[3,4] The mechanism behind this complication is not fully understood, but this phenomenon may arise from a lead point (adhesions, suture lines, food boluses), motility issues caused by the

loss of the duodenal pacemaker after intestinal transection (promoting ectopic pacemakers with anterograde and retrograde peristalsis), along with the mesenteric thinning that comes with the weight loss.[5-7] Orthopoulos et al, in their case series, found that a jejunojejunostomy longer than 60 mm can pose a higher risk for intussusception.[8] It is still unknown if the pregnancy increases the risk for intussusception, but it is theorized that the upwards displacement of the bowel by the uterus and the relaxing effects of progesterone on bowel motility may promote these changes.[3] Most commonly, the intussusception is retrograde, where the Roux limb telescopes the jejunojejunal anastomosis, leading to obstruction and, if left untreated, ischemia, perforation and sepsis.[2]

Intestinal intussusception usually presents with obstructive signs and symptoms (abdominal pain, distension, vomiting and, less frequently, constipation) and the diagnosis is made with imaging techniques, most commonly a CT scan. In these cases, the scan typically shows a bowel mass with the outer intussuscipiens and the inner intussusceptum with a fat density within the mass, which is called the "target sign".[7] In the pregnant patient the fetus safety is also taken into consideration when choosing the scan, making the magnetic resonance a safer choice.

However, the radiation dose of one abdominopelvic CT scan in a >25 weeks-old fetus poses little to no risks regarding malformations, developmental abnormalities or growth restriction. Besides, in a potentially life-threatening condition (such as bowel ischemia secondary to intussusception), the delaying of diagnosis and treatment of the disease greatly increases the risk of complications, when comparing to the effects of the radiation used in these imaging studies.[9,10]

The treatment of this condition is mostly surgical, although there are some reported cases in which a "positive" CT for intussusception did not translate in the same finding in the operating room.[7] Depending on the clinical condition of the patient (mainly hemodynamic stability and pulmonary function), magnitude of bowel distention and surgical expertise, laparoscopic approach is preferred since it is associated with faster recovery, less postoperative pain and smaller incisional hernia rate. In the pregnant patient we still need to consider the uterine size and the need to deliver the fetus.[3] If a cesarean section is to be performed, we should consider delivering the fetus under regional anesthesia as general anesthesia is associated with lower neonatal Apgar scores, higher need for assisted ventilation, and admission to the neonatal intensive care unit.[11]

Three main surgical procedures are described in this setting: reduction alone, reduction with enteropexy and enterectomy with revision of the jejunojejunostomy. Reduction with or without plication is a procedure that preserves the bowel length and has no risk regarding to anastomotic leakage. The main disadvantage is the higher risk of recurrence, comparing to resective surgery, with rates varying between 14% and 100% (this last rate was described by Simper et al).[12] In the presence of bowel ischemia, resection is mandatory.[7,8] There is no consensus or guideline recommending of one technique over the others.[3]

CONCLUSION

Intestinal intussusception post-RYGB is a rare diagnosis, but it must be considered when a pregnant woman presents to the emergency department with obstructive symptoms, since a delay in the diagnosis and treatment can lead to a dismal prognosis. When choosing a surgical technique, one must take into account the clinical status of the patient, gestational age, the risk of recurrence and presence of bowel ischemia.

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