

# Late complications of bariatric surgery in pregnancy

Annik Reijnerse<sup>1</sup>, Janneke A Burgers<sup>2</sup>, Attie TJI Go<sup>2</sup>, Johannes F Zengerink<sup>3</sup> and Robin MF van der Weiden<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Franciscus Gasthuis, Kleiweg 500, Rotterdam, The Netherlands

<sup>2</sup>Department of Obstetrics and Gynecology, Erasmus University Medical Center's-Gravendijkwal 230 3015 CE Rotterdam, The Netherlands

<sup>3</sup>Department of Bariatric Surgery, Franciscus Gasthuis, Kleiweg 500, Rotterdam, The Netherlands

**Corresponding author:** Anniek Reijnerse. Email: anniekreijnerse@gmail.com

## Lessons

Severe complications of bariatric surgery in pregnancy can appear many years later, even if there is a history of an uneventful pregnancy after bariatric surgery and a stable body mass index for years. We present the case of a pregnant patient who presented to our gynaecology department with an internal herniation after Roux and Y gastric bypass surgery.

## Keywords

Pregnancy, gastrointestinal surgery, obesity

## Case report

A 29-year-old patient presented at 25+4 weeks of gestation because of acute abdominal symptoms. She underwent Roux and Y gastric bypass operation six years earlier and a laparoscopic cholecystectomy one year later. The patient's obstetrical history included one full-term uncomplicated vaginal delivery four years earlier (i.e. two years after Roux and Y gastric bypass) and a first trimester termination two years earlier. Her body mass index remained the same after the pregnancies. The patient was otherwise healthy, and the pregnancy was supervised by a midwife.

On admission, the patient mentioned an acute onset of intermittent abdominal pains with vomiting and nausea. Vital signs were normal. Abdominal examination demonstrated normal bowel sounds and a moderate tenderness in the epigastric region radiating to the right site. Abdominal ultrasound showed a viable pregnancy without signs of foetal growth restriction. Laboratory tests revealed a low C reactive protein (CRP), a slightly increased leucocyte count of  $10.8 \times 10.6 \text{ mL}^{-1}$  and normal liver function tests. The magnetic resonance imaging scan showed no free fluid in the abdomen, no liver or kidney abnormalities and no abnormalities at the level of the gastrojejunal anastomosis. After an initial improvement, the abdominal pain increased on the

third day and haematemesis occurred. An upper digestive tract endoscopy was performed: the Roux and Y gastrojejunal anastomosis had a normal appearance. However, after passing the Roux limb, distal from the anastomosis, the mucosa of the most proximal part of the jejunum appeared ischemic. This observation stressed the need for an exploratory laparotomy. Because of the risk of developing post-operative sepsis, especially in the event of a bowel resection, and because of the duration of the pregnancy, the patient was referred to an academic centre with a neonatal intensive care unit.

In the academic centre, the patient received corticosteroids for improving intra uterine foetal lung maturation. Because of the suspicion of ischemic bowel syndrome, an emergency midline laparotomy was performed within 2 h after admission. A strangulated small bowel loop with severe venous congestion and varicosity in the mesentery was exposed in the Petersen's space. Following release, the strangulated bowel loops appeared vital again with good arterial pulsations all over. The defect, as well as the defect in the mesenterial side of the enteroenterostomy, was closed with a continuous PDS 3-0 suture. After surgery there were no signs of foetal distress. The patient was discharged four days later.

The further pregnancy followed a normal course. Labour was induced at 38.4 weeks because of pelvic complaints. A healthy son of 3225 g was born. Mother and son were discharged the next day.

## Discussion

The Roux and Y gastric bypass is one of the most performed bariatric procedures in obesity surgery at this moment.<sup>1</sup> The majority of patients are women in the reproductive age group.<sup>2</sup> The beneficial effects of bariatric surgery on fertility and pregnancy outcomes are well documented. The declining body mass index after bariatric surgery will result in less

obesity-related pregnancy complications, like gestational diabetes, hypertension, postpartum haemorrhage, caesarean sections and macrosomia.<sup>3</sup> It is recommended to delay pregnancy until 12–24 months postoperatively because of the risk of maternal malnutrition. Malnutrition could result in impaired foetal development.<sup>4,5</sup> Therefore, pregnancy in the first two years after Roux and Y gastric bypass is an indication for multidisciplinary care consisting of consultations of nutritionists, gynaecologists and sometimes surgeons to prevent and detect nutritional defects. Complications of Roux and Y gastric bypass which can occur and require surgical intervention in pregnancy include bowel obstruction, bowel infarction, necrosis or perforation, volvulus and internal herniation.<sup>3</sup> It is suggested that the changed anatomy during pregnancy predisposes for herniation. The enlargement of the uterus, increased abdominal pressure combined with weight loss due to Roux and Y gastric bypass may lead to a higher risk of displaced bowel loops and internal herniation during pregnancy.<sup>6</sup> Consistent with these anatomical changes, most internal hernias will appear in the second and third trimester. A Petersen's space hernia is a specific hernia that is seen in approximately 0.5–9% of the Roux and Y gastric bypass.<sup>1</sup> The boundaries of this hernia are described as the transverse mesocolon, the retroperitoneum and the Roux Limb mesentery.<sup>7</sup>

Several cases of internal hernias during pregnancy have been reported, and three maternal deaths have been described.<sup>8</sup> The rapid growth in bariatric operations on obese women of childbearing age could result in more cases of internal herniation during pregnancy in the future. Close monitoring of the pregnancy after gastric bypass is recommended, even when the operation was years ago. Patients with internal herniation present with symptoms of small bowel obstruction. This case indicates that awareness of internal hernias should be considered when severe epigastric pain is present in women following Roux and Y gastric bypass operation. The clinical presentation tends to be variable and nonspecific resulting in delayed diagnosis and intervention. Following Roux and Y gastric bypass, internal hernias most commonly arise in the Peterson's space and in the distal anastomosis. Many surgeons believe that diagnostic laparoscopy is the only reliable method to diagnose an internal herniation. Since diagnostic laparoscopy during pregnancy is associated with a good maternal and foetal outcome, surgeons should not hesitate to perform a laparoscopy in pregnant women with a history of bariatric surgery presenting with severe abdominal pains. Early diagnostic laparoscopy is mandatory to protect the mother and the child against a potential lethal outcome.<sup>8</sup>

In this case, the complication occurred six years after Roux and Y gastric bypass surgery and after a previous uneventful pregnancy and delivery. Most reported herniations after Roux and Y gastric bypass surgery appeared in the first three years.<sup>9</sup> Four other cases described an internal herniation in pregnancy after six years<sup>9,10</sup>; in one case, the patient completed two uneventful full-term pregnancies after bariatric surgery followed by the pregnancy complicated by a herniation.<sup>9</sup>

In conclusion, this case report confirms the need to remain aware of the risks of complications during pregnancy, even many years after bariatric surgery.

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