

## Petersen's hernia in a patient with a gastroileal bypass due to obesity. A case report.

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Received (first version): January 23, 2020

Accepted: February 4, 2020

Published online: October 2020

### Summary:

Bariatric surgery is of great importance due to the high incidence of morbid obesity. Techniques such as gastric bypass laparoscopic and other bariatric techniques with gastrointestinal anastomosis are used for its treatment. The incidence of internal hernias in the late postoperative period after bariatric surgery ranges from 0.4 to 8.8%. Petersen's hernia is rare, but usually manifests itself beyond the first year of bariatric surgery, TC is the gold standard for radiological diagnosis and it's a surgical emergency because it can compromise the patient's life. We describe a case of a patient with a Petersen hernia after gastroileal bypass.

### Keywords:

- Obesity morbid
- Bariatric Surgery
- Petersen's hernia

### Introduction

The obesity surgery has taken on a great importance in recent decades due to the increase in the incidence of morbid obesity worldwide. Laparoscopic gastric bypass and other bariatric techniques with gastrointestinal anastomoses are widely used for the treatment of morbid obesity. The laparoscopic approach reduces the morbidity and mortality of this surgery and allows a faster clinical recovery and return to work. However, one of the possible complications in the late postoperative period after the gastric bypass and other bariatric techniques with gastrointestinal anastomoses is the appearance of internal hernias (1,2). The Petersen's hernia is caused by the protrusion of the intestinal loops through the defect that originates between the ascending alimentary loop and the transverse mesocolon, when a Roux-en-Y reconstruction is performed. It is a silent complication, with an insidious and sub-acute clinical presentation that, if not diagnosed in time, can compromise the life of the patient.

We present the clinical case of a patient with a history of gastroileal bypass who presented, as a late complication, an internal Petersen hernia.

### Clinical case

We present a 31-year-old woman with a history of morbid obesity who underwent surgery in another hospital 4 years ago undergoing a single-anastomosis gastroileal bypass, type Billroth 2. After surgery there was a significant weight loss of 55 kg presenting a BMI of 30.4.

The patient came to the Emergency Room of our hospital with a 48-hour history of abdominal pain located in the mesogastrum, right iliac fossa (RIF) and in both lumbar fossae. She had no fever, nausea or vomiting and, she had a well sustained intestinal transit.

On examination, the patient had a good general condition, no fever, was hemodynamically stable, conscious and

oriented. The abdomen was soft and depressible, a mass of about 5 cm was palpated in the mesogastrum and in the FID, which was painful on palpation.

In the complementary tests, a suspicion of ileoileal invagination was identified by abdominal ultrasound (Figure 1), observing a group of adenopathies that amounted to 42 x 8 mm in the mesogastrum, which formed the head of the invagination, with a sheet of free fluid in proximity and there were no signs of intestinal obstruction.

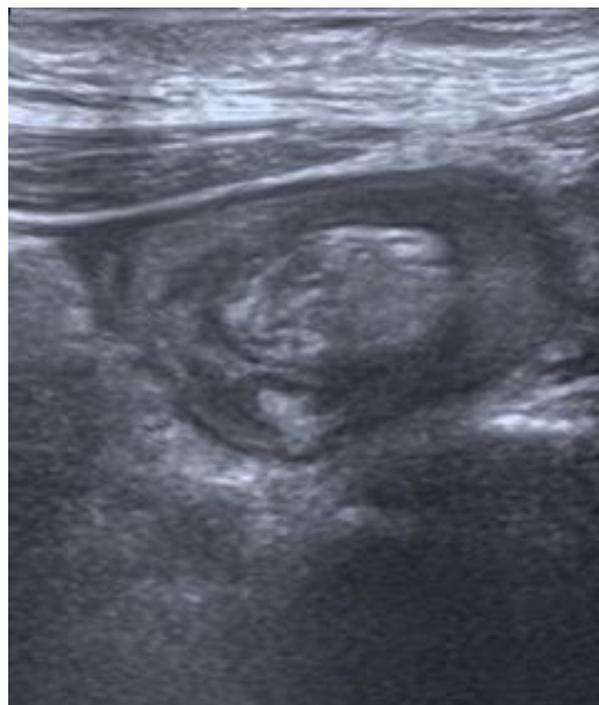


Figure 1

Given the suspected diagnosis of ileoileal invagination, the patient underwent urgent surgery. A diagnostic laparoscopy was performed in which an internal hernia was identified through the Petersen space below the mesentery of the efferent loop with almost complete herniation of the efferent and afferent loop, together with a scant amount of free chylous fluid at the sub diaphragmatic level and in the right paracolic gutter. The loops of the small intestine that produced the internal hernia by Petersen's space were fully reduced (Figure 2), which were found with congestive signs, without intestinal distress, so it was not necessary to perform intestinal resection. The Petersen orifice was completely closed with a continuous mono-filament suture (Figure 3).



Figure 2



Figure 3

After the intervention, the patient presented a favorable clinical evolution, with good tolerance to the oral diet, so, on the third postoperative day, she was sent home.

The patient underwent clinical controls in the outpatient surgery clinic and was asymptomatic.

## Discussion

The Petersen's space hernia was first described in 1900 by Walther Petersen (3). Its clinical presentation was very frequent at the time of the peptic ulcer surgery, however, with the decline of this, its incidence also decreased. Currently it has regained importance due to the higher

incidence of laparoscopic gastric bypass and other bariatric techniques (4).

The incidence of internal hernias in the late postoperative period after bariatric surgery ranges between 0.4 and 8.8% (1,2). The appearance of a Petersen hernia is not frequent, but it usually shows beyond the first year after bariatric surgery and after a significant weight loss, being this the main cause.

The clinical presentation is variable and insidious; in general, patients report episodes of diffuse or localized abdominal pain (mainly in the left hemiabdomen), constant or intermittent, associated or not with vomiting. It can also show as recurrent chronic pain, postprandial, requiring multiple medical consultations and conducting inconclusive complementary tests.

In this clinical context, complementary radiological tests should be used, being the computerized tomography (CT) of the abdomen with oral and intravenous contrast, the main test that allows an early diagnosis to be made. The most characteristic tomographic findings are rarefaction of mes-enteric fat, vortex sign (swirling of mes-enteric vessels), distention of the loops of the small intestine in the left upper quadrant, anterior and right displacement of the angle of Treitz, intestinal loops grouped in contact with the anterior abdominal wall, "mushroom" morphology of the mesentery, enlarged lymph nodes, loops of the small intestine above the gastric level or behind the superior mes-enteric artery and the distal jejunal anastomosis of right disposition (5-7).

When there is this clinical suspicion, it is important to perform an emergency surgical exploration. Whenever possible, a diagnostic-therapeutic laparoscopy should be performed, and conversion to open surgery is possible if the surgical team does not have laparoscopic experience or if the defect cannot be corrected in this way (8).

In this surgery, the following must be performed: 1) Correct identification of the mes-enteric gaps, so it is essential to know the anatomy of the postoperative mesentery defects. 2) The non-traumatic reduction of the herniated intestine and the identification of the cecum and distal ileum to continue with the visualization of the rest of the intestine at the proximal level and evaluating its viability. 3) Complete closure of all mes-enteric defects with continuous suture of non-absorbable material (5,6).

There is controversy about the primary closure of hernial orifices during bariatric surgery. Many authors state that the primary closure of mes-enteric defects generated during gastric bypass and other bariatric techniques with gastrointestinal anastomoses show a decrease in the appearance of internal hernias in the postoperative period (9-11). However, other authors do not find statistically significant differences between performing or not the suture of the hernial orifices. In the case of closure of the defects, some authors suggest performing them with non-absorbable sutures, since it can help reduce the incidence of internal hernias (12-14).

We only performed an abdominal ultrasound was in our patient, despite the fact that abdominal pelvic CT is the test of choice for the identification of internal hernias in patients with a history of bariatric surgery. The diagnostic suspicion of ileoileal invagination was presented, this being one of the possible differential diagnoses to be made for internal hernias in bariatric patients.

This diagnostic suspicion was sufficient to indicate urgent surgery, by performing a diagnostic-therapeutic laparoscopy and showing a Petersen's hernia during it.

### Conclusion

The Petersen's space hernia is an entity that all surgeons, and especially bariatric surgery specialists, must be aware of and know how to identify the possible late appearance of this phenomenon after laparoscopic gastric bypass or other bariatric techniques with gastrointestinal anastomosis. Its clinical suspicion is important when it presents with nonspecific abdominal pain, being the abdominal CT the ideal test for its diagnosis. It is a pathology that can compromise the life of the patient, which requires an urgent therapeutic diagnostic laparoscopy.

### Funding sources

This clinical case has not received any specific aid from agencies of the public or commercial sector, or non-profit organizations.

### Conflicts of interest

The authors declare there are no conflicts of interest

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