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Incidental chyloperitoneum associated with internal hernia in patients operated for Roux-En-Y Gastric Bypass; 5 Case Report and Review of the Literature

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Introduction

Chyloperitoneum or chylous ascites is an underreported and extremely rare condition secondary to Laparoscopic Roux-en-Y Gastric Bypass (LRYGB). Chylous ascites is the presence of a milky fluid with a high fat content (triglycerides> 110 mg / dL). The pathophysiology seems to be due to leakage of lymphatic flow secondary to obstruction. [1] This entity can occur de novo because of trauma and neoplasms, as well as other described causes. The most common etiologies in western countries are abdominal neoplasms and cirrhosis [2].

In the literature, cases of chyloperitoneum or chylous ascites after bariatric surgeries, specially LRYGB are scarce due to the low percentage of internal hernias, considering that not all of them develop chyloperitoneum[4]. Incidence of internal hernias after bariatric surgery is around 0.4-1 to 6-8.8%[3]

Internal hernias occurs secondary to intestinal loop herniation through mesenteric defects created during the remodeling of the anatomy in some types of bariatric surgery, which increase in size after accelerated postoperative weight loss. As a result of these hernias, obstructions to intestinal or vascular permeability can occur, with lymphatic obstruction being infrequent.

Methods and Patients

Five patients who underwent Laparoscopic Roux-en-Y Gastric Bypass were retrospectively evaluated, in all of them a LRYGB with simplified technique was performed; creating a 150 cm food loop and a 60 cm biliopancreatic loop. The mesenteric defect was closed with a 2/0 polypropylene barbed suture. The average age was 46 (± 10.44), including 4 women and 1 man. The main symptoms were abdominal pain and distention, accompanied by nausea and vomiting. The time of appearance of symptoms and presentation of internal hernia was 11 to 18 months after the procedure. The weight loss in the first year according to the data was average: 33.00Kg (Maximum: 45Kg, Minimum: 20Kg, Standard Deviation: 9.08kg).The percentage of internal hernia due to the defect in the jejunal space was found in all 5 patients. In the cytochemical result of the free fluid found during surgery, 3. with which we can confirm the diagnosis of chyloperitoneum, it is the presence of triglycerides (Mean: 312 mg / dl, Standard Deviation: 120.43 mg / dl), Gram staining was performed in 3 cases, which were negative.

Table 5 . Detailed of reported cases

	Case 1	Case 2	Case 3	Case 4	Case 5
Patient age & gender	45-year-old female	38-year-old female	38-year-old female	63-year-old female	37-year.old male
Operation performed	LRYGB	LRYGB	LRYGB	LRYGB	LRYGB
Complication after surgery	No complications	No complications	No complications	No complications	No complications
Weight loss at presentation (%) (kg)	76.4% 25 kg	98.4% 20 kg	72.6% 47 kg	90% 35 kg	118% 35 kg
Symptoms at presentation	Abdominal pain, nausea, constipation and obstipation	Acute left upper abdominal pain, nausea and febrile	Abdominal pain, nausea	Abdominal pain, nausea whit vomiting and constipation	Abdominal pain, nausea, malaise, sweating and paleness, constipation and obstipation
Interval between surgery and symptoms	Approximately one year	One year	One and half years	One year	11 months
Diagnostic method & results	Abdominal CT scan showing mesenteric free fluid and distension intestinal loops	Laboratory showing leukocytosis, abdominal CT scan showing mesenteric free fluid and distension intestinal loops	Abdominal CT scan showing mesenteric free fluid, distension intestinal loops and mesenteric swirl	Abdominal CT scan showing mesenteric free fluid and distension intestinal loops	Abdominal CT scan showing mesenteric free fluid, distension intestinal loops and mesenteric swirl
Type of internal hernia	Small-bowel mesenteric defect (J-J Hernia)	Small-bowel mesenteric defect (J-J Hernia)	Small-bowel mesenteric defect (J-J Hernia)	Small-bowel mesenteric defect (J-J Hernia)	Small-bowel mesenteric defect (J-J Hernia)
Treatment	Emergency exploration with 500 ml ascites drainage and analysis, herniation reduction and mesenteric defect closure	Emergency laparoscopy with herniation reduction, closure of mesenteric defect and ascites analysis	Emergency laparoscopy with separation of adhesions, reduction of internal hernia closure of mesenteric defect and analysis of peritoneal fluid	Emergency laparoscopy with herniation reduction, closure of mesenteric defect and ascites analysis	Diagnostic laparoscopy with reduction of internal hernia, closure of mesenteric defect and analysis of peritoneal fluid
Ascites fluid analysis	High triglyceride content (180 mg/dL), proteins (2700 mg/dL)	High triglyceride content (200 mg/dL), proteins (1850 mg/dL)	High triglyceride content (466 mg/dL), proteins (200 mg/dL) leukocytes 85 mm^3	High triglyceride content (345 mg/dL), proteins (588 mg/dL)	High triglyceride content (369mg/dL), proteins (1000 mg/dL)

LRYGB: Roux-En-Y gastric bypass laparoscopic

Discussion

Internal hernia is a known late complication of LRYGB. The creation of mesenteric defects, the decrease in the rate of adhesion formation with the use of carbon dioxide gas during laparoscopy, as well as postoperative weight loss being this one the most important, contribute to the formation of internal hernias after LRYGB [4]. In a gastric bypass patient with an antecolic Roux limb, two different types of internal hernias can potentially occur , in retrocolic LRYGB is associated with a higher rate of internal hernias. A 2003 Mount Sinai study found that patients with retrocolic anastomosis had almost twice the risk of developing an internal hernia (3.3% vs. 6.0%). The typical presentation of an internal hernia can be acute or chronic, with progressive or intermittent abdominal, epigastric and postprandial abdominal pain. Acute presentation requires urgent surgical exploration. Laparoscopic or open examination is the most sensitive test for the diagnosis and treatment of an internal hernia; however, a CT scan of the abdomen can make the diagnosis in 85% of the cases. The presence of the “mesenteric swirl” sign is the most relevant finding, being a strong predictor of internal hernia. Chylous ascites after LRYGB is rare. In our patients, the cause of chyloperitoneum or chylous ascites was the obstruction of the lymphatic vessels of the occluded jejunal loops contained in the mesenteric defect of the jejunum-jejunum anastomosis [14]. Relief of lymphatic obstruction by reduction of internal hernia and closure of mesenteric defects resulted in resolution of chylous ascites.

Conclusion

Chylous ascites is a rare complication that occurs due to an internal hernia after gastric bypass surgery. These hernias are not always easily diagnosed based on the symptoms or images of the patient, and therefore, it is important that bariatric surgeons know its association with chylous ascites. Although considered a rare complication, Chyloperitoneum, can be an indicator of internal hernias when there is an inconclusive diagnosis and may well be resolved during diagnostic laparoscopy by reducing the internal hernia and closing the mesentery defect

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