CASE REPORT

Chylous ascites as a complication of laparoscopic Roux-en-Y gastric bypass: A case report and review of the literature

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RESUMEN

El quiloperitoneo o ascitis quilosa es una complicación extremadamente rara del bypass gástrico en Y de Roux laparoscópico (BGYRL). Únicamente encontramos reporte de dos casos en la literatura mundial. La verdadera ascitis quilosa se define como la presencia de líquido ascítico con alto contenido de grasa (triglicéridos), usualmente por encima de los 110 mg/dL. El objetivo de este trabajo es presentar el caso de una complicación rara y poco frecuente del BGYRL. Se trata de una paciente de 36 años de edad, con antecedente de BGYRL intervenida fuera de nuestro hospital un año antes de su ingreso, siendo admitida por presentar dolor abdominal intenso, distensión, constipación y obstipación, motivo por el cual se decidió su abordaje mediante tomografía simple de abdomen que evidenció ascitis difusa y una hernia interna. Se decidió realizar laparoscopia diagnóstica, encontrando gran cantidad de líquido quiloso y una hernia de Petersen, motivo por el cual se procedió con la reducción y posterior cierre de la brecha mesentérica. La paciente cursó un postoperatorio sin eventualidades y egresó a las 48 h de ser admitida al hospital. Hasta donde sabemos, éste es el tercer reporte de una paciente con ascitis quilosa secundaria a un bypass gástrico complicado con una hernia de Petersen. Cerrar los orificios potenciales de herniación durante el procedimiento puede disminuir la incidencia de esta complicación en particular.

Palabras clave. Ascitis quilosa. Bypass gástrico. Cirugía bariátrica.

ABSTRACT

The chylous ascites is an extremely rare complication of the laparoscopic Roux-en-Y gastric bypass procedure (LRYGB). True chylous ascites is defined as the presence of ascitic fluid with high fat (triglycerides) content, usually above 110 mg/dL. We report the case of a 36-year-old patient with a LRYGB history, performed a year before. This time, she was admitted with severe abdominal pain, bloating, constipation, and obstipation. A CT scan of the abdomen showed diffuse ascites and an internal hernia. We decided to perform diagnostic laparoscopy finding a large amount of chylous fluid and a Petersen hernia. The internal hernia was reduced, it was not necessary to do intestinal resection, mesenteric defect was closed and chylous ascites was drained. The patient had an uneventful postoperative course and was discharged 48 h after being admitted to hospital.

Key words. Ascites. Chylous. Chylous peritonitis. Gastric bypass. Bariatric surgery.

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INTRODUCTION

True chylous ascites is defined as the presence of ascites with high fat (triglycerides), usually above 110 mg/dL. The etiology is varied, occurring from the disruption of the abdominal lymph ducts resulting from abdominal trauma, malignant neoplasm, spontaneous bacterial peritonitis, cirrhosis, pelvic radiation, peritoneal dialysis, abdominal tuberculosis, carcinoid syndrome and birth defects. No differences were reported regarding gender distribution. It occurs in adult patients (malignant conditions) and pediatric (genetic abnormalities). Other causes of chylous ascites are:

- Cirrhosis.
- Syndromes. Primary lymphatic hypoplasia associated with Turner syndrome, yellow nail syndrome and lymphatic malformations associated with Klippel-Trenaunay.
- Infectious. Tuberculosis,[1] filariasis.[2]
- Other: polycythemia vera, hepatic vein thrombosis, hepatoma, small bowel angiosarcoma, retroperitoneal lymphoma, jejunal carcinoid tumor,[3] sclerosing mesenteritis.[4]

The surgical procedures most commonly associated to chylous ascites are: Resection of an abdominal aortic aneurysm and dissection of retroperitoneal lymph nodes. In 2009, Hidalgo, *et al.*[5] reported the first case of chylous ascites associated to LRYGB in a patient with chronic abdominal pain in which an internal hernia was observed during diagnosis laparoscopy. The Department of General Surgery at Naval Medical Center in Portsmouth, Virginia, has reported a second case of chylous ascites associated with an internal hernia secondary to LRYGB. There are no more cases reported in the current literature. The aim of this paper is to report the third case of a rare and infrequent complication of gastric bypass and laparoscopic Roux-en-Y.

CASE REPORT

A 36 years-old woman with history of LRYGB one year ago (Figure 1), was attended at the emergency room

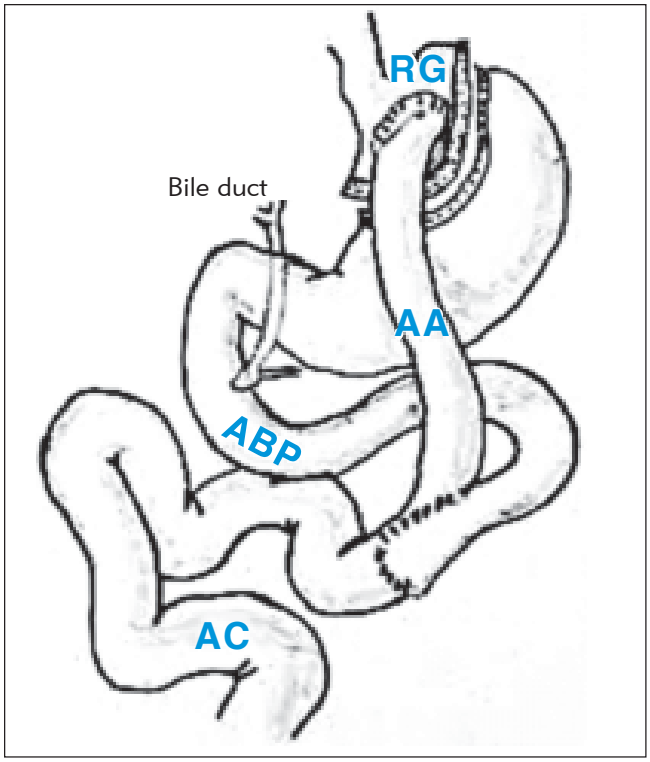

Figure 1. Roux-En-Y Gastric Bypass. The gastric pouch (RG), the alimentary limb (AA), the biliopancreatic limb (ABP) and the common limb (AC) are observed.

Figure 2. Plain abdominal computed tomography. We showed intestinal obstruction secondary to an internal hernia, ascites and diffuse changes suggestive of mesenteric fat.

because she presented intense, postprandial, cramping, stabbing, diffused pain, which subdued by taking a trigger position, accompanied by bloating, sweating, paleness, nausea without vomit, malaise, constipation and obstipation. Physical exploration revealed abdominal bloating, tenderness in upper quadrant and right flank, without rebound or muscle resistance. In laboratories we found leukocytosis with 12.8 cells per mm^3; other laboratories did not show any relevant findings. The abdominal computed tomography (CT) (Figure 2) reported findings compatible with secondary intestinal occlusion due to an internal hernia, diffused ascites and changes in the mesenteric fat suggesting an inflammatory process. Due to that, it was decided to preform emergency laparoscopic surgery, demonstrating the presence of chylous ascites and secondary changes at the mesenteric root level, predominantly in the proximal jejunum, suggesting lymphatic leakage (Figure 3) and a jejunal mesenteric defect under the alimentary limb of the Roux-en-Y of approximately 10 cm long (Petersen hernia), without compromising the bowel loops (Figure 4) which were released. A sample of ascites fluid was taken for a cytochemical and cytological study that observed the results in table 1. We decided to perform the primary defect closure as final treatment. The postoperative course was satisfactory with asymptomatic patient discharge at 48 h.

Table 1. Characteristics of ascites fluid.

Color	Milky
Gram	Negative
Glucose	157 mg/dL
Erythrocytes	4637
Eosinophilic cells	0%
Total leucocytes	85
Neutrophils	37%
Mononuclear	49%
Triglycerides	466 mg/dL
Total proteins	< 3.0 mg/dL

DISCUSSION

Morbid obesity is a major public health problem in Mexico. With the advent of new technologies, minimally invasive surgery is a reality, allowing the development of safe surgical techniques as treatment, amongst the most performed today is the LRYGB, one of the most advanced

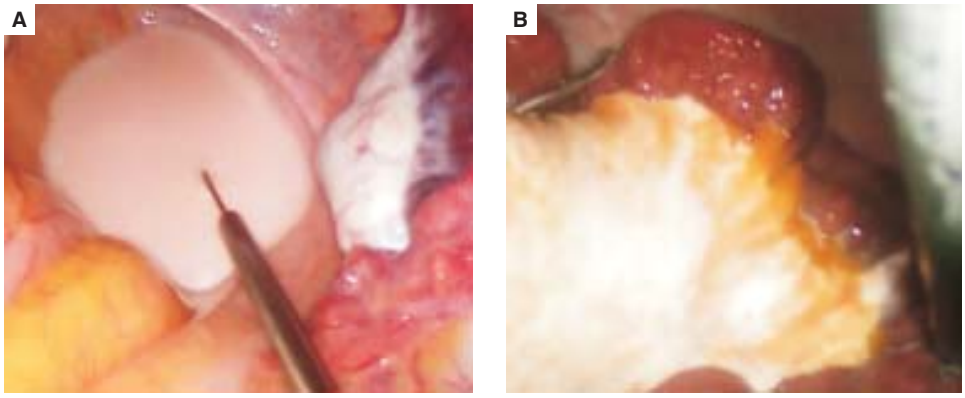

Figure 3. Chylous ascites seen in the pelvic cavity and lymphatic leak in the proximal jejunum.

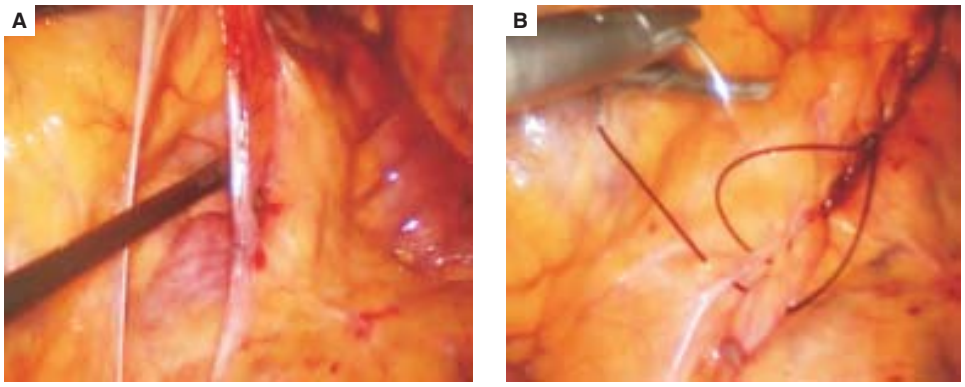

Figure 4. Mesenteric defect of the jejunal limb below the alimentary limb and Roux-en-Y, approximately 10 cm long. Closure of the mesenteric defect.

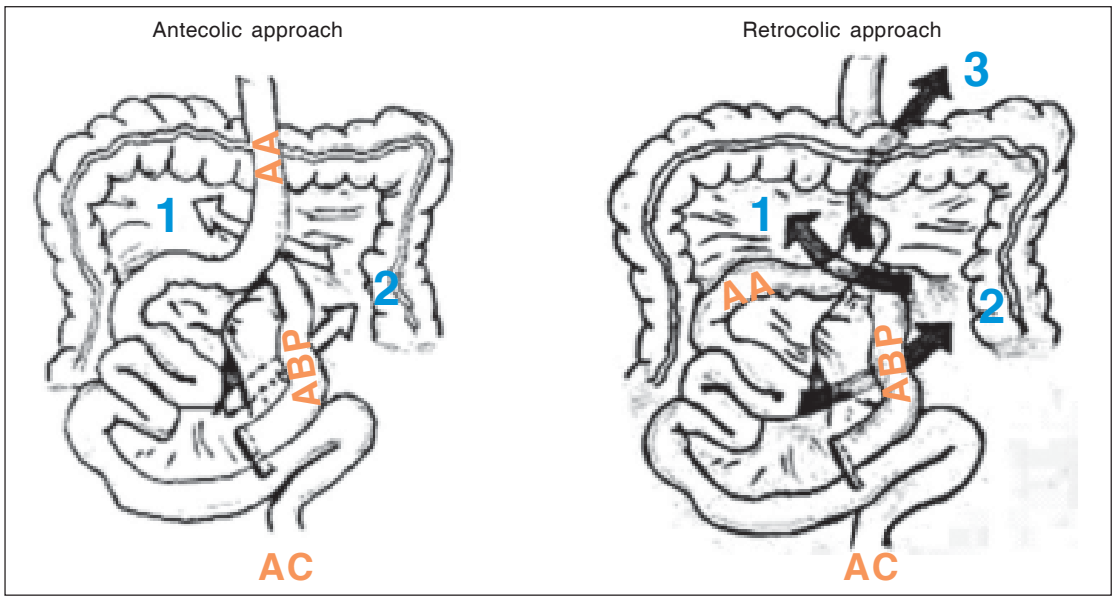

Figure 5. Three potential locations for the formation of an internal hernia: 1. Petersen space (space formed between the alimentary limb and the mesocolon transverse). 2. Mesenteric jejunum-jejunum anastomosis defect, and 3. In the transverse mesocolon when a retrocolic approach is performed.

and complex procedures of modern laparoscopy. Because the obese patient is considered as high risk, an adequate preoperative assessment is essential to significantly reduce the morbidity and mortality associated with LRYGB6; Internal hernias with secondary intestinal obstruction arise when potential hernia defects do not close during the first procedure or the intense weight loss slims the mesentery, thus predisposing the formation of these. There are three potential sites for the formation of an internal hernia (Figure 5):

- At the mesenteric defect of the jejunum-jejunal anastomosis.
- At the Petersen space.
- At the transverse mesocolon, when a retrocolic approach is performed.

The internal hernia that occurs as an intestinal occlusion is a well-known complication of the LRYGB, with an incidence of approximately 2%.[7] Of the three possible locations for the formation of an internal hernia, the most common is the mesenteric defect of the jejunum-jejunal anastomosis, followed by the transverse mesocolon and finally Petersen[8,9] space (as in the case of our patient). Failure to close the Petersen space in the initial surgery or the patient's weight loss are risk factors for developing these hernias. The gold standard for diagnosis is the double-contrast CT scan that will show a swirl of mesenteric vessels around the internal hernia, known as "The cinnamon roll sign." Laparoscopic exploration, reduction and closure of the mesenteric hernia defect as done in our case, is accepted for patients with an internal hernia.[10] Internal hernias as the origin of chylous ascites is a rare and unusual complication of LRYGB. The percentage of association that exists between the internal hernia and chylasco is unknown. There are few reports in the literature of chylous ascites as a complication associated with LRYGB. Chylous ascites occurs mainly due to lymphatic abnormalities in children and to cancer and infections in adulthood. There are various surgical procedures that can cause chylous ascites, but the gastric bypass is not considered as a common cause. To our knowledge, this is the third report of chylous ascites secondary to a complicated gastric bypass with an internal hernia. Complicated internal hernias (incarcerated or strangulated) should be considered as a possible cause of chylous ascites.

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