Gastro-bronchial fistula: Long term or very long term complications after bariatric surgery.

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Introduction

Different surgical techniques exist for the treatment of morbid obesity that can be classified as restrictive malabsorptive, or a combination of both. The duodenal switch (DS) is a mixed technique with malabsorptive predominance that has certain advantages over the restrictive techniques (weight loss is greater, patients show less signs of intolerance/vomiting, and hence, they have a better quality of life) and over purely malabsorptive techniques (less risk of malnutrition due to protein malabsorption, prevention of dumping syndrome or diarrhea) [1].

Among the complications associated with DS are cholelithiasis, protein and caloric malnutrition, calcium metabolism alterations, and gastric or esophageal fistulas.

Looking at the literature, several papers have reported the appearance of gastrobronchial fistula after obesity surgery [2-4], although it has never before stated this kind of complication 10 years after surgery. In this work, we present two cases of gastro-bronchial (GBF) after DS, one of them 10 years later after non-complicated bariatric surgery.

Key Words: Gastro-bronchial fistula. Duodenal Switch. Gastric leaks

Case reports

#1.- The first is a 58-year-old patient, who underwent a DS 10 years ago due to morbid obesity, with BMI-41 who had no complications in the postoperative period. He was admitted in hospital with BMI-26 with 38ºC fever and symptoms of dyspnea during 72 hours. The patient was hemodynamically unstable (120 bpm tachycardia and BP of 90 mmHg). During the physical examination, the patient experienced an intense dyspnea with inter-costal retraction. The ABG showed a PO2 of 60 mmHg, a PCO2 of 45 mmHg, a pH of 7.31, a CO2 of 20 mEq/l and a base excess of -5 mEq/l. The hemoglobin was 15 g/dl, the hematocrit 45% and the WBC 19,500 leukocytes/mm3 with neutrophilia. He was admitted into the ICU because of septic shock and respiratory distress. The thorax X-ray showed signs of bilateral basal pneumonia with a left pleural effusion and diffuse bilateral infiltrate (Fig.1).

The patient also complained about abdominal pain focused in the epigastrium without peritoneal irritation. 24 hours after starting respiratory support treatment and wide spectrum antibiotics (Tigeciclina 50 mg/iv/12 hours, Amikacin 500 mg/iv/8 hours and Levofloxacin 500 mg/iv/12 hours), subcutaneous emphysema in the abdominal wall and thoracic wall was detected. In the thoracic-Abdominal CT scan with oral and intravenous contrast, a pneumonia was detected in the inferior lobe of the left lung and a pneumoperitoneum with an oral contrast leak probably through the old gastric suture section (Fig. 1 A y B).

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An emergency laparotomy was performed and showed an organized sub diaphragmatic chronic abscess, between the diaphragm and the gastro esophageal junction. A 2-3 cm perforation appeared beside the old gastric suture section. Once the collection was evacuated, the gastric damage was repaired with a simple suture. A gas leak was observed through the diaphragm erosion that was communicating the inferior lobe of the left lung with the abdominal cavity (Fig. 2). We decided to perform a primary closing of the diaphragm with a peritoneal patch and an aspirative drainage with a negative pressure of 50 cm of water was left by the abdominal wall. In the immediate postoperative period, the gas leak kept decreasing until it stopped when the positive pressure in the mechanic ventilation was removed on the 15th post-operative day (POD). The patient did well and was discharged with no abdominal or pulmonary complications.

In the immediate postoperative period, a bilateral pleural collections, basal pneumonia, right lung infiltrate and sub cutaneous emphysema were presented. A gas leak was observed in the suture line and the patient was reexamined by the same surgeon. Bilateral pleural collections, basal pneumonia and cutaneous emphysema appeared. A gas leak was observed in the suture line and the patient was reexamined by the same surgeon. Once the collection was evacuated, the gastric damage was repaired with a simple suture. A gas leak was observed through the diaphragm erosion that was communicating the inferior lobe of the left lung with the abdominal cavity (Fig. 2). We decided to perform a primary closing of the diaphragm with a peritoneal patch and an aspirative drainage with a negative pressure of 50 cm of water was left by the abdominal wall. In the immediate postoperative period, the gas leak kept decreasing until it stopped when the positive pressure in the mechanic ventilation was removed on the 15th post-operative day (POD). The patient did well and was discharged with no abdominal or pulmonary complications.

The trans-diaphragmatic tract was drained.

#2.- A 38-year-old patient with BMI-42 underwent a open DS (hepatic biopsy, cholecystectomy, appendectomy, 80% vertical gastrectomy and a bilipancreatic diversion of 80 cm of common loop, 250 cm of digestive loop, and duodenum-ileum end-to-end anastomosis), through a transverse supraumbilical incision. A duodenal leak appeared on the 1st POD, which was treated conservatively. At the 7th POD, he presented tachycardia and he was re-examined by the same incision. Antral resection and trans mesocolic antro-ileum anastomosis was performed. A second duodenal leak the 5th POD after the 2nd surgery, from the distal duodenal stump appeared with bile escape of 800 c/c, which was treated conservatively. X-Ray and methylene blue failed to show any digestive loop leak. He was discharged on the 20th POD being asymptomatic.

During the next year, he was admitted in hospital twice because of fever and cough, and finally a left basal pulmonary abscess was found, connected to an antrum-pyloric leak. It crossed through the left diaphragm, went into the left thorax, penetrated into the inferior lobe of the left lung, produced a pulmonary abscess and was drained through the bronchial tree (Fig. 4).

He underwent surgery again, one year after the first surgery, with BMI-19. A very difficult total gastrectomy was performed by laparotomy. It was reconstructed with an omega loop, making an end-to-side esophagus-jejunostomy. The trans-diaphragmatic tract was drained.

The postoperative period was satisfactory. A residual gas leak remained and that closed in two months. 11 years later, he has a BMI-25 and he is asymptomatic.

**Discussion**

The amount of surgical interventions for the treatment of obesity has exponentially increased over the last few years, and also the amount of complications, which are actually between 4-22% of the cases, depending on the given technique [6]. The rate of gastric fistula is about 8.3% [6], making it a severe complication that often produces abdominal sepsis and respiratory pathology, most of times in the left lung, secondary to a subphrenic abscess [8].

In particular, in cases of DS, the morbidity rate is about 9.4% (6.5% due to fistula) and the mortality rate has decreased in the past years, being less than 1% to date [9].

We can classify the complications after bariatric surgery in: early (0-2 months after surgery) and late (>2 months after surgery) [10]. The early complications are well known and include among others: anastomosis leak, pulmonary embolism, wound infection, digestive haemorrhage, etc. [10]. Among the late complications we can mention bowel obstruction, internal hernia, incisional hernia or cholelithiasis. After mal absorptive surgery, the most frequent complications are the metabolic ones, especially nutritional deficiency [10].
After DS the most frequent late complication is vitamin deficiency, present in 30% of the patients 4 years after surgery, and the most serious ones are caloric-protein malnutrition and alterations in calcium metabolism. We can find in medical literature several articles that concern GBF after obesity surgery [2-6]. Marins [11] encountered this complication in the late post-operative period, around 5 years after the surgery, a similar situation to our #2 patient. GBF are a serious complication that can endanger the patient’s life, and require early diagnosis and treatment. In most of the cases, antibiotic treatment is usually enough, whenever the clinical condition of the patient allows for this treatment [13]. When conservative treatment fails, other options to manage the GBF may be percutaneous drainage of the collections, endoscopy, and/or surgery. The upper digestive endoscopy is not useful for diagnosing the GBF, but can identify an internal fistulous opening, and allows evaluations of the gastric reservoir and treatment of a fistula by insertion of a prosthesis, by applying fibrin glue, etc., which minimizes the need for surgical treatment [12, 13]. The re-operations on these patients are complex, due to the difficulty in accessing the damaged area [15], through the abdominal or thoracic cavities, due to the adhesions and fibrosis produced by the infection.

The first case required an emergency laparotomy due to the severity of the situation the patient was in at the moment he was admitted in ICU. The gastric tube leak was able to be successfully repaired during surgery without the need to modify the previous bariatric technique, and the subphrenic abscess could be drained. Similarly, the aspiration drain was able to cure and close the diaphragmatic defect, which allowed for treatment of the pulmonary injury. This is a good thing due to the difficulty of performing a thoracotomy caused by existing adhesions between the lung and the thoracic wall. There are not well-established diagnostic-therapeutic algorithms for these cases due to low occurrences, and in our case, the result of the used technique produced satisfactory results.

The second case was scheduled for a pulmonary resection, but the patient recovered after treating the cause in the abdomen, and subsequent surgery was not necessary.

Conclusion: In bariatric patients who have undergone a DS, a GBF may appear in the postoperative period, even up to 10 years later. Nevertheless, this delayed complication has not been reported until now, after such a long follow-up time. We think that it is important to report these kinds of complications after obesity surgery so that we can be aware of the true possible extent of morbidity after these procedures.

References.