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XXXII CONGRESSO
NAZIONALE SICOB

23 - 25 MAGGIO 2024
GIARDINI
NAXOS

ENDOSCOPIC INTERNAL DRAINAGE WITH DOUBLE PIG TAIL STENTS: RIGHT TIMING FOR USING THEM

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ENDOSCOPIC INTERNAL DRAINAGE WITH DOUBLE PIG TAIL STENTS: RIGHT TIMING FOR USING THEM

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The number of bariatric surgeries performed worldwide is rising, since it is the most effective treatment for morbid obesity. Laparoscopic sleeve gastrectomy (LSG) is the most common bariatric procedure performed, due to its advantages such as low rate of complications, short operative time, and the feasibility to be converted in other bariatric procedures. (1) Despite it is an apparent easy procedure to perform, LSG hides major surgical complications, including staple-line bleeding, leakage and staple-line stenosis. The mean incidence of leakage, which usually occurs in the upper portion of the staple line, is 2.1% (1.1-5.3 %) (2). Leak is the second most common cause of death after LSG, with an overall reported mortality rate of 0.4% (3). The management of early sleeve gastrectomy leaks remain challenging, and there is still no consensus on the optimal approach. The use of endoscopic internal drainage (EID) with double pig-tail stents (DPTs) for LSG leaks is now well established in the literature (4). However, no attention is paid to the timing of the EID. In the algorithm proposed by *Manos et al*, small (<10mm) leaks were treated with DPTs placement, and no particular differentiation was done depending on the time of the diagnosis. (5)

Here two cases of patients who underwent endoscopic internal drainage with double pigtails for the treatment of post sleeve gastrectomy leaks.

A 39-year-old female with a body mass index (BMI) 35 kg/m² underwent a laparoscopic sleeve gastrectomy (LSG). On the second day post operatively, she presented to the ER with abdominal pain. The laboratory exams showed leukocytosis and increased C-reactive protein (CRP). The CT showed a voluminous peri-gastric collection (4x3x5 cm). The esophagogastroduodenoscopy (EGD) revealed a leak at the proximal third of the stomach, near the gastroesophageal junction. The fluoroscopy view confirmed contrast leak in the perigastric and subdiaphragmatic collection. A guidewire was inserted into the perianastomotic collection cavity under radiological guidance, and two double pigtail stents (Boston Scientific, Marlborough, MA, USA) were inserted over the guidewire, with one end of the stent placed within the collection and the other end into the stomach lumen, to allow internal drainage of the collection. A naso-jejunal tube was placed to allow oral feeding. After one week, the CT showed an expansion of the collection, despite of the endoscopic internal drainage (EDI). She underwent emergency surgery, with placement of three external drainages and splenectomy. The two double pigtail stents were removed. During EGD, a fully covered metal stent 18x119 mm (Agile Esophageal 18x119mm Boston Scientific Marlborough, MA, USA) was released, with the proximal end upon the leak, and the distal end beyond the pylorus. Using Apollo OverStitch™, the proximal edge of the stent was sutured into the esophageal mucosa to prevent migration. A feeding naso-jejunal tube was placed. After three weeks, the control CT scan showed a reduction of the collection volume. During EGD, the fully covered metal stent was removed, and the presence of the leak was confirmed. The fluoroscopy view showed persistence of the perigastric collection. Two new double pigtail stents were placed to allow internal drainage of the collection. The external drainages were removed. After one month, the CT showed a resolution of the perigastric collection. The two double pigtail stents were removed and the EGD showed closure of the gastric leak. She resumed oral feeding and was discharged without any more symptoms.

A 25 year-old woman underwent a LSG for severe obesity (BMI 39.8 kg/m²). She was discharged after one week, uneventfully. On the thirteenth day post operatively, she was admitted to the ER for fever and abdominal pain. The CT showed a subdiaphragmatic collection on the left, near the gastroesophageal junction (3x3 cm). The EGD revealed a leak at the proximal portion of the staple line. A guidewire was inserted into the perigastric collection cavity under radiological guidance, and two double pigtail stents (Boston Scientific, Marlborough, MA, USA) were inserted over the guidewire, with one end of the stent placed within the collection and the other end into the bowel lumen, to allow internal drainage of the collection. After three weeks from the DPTs deployment, she was admitted again to the ER with fever and abdominal pain. The CT scan showed a double pigtail migration invading the spleen. During the EGD, the two DPTs were removed using a crocodile tooth forceps. She was treated with total parenteral nutrition, antibiotics and after one week she resumed oral feeding with no disturbances, and she was discharged.

Gastric leaks remains the main complication after LSG, (6) and they are associated with increased mortality and prolonged hospital stay. Although many strategies have been proposed for its management, there is still no consensus on the optimal approach to use. The choice of which option to use is often made based on the patient's clinical condition, the size of the defect and the timing of the diagnosis. The use of DPTs for EID of LSG leaks is a spreading treatment. (4) This is not a new concept in the management of intraabdominal collections, since it has been used with good success rates in the pancreatic pseudocyst drainage (7) and in the walled-off pancreatic necrosis (WOPN) (8). It allows internal drainage of the collection, using an already present wall defect. It is demonstrated that the pigtail acts as a foreign body on the edge of the leak and inside the cavity, promoting closure of the leak (9). They are a valid approach, with low rate of complications and good tolerance by patients. (6) As for the timing of EID, there is no consensus yet. In this systematic review (6), it is shown as the time between bariatric surgery and drainage varies between the study. *Bouchard et al* (10) reported a time interval of 47 days. *Donatelli et al* described a time interval of 60.5 (9). In the two cases presented in our series, the DPT were released after 3 days from surgery in the first case, with no concomitant external drainage, and after thirteen days in the second case. Deployment of the DPTs too early led to a worsening of the patients condition in the first case, and a migration and misplacement of the DPTs in the second one. Even if endoscopic internal drainage using plastic double pig tail stents is the best option recommended in acute and small leaks, their use when the collection is not walled-off yet could not be the most effective treatment. A right timing for their deployment should be defined, in order to make the most of their function and choose the right approach to treat gastric leaks.

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