Case Report

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Management of gastrojejunostomy leakage after emergency gastrectomy

Cristina Camacho*, Teresa Lindo, António Bernardes

Department of General Surgery, Coimbra Hospital University Center, Portugal

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*Correspondence:

E-mail: criscamacho3@hotmail.com

Dr. Cristina Camacho.

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ABSTRACT

Ulcer perforation remains a life-threatening disease, which can be treated in several surgical approaches, however in some cases an emergency gastrectomy is the only option. Emergency gastrectomy has been associated to high morbidity and local mortality rates, namely systemic complications, such as, duodenal stump leak, gastrojejunostomy leakage and intra-abdominal collections. The treatment of gastrojejunostomy leakage, is still generating controversy, despite nowadays, the conservative approach is preferred. We present a clinical case of a 62-years-old male patient, in which a gastrojejunal leakage occurred, after emergency gastrectomy due to an ulcer perforation. Computed tomography of the abdomen did reveal peritoneal liquid near duodenal stump and gastrojejunostomy with no oral extravasation. At 24th post-operatory day, the patient deteriorated and we decided to perform a laparotomy exploration. Identified and treated, 2 small leakages (6 mm each), on the anterior face of the gastrojejunal anastomosis, using directed fistulization with Pezzer catheters. The patient was kept under total parenteral nutrition followed by enteral feeding and anti-microbial therapeutic. At the consultation, Radiography with oral contrast and Computed Tomography Scan with intravenous and oral contrast showed no evidence of anastomotic leak or abscesses, showing the success of this therapeutic approach.

Keywords: Emergency gastrectomy, Gastrojejunostomy, Leakage, Directed fistulization

INTRODUCTION

Treatment for peptic ulcers has been improved since the introduction of proton pump inhibitors. The surgical treatment has been reserved for ulcer complications, mostly in an emergency setting.1

Ulcer perforation remains a life-threatening disease, with complications at a rate of 10-40%, especially in elderly patients and delayed treatment. Most authors consider that perforated gastric ulcer was the worst outcome than perforated duodenal ulcer because is more associated with older patients, large ulcer size, and worst peritoneal contamination.^{1,2}

Different surgical techniques can be applied for perforated gastric ulcers, however, should be defended the more conservative stomach preserving, including suture and omental patch. In other cases, we should perform a gastric resection, even in an emergency setting.2

After emergency gastrectomy, poor outcomes have been associated with advanced age, comorbidities, blood transfusion, definitive or non-definitive surgery, duodenal closure, the use of decompressive duodenostomy, and the surgeon experience.^{3,4}

The most important surgical complications are leakage of the duodenal stump or gastrojejunostomy, with a high mortality rate. The leakage treatment, is still generating controversy, despite nowadays, the conservative approach is preferred.^{4,5}

We present a clinical case that shows the therapeutic approach to treat a gastrojejunal leakage after gastrectomy due to gastric ulcer, using directed fistulization.

CASE REPORT

A 62-years-old male patient, with abdominal pain for one week, was admitted to the emergency Department. No fever, nausea, vomiting or melena, were observed during this period. He had a medical background of diabetes mellitus type 1, smoking, and drinking habits, and a history of back trauma, which was taking anti-inflammatory non-steroid daily for 2 weeks.

The patient was hypotensive but responsive to intravenous fluids. He was malnourished, tachycardic, with rigidity all over the abdomen and epigastric tenderness with no bowel sounds.

He presented leukocytosis with neutrophilia and an abdominal computed tomography (CT) showed some free fluids and gas in the upper quadrant and a suspected large gastric perforated ulcer.

We scheduled a laparotomic exploration that revealed a 6 cm gastric ulcer perforation with generalized peritonitis. Based on these findings, we performed a subtotal gastrectomy with Billroth II reconstruction, and two drainage tubes were placed in the left and right upper quadrant.

The patient was ten days in intensive care, under a large spectrum antibiotic, parenteral nutrition and posteriorly enteral nutrition.

At 14th post-operatory day the patient was tolerating oral intake, and suddenly presented a tachycardia episode and biliary content from the left drain.



Figure 1: CT scan that reveals peritoneal liquid, but no oral contrast extravasation.

Computed tomography (CT) of the abdomen with intravenous and oral contrasts did reveal peritoneal liquid near duodenal stump and gastrojejunostomy with no oral extravasation (Figure 1).

The patient was hemodynamically stable, presented no pain in abdominal palpation, and the left drain maintains at 25-50 cc/24h. Although explaining the poor prognosis after leakage, and the different possibilities, the patient did choose a conservative approach. We proceeded to conservative treatment, including fasting, antibiotics, and nutritional support. The patient improved and did normalize inflammatory parameters and no leakage of gastrojejunostomy was detected in radiography with oral contrast.

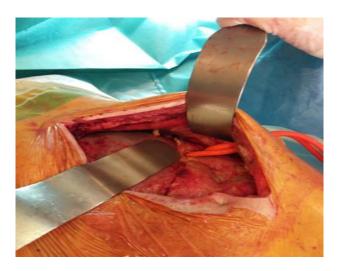


Figure 2: Pezzer catheter (French 20) placed at the two small leakages, on the anterior face of the gastrojejunostomy anastomosis, leaving the intraperitoneal portion of the tube as short as possible.

At 24th post-operatory day, the patient deteriorated and we decided to perform a laparotomy exploration. Meticulous blunt dissection was done to reach the gastrojejunostomy anastomosis revealing a located biliary content. It was identified 2 small leakages (6 mm each), on the anterior face of the anastomosis. An elastic, soft pezzer catheter (French 20), was introduced through the leakage and a pursestring of 3/0 absorbable suture was placed and tied so that it gently held the tube in place. We tried to make this opening in the abdominal wall slightly lower than the level of gastrojejunostomy, leaving the intraperitoneal portion of the tube as short as possible (Figure 2). The nasojejunal tube was placed through an upper endoscopy for enteral nutrition, and a drainage tube was placed in the right upper abdominal quadrant. There was no evidence of duodenal leakage.

Postoperatively, he was kept under total parenteral nutrition followed by enteral feeding. Empirical antibiotics and antifungals were changed according to fluid culture results. The outputs of Pezzers and abdominal drain were recorded daily. The removal of Pezzers was in 25th post-operatory (2nd surgery) when there was the maturation of the tube tract, and no leak seen in the imaging studies.

The patient had superficial dehiscence of the middle third of the surgical wound, so negative pressure therapy was performed. He underwent a physical rehabilitation program, being discharged without further complications.

The result of the pathological anatomy of gastric resection excluded the presence of neoplastic cells.

At the consultation, the patient was autonomous, without complaints, tolerating an oral diet, and with no incisional hernia (Figure 3A). He quits the alcoholic habits and is followed in a smoking consultation. Is taking a Proton Pump Inhibitor and does not take non-steroidal anti-inflammatory medication.

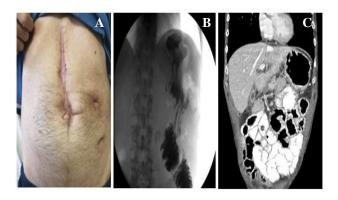


Figure 3: (A) final aspect of abdomen wall (B) radiography with oral contrast without leakage (C) CT scan with intravenous and oral contrast without anastomotic leak or abscess.

Radiography with oral contrast and CT scan with intravenous and oral contrast showed no evidence of anastomotic leak or abscesses (Figure 3 B, C). The long-term follow-up and recovery were uneventful.

DISCUSSION

Emergency gastrectomy for complicated gastric ulcers is regarded as salvage surgery or reserved for large ulcers. Such surgery can be demanding due to the friability of tissue and is associated with a high risk of morbidity and mortality.¹

Chen et al, with a series of emergency gastrectomy for complicated peptic ulcer, a mortality rate varies of 10%, 23%, and 30%, at 7-day, 30-day and in-hospital, respectively, being leakage the most common surgical complication. This series identified that duodenal stump was the main source of leakage, and the majority, about 67% of mortality rate. All of these patients had reoperations.²

Yam et al in a series of duodenal stump leakage with different etiologies, identified that complicated ulcer disease and peritoneal contamination were the independent factors to this complication. They present a high complication rate, up to 63%, independent of the duodenal closure technique.³

Tan et al refers to 31.2% complications after emergency gastrectomy, which 14.1% was duodenal stump leak, and the majority patients was treated conservatively.⁴

Early detection is the best way to reduce mortality. Judith and colleagues investigated the value of daily measurement of drain amylase for detecting leakage in gastric surgery. However, the amylase measurement in drain did not influence the early recognition and management of leakage.⁵

Contrast swallow is easy and inexpensive, but the diagnostic sensitivity for anastomotic leakage is low. 6 In our case, oral contrast was negative in all exams.

The presence of fluid and air perianastomotic on CT scan and elevated inflammatory values is more accurate when associated with fistula, but nonspecific.⁷

About the treatment of leakage, there is not a consensus. Conservative treatment includes fasting, antibiotics, nutritional support, and a nasojejunal tube. Can be used percutaneous drainage if the patient presents perianastomotic collection. Even so, non-surgical management of gastrointestinal leakage has been attempted with endoscopic approach, using devices such as endoclips, glue and stents. As Lee and colleagues refers to as shape-memory clip do adapt to size of leakage with some promising results and as Fabian Schmidt and colleagues, mentions endoscopic vacuum therapy, as first approach to gastric leakages or a bridging technique to surgery, especially in bariatric surgery.^{8,9}

However, if there is sepsis or signs of diffuse peritonitis, surgical treatment should be mandatory.

In our case, we manage a conservative treatment of the leakage, with satisfactory results. The tube drains already derived the leakage, with minimal peritoneal contamination. Even though there was an aggravated state of this patient due to two small gastrojejunostomy leakages that required surgical intervention.

Jacobsen and co-workers try to evaluate different surgical treatment strategies of gastrojejunostomy leakage in bariatric surgery. They separated the early leaks, 5 days or fewer after surgery, which the primary treatment was suturing the defect, and the late leaks, more than 5 days, with drainage and placement of a gastrostomy tube, with acceptable results. Similar results were find in Laurent Genser work, where analyses 35 patients and recommends the surgical approach, specially the leakage suture. There are no definite treatments about fistulas,

particularly with more than 20 days of evolution, so we opted for the derivation.

The placement of Pezzer or even a T-tube is described for leakage of the duodenal stump and other etiologies, but it is unfamiliar in gastrojejunostomy.¹²

Beaupel analyses 17 patients with leakage after bariatric surgery, specifically one-anastomosis bypass, and the most safe and effective treatment was surgical. Only seven patients had a gastrojejunostomy leakage, and three a gastric leakage, of these, in seven cases, was placed T-tube for fistula derivation and all patients successfully recovered. Despite the satisfactory results the main limitation of the study was the small number of patients. ¹³

Ismael court and colleagues describes a status post-sleeve complicated with distal fistula two weeks after procedure. They successfully treated the complication, with a T-Tube in the leakage.¹⁴

Rudnickil et al presented a case of a patient underwent a pancreaticoduodenectomy and developed a fistula of entero-entero anastomosis of the Rous-en-Y, and a T drain tube was inserted through the leak opening and the patient saflely recovered. A second case was described in a leak in an ileocolonic fistula, in Crohn´s disease, with pleasing results.¹⁵

It gets more complicated, knowing exactly the time to take the Pezzer. Some studies refer to taking out Pezzer between days 10 and 20, 12, others refer to remove T-tube after 4 weeks, when tract maturation occurs, and no contrast extravasation in performed exams.^{3,11,14,15}

So, in this case, we take Pezzer tube at 25th day postoperatively, when none or vestigial drainage were seen, and no leak in the imaging studies.

Another important aspect is the patient's nutrition, which was maintained in enteral and later oral form, allowing time for the fistula area to heal.

CONCLUSION

Leakages of postoperative gastrojejunostomy after emergency gastrectomies are serious and often life threatening. Careful monitoring and adequate evaluation of symptoms are important to identify and treat. Despite surgical treatment being associated with higher mortality, is essential for patients with sepsis and failure of conservative treatment. There are no surgical strategies defined, however Pezzer tube drainage, described as a simple and old surgical technique, might be useful in selected cases.

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