International Journal of Research in Medical Sciences
Trinidad-Rodríguez W et al. Int J Res Med Sci. 2024 Aug;12(8):3000-3004
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20242231

Case Report

Trans and postoperative endoscopic assistance in an esophageal gastro anastomosis: case report

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Received: 11 June 2024
Accepted: 19 July 2024

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ABSTRACT

Esophageal anastomosis leak has an average incidence of 10% and three times the risk of mortality. Use should be made of all available tools to reduce the risk of anastomotic leak. Endoscopy could be useful during the trans and postoperative period to reduce morbidity and mortality in high-risk esophageal anastomoses. We present this case as proof of this.

Keywords: Anastomotic leak, Case report, Esophago gastro anastomosis, Esophageal surgery, Stents

INTRODUCTION

The esophagus consists of 4 histological layers, mucosa, submucosa, muscular and adventitia, the latter is vulnerable to ruptures, because it consists of connective tissue, it fulfills the function of fixing the esophagus to adjacent structures, unlike the serosa or visceral peritoneum, which presents secretions and prevents friction between structures and at the same time creates a means of mobilization for inflammatory cells and growth factors.1 Therefore, performing surgical procedures such as esophagogastric anastomoses, whether for benign or malignant pathology, can lead to risks fatal and high comorbidities. The management of esophageal perforations or esophageal-gastric anastomosis leaks implies an interprofessional challenge; the complexity of the pathophysiology of an esophageal perforation combined with the dynamic anatomy of the esophago-gastric junction has led to the implementation of new strategies other than surgery.[1,2] The main complication of these surgeries is esophageal leak, having an average incidence of 10% and involving three times the risk of mortality, hospital stay, delay in food intake, reinterventions and recurrence.[3] The leak of esophageal contents leads to rapid clinical deterioration that is eventually reflected in septic shock, so its prompt identification and early management significantly reduces mortality related to leaks.[3-5] Mortality rates vary depending on the type of intervention used: esophagectomy (11.6%), primary repair (8.5%), and stenting (6.9%); Morbidity is also higher in patients treated surgically (48.7%) than in those treated conservatively (37.3%).[4] In recent years, leaks have been treated with the placement of endoscopic clips, stents, and the negative aspiration system.[6] Closure of iatrogenic esophageal fistulas with endoscopic clipping has reported success rates ranging from 59 to 83%. It is the most common alternative management for perforations or leaks <2 cm, even in contexts where there is mediastinal contamination.[4,7] The use of self-expanding stents for the treatment of esophageal leaks (spontaneous, iatrogenic, and postoperative ≤2 cm) resulted in 88% success and

7.5% mortality. It is an option especially considered for critically ill patients and/or with comorbidities who could not withstand surgical trauma.[6,8] The main advantages of stent placement are instant control of leaks, preservation of the esophageal wall during mucosal healing, prevention of stricture formation, and early oral feeding.[9] The average duration after stenting is 2 to 4 weeks to allow the piercing to close. Perforations near the esophagogastric junction may be inadequately sealed with a stent, given the wider diameter of the proximal stomach and the inability of the tubular stent to achieve adequate position with the mucosa, which demands close monitoring for the main complication after stent placement, migration.[4,9] Prevention of anastomotic leak has been the main focus of research for several decades.

Multiple studies have documented the success of stenting in the treatment of esophageal perforation, with some reporting a rate of more than 80%.[6] Various investigations report that the use of self-expanding stents for the treatment of esophageal leaks has an adequate success rate greater than 80% and low mortality <10%; These results compared with those obtained in surgical procedures (83% success and 17% mortality) led to the conclusion that the placement of esophageal stents can be successfully applied as an alternative therapeutic strategy in esophageal perforation; However, it is necessary to establish well the indications, placement and removal technique; Therefore, research with a larger number of patients may clarify the panorama in the future.[7]

CASE REPORT

A 41-year-old male. Diagnosed with systemic arterial hypertension, with 1.5 years of evolution, without treatment, denying other chronic degenerative diseases. Surgeries prior to current condition, not relevant. The condition began in 2021 after consuming abundant alcoholic beverages, presenting trans fictive chest pain, intense, 10/10, nausea, vomiting, biochemical and tomographic studies were performed, diagnosing acute pancreatitis and type IV hiatal hernia with intrathoracic pancreas (Figure 1). Acute pancreatitis was treated conservatively; upon resolution, manometry was performed, reporting integrated relaxation pressure (IRP) of 8 mmHg with 20% of ineffective swallows. Endoscopy with grade C esophagitis in Los Angeles, pH-metry with an acid exposure time (TEA) >6%. A surgical event was scheduled for hiatal hernia repair on 08/17/2021, finding the following findings: Type IV hiatal hernia, hernial sac with omentum content, tail of pancreas, gastric fundus and body with axial organ rotation, wide hiatus of 8 cm, peresophagitis; Hernia reduction+laparoscopic Nissen-type fundoplication with pillar plasty was performed. Later months he presented dysphagia, corresponding studies diagnosed stenosis at the esophago-gastric junction, he was treated with 10 sessions of endoscopic dilation and botulinum toxin on one occasion, however, no clinical improvement was found, so surgical scheduling was decided. On 03/10/2022, surgery was performed and partial dismantling of the fundoplication+Belsey Mark IV fundoplication+esophagorrhaphy was performed due to a 2 cm perforation in the distal esophagus. Two days later, the drains presented gastric characteristics and a systemic inflammatory response. The intervention was performed on 03/12/2022, free fluid was found in the cavity, approximately 800cc of saliva, dehiscence of the closure at the level of the esophagus gastric junction covering 30% of the circumference, Jejunostomy + esophagostomy + esophagorrhaphy was performed. Subsequent days, gastric output and saliva persisted through the drains. On 03/15/2022, esophageal defunctionalization+ esophagostoma remodeling was performed. Follow-up continued through general surgery outpatient consultation and the parenteral and enteral nutrition support service (SANPyE).

On 02/02/2023, it was scheduled for restoration of intestinal transit, the distal intrathoracic esophagus was found, with abundant periesophageal fibrosis, and the distal pancreas adhered to this region, which did not allow the correct visualization of planes, nor to distinguish tissues such as the diaphragm, hiatus and esophagus, which is why endoscopic assistance was requested; Endoscopy was performed through an esophagostomy, and the esophageal fundus was canalized with a metal guide and a hydropneumatic balloon inflated to 3 atmospheres (Figure 2). This maneuver allowed us to locate the distal esophagus and thus be able to dissect periesophageal tissue, adhesions and fibrosis, without generating esophageal disruption. Secondly, we could prepare edges to perform the anastomosis (Figure 3). An end-to-end manual esophagus-gastro anastomosis was performed in one plane. Through endoscopic help, a pneumatic test was performed without finding any leak sites or perforation from the intraluminal view. The procedure was terminated, bleeding of 1100 cc was quantified, and the allowable amount was 1300 cc. He left the surgical room stable, awake, with supplemental oxygen through nasal prongs 3 L min, without vasoactive amines. Later days he presented serohematic drainage 500 cc/day, a water-soluble swallow was carried out corroborating anastomotic leak.

On 02/10/2023 (8 days after the surgical event), the endoscopy service placed 2 fully covered self-expanding metal stents, 10 cm long, with 23 mm cups, 18 mm diameter, at the level of the esophagus gastro anastomosis. (Figure 4), absence of anastomotic leak and non-displacement of the stents was achieved, this being corroborated by imaging studies days later (Figure 5). He was discharged with adequate tolerance to the oral route and on 04/11/2023 (8 weeks after placement) stents were removed without complications, sites of erosive esophagitis secondary to stents were reported, with no data of stenosis at the esophagogastric junction. Currently stable patient, tolerating oral administration. Closure of the esophagostoma and removal of the jejunostomy tube are pending.

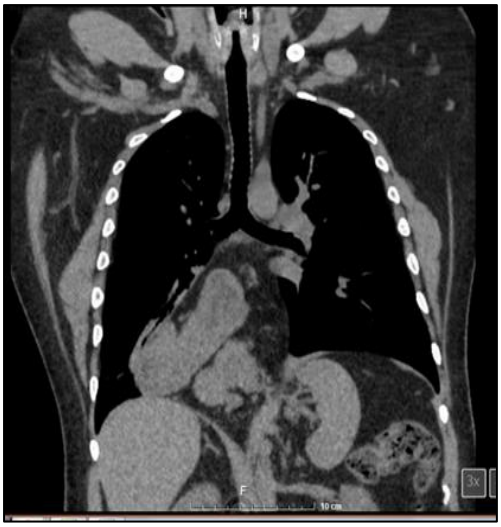

Figure 1: Simple thoracic tomography, coronal section, showing stomach and intrathoracic pancreas.

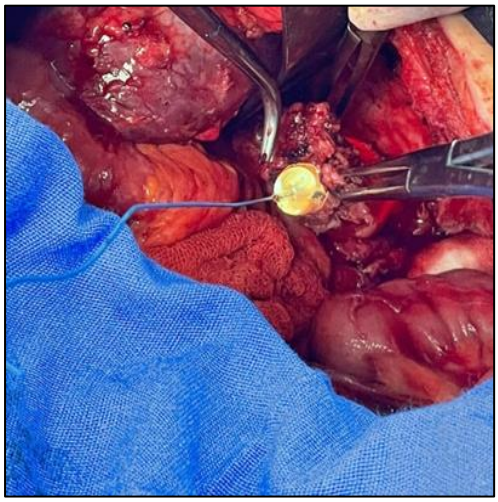

Figure 2: Endoscopic balloon with metal guide cannulating distal esophagus.

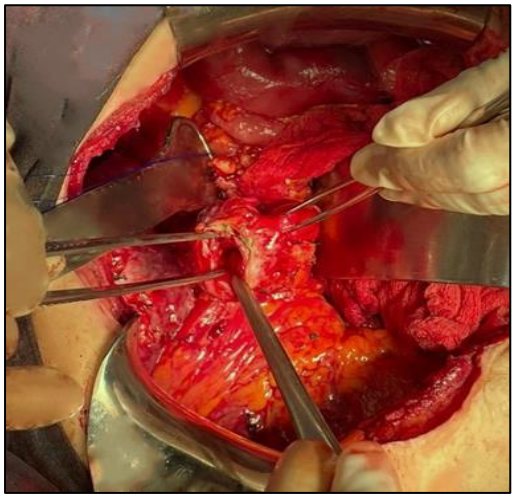

Figure 3: Distal esophageal edges after fibrosis dissection.

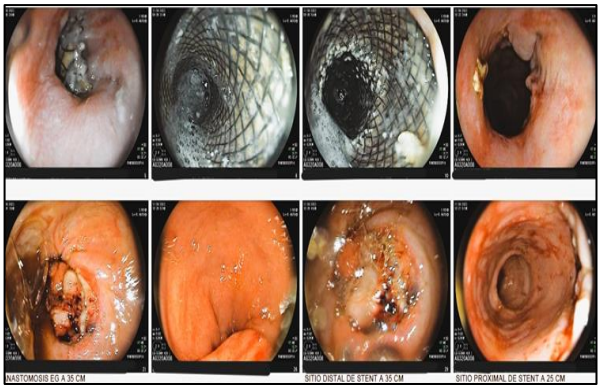

Figure 4: Endoscopic view of metal stents in esophagus-gastro anastomosis.

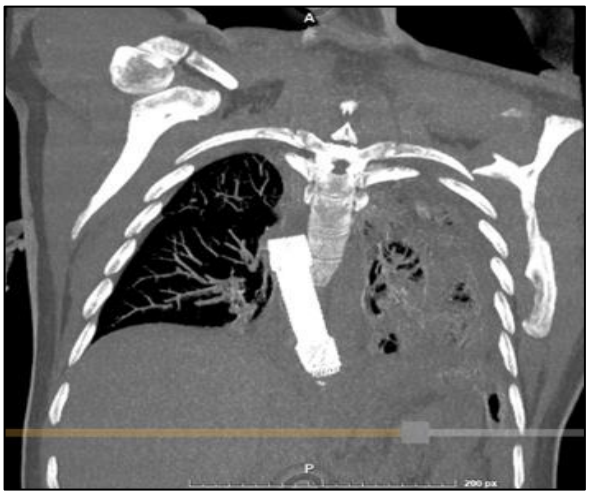

Figure 5: Tomographic view of metal stents in esophagus-gastro anastomosis.

DISCUSSION

Anastomotic dehiscence is defined as loss of partial or total continuity in an anastomosis, causing a lack of airtightness, while fistula is defined as communication between organs or epithelialized structures, requiring 8 to 30 days for its formation. The incidence of anastomotic leak depends on the site, the technique used, as well as risk factors inherent to the patient.[10] In this case, the patient presented anastomotic leak, which was diagnosed due to its early manifestation. It is considered that this leak occurred secondary to the poor quality of the periesophageal tissue and the abundant fibrosis, which could not be completely dissected from the esophageal edge at the time of performing the anastomosis.

Turrentine et al They carried out a study in which 2,237 postoperative patients with anastomoses in different anatomical sites who presented leaks were included. They reported an incidence of leaks in esophageal anastomoses of 13%, with 30-day mortality of 16.7% in those who presented leaks, in contrast with those who did not present dehiscence with only 2.6% at 30 days. In addition

to the above, an increase was reported in the days of hospital stay 13 vs 5, and reoperations 45.8% vs 4%.[11] In this case the patient prolonged his hospital stay, however, surgical reintervention was avoided due to the adequate execution of endoscopic therapy. To diagnose anastomotic dehiscence Campos et al. They conclude that it is not appropriate to rely on vital signs; however, the persistence of tachycardia (>90) and tachypnea (>20) demonstrate clinical usefulness when concomitant pathology is ruled out. In extension studies, double contrast abdominal tomography is considered the best study for diagnosing anastomotic leak, reaching sensitivity of up to 94%.[10] Arteaga et al They studied 200 post-bariatric surgery patients and found false negatives in up to 7.7% in tomography scans, 28% in methylene blue tests and 22% in tests with water-soluble contrast. These leaks were later confirmed during surgery.[12] In this case, it was achieved Diagnosis through swallowing with water-soluble contrast, as well as the characteristics of the drains, is useful even without having the sensitivity and specificity of a tomographic study. Among the endoscopic treatments available are the placement of self-expanding metal stents in the esophagus, conventional or special clips such as those called over the scope (OVESCO), and endoscopic negative pressure therapy.[10] Two self-expanding stents were used for the treatment of leak in this patient, a reduction in morbidity was achieved compared to a new surgical event Castano et al.

Reports a case in Mexico on the use of endoscopic therapy during the intraoperative period to identify perforation in the distal esophagus and during the postoperative period for the placement of stents in a patient who presented leakage from an esophagus-jejunum anastomosis due to benign pathology, achieving control. of this, and presenting stent displacement as a complication; The endoprosthesis was removed after 4 weeks without incident.[13] In this case report, an intraoperative endoscope was also used to locate the distal esophagus, which had been covered by adhesions and fibrotic tissue. The endoscopic assistance helped us identify it, dissect it, avoid perforating it, and prepare the edges for surgery. performing the anastomosis. The most common complication of the use of stents is displacement, however, in this case there was no such displacement, this was corroborated with radiographic studies; achieving closure of the dehiscence. Oliveros et al. They report the use of self-expanding stents in esophago-enteric anastomosis fistulas in 6 patients with cancer, diagnosing them between the 7th and 12th day after surgery, being confirmed with tomographic studies with water-soluble contrast in 3 of them, 1 with water-soluble swallow, 1 with clinical symptoms. and the last one with normal studies. Of these cases, two deaths were reported, of the remaining four all were treated with stents, achieving closure of the leak, with removal after 4 weeks, half of them presented migration of the same.[14] In the case presented in this article, the cessation of the anastomotic leak was achieved after the placement of the 2 stents, and these were removed without complications in 8 weeks, greater than what is indicated in the literature and what was described in the previous case. Alonso-Lárraga et al reported the placement of stents due to anastomotic leaks in 7 patients treated in the endoscopy service at the National Cancer Institute (INCAN) in 2014, 5 of esophagus-jejunum anastomosis and 2 manual esophagus-gastro anastomosis, with a success rate 85%; 6 of 7 patients presented immediate occlusion of the leak.[15]

CONCLUSION

Endoscopy can be very useful in performing esophagogastric anastomosis, especially in patients in whom the distal esophagus cannot be identified, and is also useful during the post-surgical period to resolve leaks, fistulas or stenosis. Being less invasive, and related to a decrease in morbidity and mortality, the use of self-expanding stents or endoscopic therapy may be considered as first-line treatment in high-risk anastomotic leaks.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Trinidad-Rodríguez W, Barrón-Soto ML, Payán-Gómez MA, Moreno-Martínez I, Vidal-Santiago D. Trans and postoperative endoscopic assistance in an esophageal gastro anastomosis: case report. Int J Res Md Sci 2024;12:3000-4.