

ENDOSCOPIC TREATMENT OF ESOPHAGOGASTRIC ANASTOMOSIS FISTULA AFTER MINIMALLY INVASIVE ESOPHAGECTOMY: REPORT OF THREE CASES AND REVIEW OF THE LITERATURE

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Introduction

The esophagogastric anastomosis dehiscence after esophagectomy occur in 5 to 20% of the cases, and can lead to severe complications, such as mediastinitis, pulmonary infections, severe sepsis, and account for 40% of postoperative deaths. Management of these complications is challenging. The usual treatment consists of cervical wound drainage, venous antibiotic therapy and nutritional support. Over the last decades, several types of endoscopic treatments became available, such as stents and, more recently, the use of vacuum therapy (VAC). The main advantage of these methods is the acceleration of the fistula healing process while preserving the gastric tube and anastomosis, avoiding reoperations and reducing morbidity and mortality. The aim of this study is to report three cases of anastomotic fistula after minimally invasive esophagectomy successfully treated in our Center with endoscopic therapies.

Results

Case 1

A 61-year-old male patient presented with a esophageal grade II adenocarcinoma. It was clinically staged as cT3cN1M0 and received neoadjuvant chemotherapy with FOLFOX (6 cycles). There was a partial response to treatment and, after a 14 weeks interval, a minimally invasive esophagectomy was performed. The procedure consisted of a thoracoscopy in the pronated position(TPP), videolaparoscopy and left cervicotomy (LC), with hand-sewn cervical esophagogastric anastomosis. On the 6th postoperative day (POD), the patient presented with clinical signs of severe pneumonia, requiring mechanical ventilation, intravenous antibiotic and admission to ICU. On the 8th POD, presented with purulent discharge from the chest drain. On the 10th POD an EGD was performed and partial dehiscence of the anastomosis with communication to the mediastinum was identified, forming a cavity with a large amount of purulent secretion. A sponge attached to a nelaton probe, similar to the VAC device, was positioned inside the cavity and coupled to a continuous aspiration system (Figure1). The sponge was replaced endoscopically every 3 days for 3 weeks. There was a gradual clinical improvement, with decreased fistula output and progressive closure of the mediastinal cavity. On the 30th POD, the sponge was finally removed, and the patient was discharged at the 50th POD. The histopathological report revealed a poorly differentiated, diffuse type, adenocarcinoma (ypT3ypN3).

Case 2

A 62-year-old male patient presented a grade II adenocarcinoma esophageal carcinoma. After neoadjuvant chemoradiation a minimally invasive esophagectomy with hand-sewn end-to-end cervical anastomosis was performed. On the 7th POD, an anastomotic fistula draining through the chest tube was identified. Conservative treatment with clinical monitoring, antibiotic therapy and enteral nutrition by jejunostomy was initiated. Despite partial clinical improvement, the patient presented frequent cough and elevated inflammatory parameters. On the 14th POD, endoscopy and tracheoscopy were performed and a partial dehiscence of the esophagogastric anastomosis was identified, as well as a fistulous orifice in the posterior wall of the trachea. A self-expanding metal stent was positioned over the fistula area (Figure 2). During hospitalization, the stent position was monitored by chest X-ray every two days. The patient was discharged on the 28th POD and the stent was removed six weeks later.

Case 3

A 58 years-old male patient had a endoscopic resection for a 1.5 cm squamous cell carcinoma of the mid-thoracic esophagus. The histopathological report identified submucosal invasion. A minimally invasive esophagectomy with hand-sewn end-to-end anastomosis was performed. He presented, on the 7th POD with a brownish secretion in the right chest tube and elevation of the inflammatory markers. On the same day, a EGD was performed, which identified a fistulous orifice in the right lateral wall of the esophagogastric anastomosis. A totally covered self-expanding metal stent that was placed over the fistula area and its position was monitored by chest X-ray every two days. The patient developed a empyema on the right pleura treated with a minimally invasive decortication on the 17th POD. There was progressive clinical improvement and he was discharged with a liquid oral diet on the 34th POD. The stent was removed six weeks after its placement and endoscopic control did not show stenosis. The histopathological report of the surgical specimen showed no residual neoplasm in the esophagus and 14 negative lymph nodes (pT0pN0).



Figure 1 – Sponge attached to a nelaton probe placed inside the mediastinal cavity under endoscopic guidance

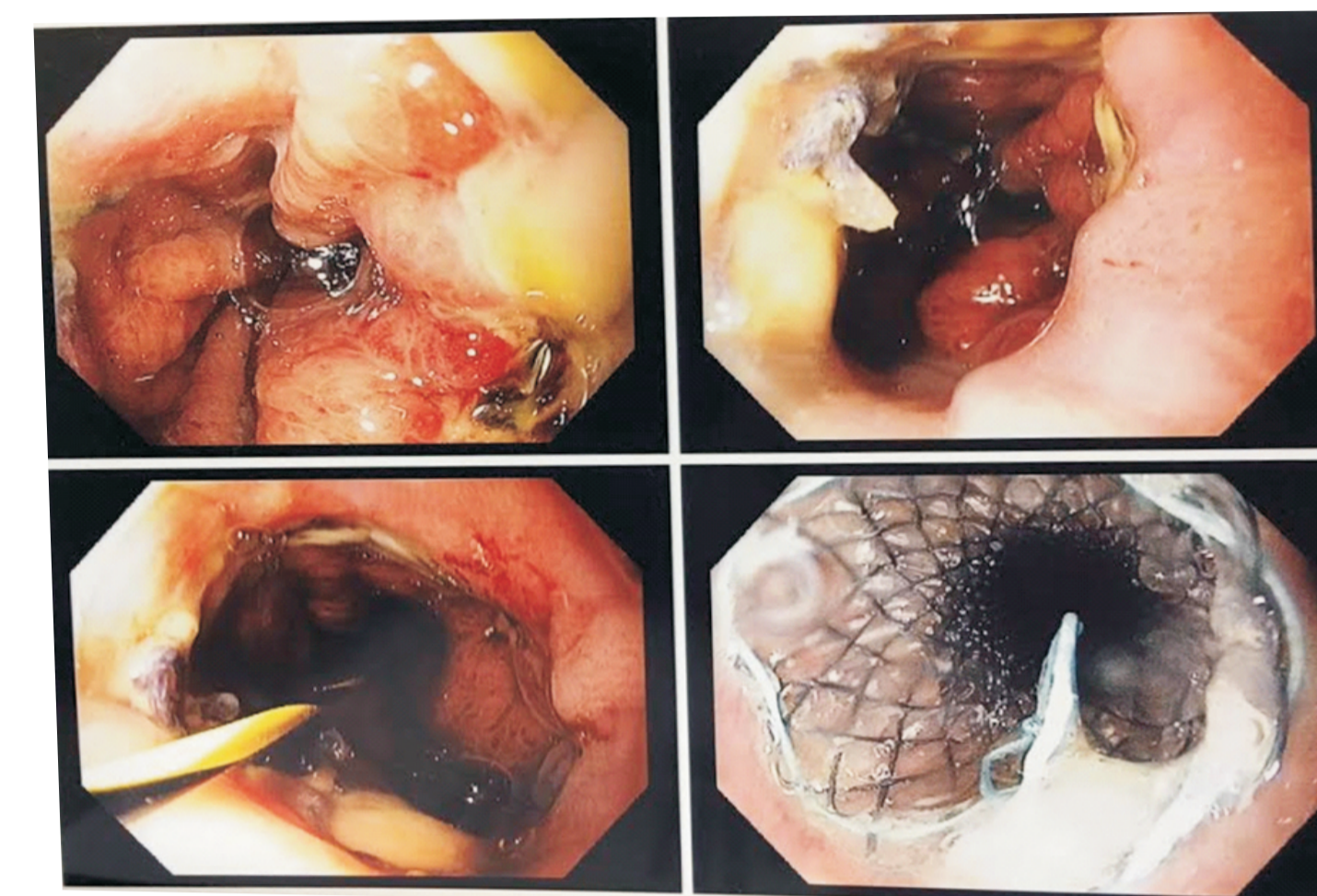


Figure 2 – Endoscopic stent placement for the treatment of an esophagogastric fistula

Discussion

Anastomotic fistula after esophagectomy represents the most important morbidity and mortality factor related to the procedure. The frequency of this event ranges from 5 to 20% and accounts for 40% of the mortality rates.

Methods traditionally used for the treatment of esophagectomy anastomotic fistulas include cervical wound drainage, venous antibiotic therapy and nutritional support. During the last decade, several alternative endoscopic treatment options have emerged, such as application of fibrin glue, transluminal drainage, placement of self-expanding stent and, more recently, endoscopic vacuum therapy.

Self-expanding stents are placed endoscopically over the anastomosis, obliterating the fistula and preventing the contents from extravasating to the mediastinum and perpetuating infection. The stent is kept in place for about 2 to 6 weeks and serial radiological examinations or endoscopy can be performed to confirm its location. The complications related to stent are migration, tissue growth, hemorrhage, obstruction and pain. In the two cases described, a totally covered self-expanding metal stent as used. The stent positioning was confirmed with serial radiological exams and it was removed after 6 weeks. There was no complication related to the procedure and the success rate for fistula closure was 100%, despite the need for pulmonary decortication in one case.

Vacuum therapy has shown encouraging results in the treatment of anastomotic fistula after esophagectomy. The therapy is based on the use of a synthetic sponge placed on the wound endoscopically. The sponge is attached to a nelaton probe and positioned inside the esophagus, with continuous aspiration. The open pores of the sponge, in combination with the sub-atmospheric pressure, provide effective drainage of the peri-anastomotic abscess and fistula. The sub-atmospheric pressure is applied uniformly to each point on the inner surface of the wound in a controlled manner and no fixation (suture) is required. The sponge is changed every 3-5 days. A potential disadvantage of the procedure is the need for multiple endoscopic sessions to change the sponge. In the first case described, we used a sponge taken from a set for pre-surgical skin preparation, we attached it to a nelaton probe (Figure 1) which was placed under continuous aspiration. The sponge was changed every three days. We observed a progressive reduction of the cavity size and also a decrease in the amount of purulent secretion and fibrin. The patient did not require reoperation and there were no complications related to the procedure. To our knowledge, this is the first case report of the use of endoscopic vacuum therapy for the treatment of digestive fistula in our country.

There are few papers comparing the two endoscopic techniques for treatment of esophageal anastomotic fistula. Their data shows that success rates are higher with VAC therapy (94,2% vs 72 %) and the mortality rates for the VAC therapy are lower (15% vs 25%). Furthermore, the recovery time for the VAC therapy is shorter (5 vs 6-8 weeks) and the complication rates are lower (15% vs 34%). However, it is important to note that the stent is the best option in some situations, such as small fistula orifices, without large cavities and/or collections. The VAC therapy is best indicated in cases such as large dehiscences, large cavities and/or collections.

Conclusion

The endoscopic treatment of fistulas of the esophagogastric cervical anastomosis after esophagectomy, either through the placement of a stent or through VAC therapy, represents an interesting therapeutic option. The method has a high rate of therapeutic success, low incidence of complications, accelerates the healing process of the fistula and allows the preservation of the gastric tube and the anastomosis.

References

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