# Surgical treatment of distal esophageal cancer.

# A case report

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**Background:** In Mexico we do not have statistics on esophageal cancer, but there has been an increase in the presentation of this disease, mainly due to the increase in life expectancy. These patients require multidisciplinary management, mainly surgical. In this case we present a 71-year-old female with esophageal cancer in the distal third, who underwent esophagectomy, with a good evolution in the first months of surveillance.

Keywords: Esophageal cancer, dysphagia, esophagectomy, esophageal stent.

#### Cd. Juarez, Mexico

Case Report

**Oncologic Surgery** 



E sophageal cancer is the fifth leading cause of cancer-related death, with a 5-year mortality rate of 43-46% following curative management. (2)

The highest incidence of esophageal cancer is within the age range of 70-79 years, with 8% of patients diagnosed over 85 years of age at diagnosis. (5)

Adenocarcinoma develops mainly in the lower esophagus. It is related to reflux, caloric intake and low activity. (7)

Among the first-line studies that should be taken are laboratory tests, thoraco-abdominal-pelvic tomography and endoscopy. (7)

Malignant dysphagia is defined as difficulty swallowing resulting from partial or total obstruction of the esophageal lumen secondary to cancer. (4)

Placement of a self-expanding metallic stent achieves immediate relief of dysphagia in 95% of patients and allows oral feeding. (4)

One of the most frequent complications after stent placement is migration, ranging from 4% to 36%. (3)

Esophagectomy is a critical component of the curative management of esophageal cancer, often in conjunction with neoadjuvant and adjuvant oncologic therapy. (2)

For reconstruction, gastric ascent is the preferred approach. (7)

Correct indication for esophagectomy is essential because, although mortality has decreased, morbidity remains very high. (8)

Hospital mortality is reported to be 10% in the population and 5% in specialized services. (7)

The key to esophageal cancer surgery is to avoid complications, due in large part to thoracotomy. These are reduced with thoracoscopy. (8) Radiotherapy and chemotherapy can be used in inoperable patients or locally advanced cancer that can be operated on. (7)

### Case report

Female patient, 71 years old, with a history of rheumatoid arthritis of 4 years of diagnosis without specific management; denied surgeries; right elbow fracture with conservative management 10 years ago; denied smoking; denied allergies.

His condition began one month prior to his admission with progressive dysphagia to solids, for which an endoscopy was performed and showed tumor in the distal third of the esophagus and biopsies were taken. Upon arrival at the emergency department, she was found to have moderate dehydration due to Dhaka, so it was decided to admit him to internal medicine to improve his condition.

On the internal medicine department, surgical oncology is requested to evaluate the patient and request an evaluation by medical oncology for neoadjuvant management, as well as to evaluate the placement of a jejunostomy tube or esophageal stent.

The endoscopy service scheduled the placement of an esophageal stent, referring incidental perforation in the perioperative period, with migration of the stent to the mediastinum, so she was admitted to the intensive care unit and thoracic surgery department assessment was requested. Mediastinitis management was started.

Thoracic surgery department evaluates the patient and based on the history, as well as the biopsy report indicating an adenocarcinoma type of esophageal cancer, the patient is scheduled for mediastinal stent extraction by thoracoscopy and in a second stage the resection of the tumor. During

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Figure 1. Thoracoscopy with stent removal.

thoracoscopy there is no evidence of mediastinitis, so the tumor resection is scheduled (Figure 1).

The patient's condition improved, and she underwent a transhiatal esophagectomy plus a gastric ascent.

The technique is performed by subxiphoid midline incision, ligating short vessels of the stomach and left gastroepiploic vessels (Figure 2), the esophagus is dissected up to the level of the carina and cut 4cm from the tumor by linear stapler, as well as the stomach distal to the gastroesophageal junction to eliminate part of the greater curvature (figure 3).

A cervical incision is made, and the esophagus is dissected retracting it from the trachea, extracting the esophagus and at the same time ascending the gastric duct into the posterior mediastinum, an esophago-gastric anastomosis is performed at cervical level, end-to-side, passing a nasogastric tube through the anastomosis, a drain is placed and the cervical incision is closed.

In the abdominal portion the diaphragmatic hiatus is verified and a jejunostomy is placed at 30cm from the Treizt angle, fixing the intestine to the abdominal wall, a drain is placed and externalized on the left side, hemostasis is verified, and the abdominal wall is closed.

After esophagectomy, fasting is indicated for 7 days and physical therapy and rehabilitation is requested for early ambulation, as well as respiratory exercises to improve ventilation.

At 7 days after the operation, a contrasted study was performed to rule out the presence of a leak



Figure 2. Exteriorized stomach after esophageal cut.

in the anastomosis, which was ruled out by the study and the drains were removed, both abdominal and cervical (Figure 4).

Twelve days after the operation, the patient was already ambulating, tolerated oral and jejunostomy routes, with good ventilatory mechanics, in good general condition, so it was decided to send her home with outpatient monitoring.

In the outpatient control, she continues with good evolution at 3 months, as well as joint management with medical oncology for adjuvant therapy.

# Discussion

Dysphagia is the initial intermittent symptom, which worsens and becomes painful. Dysphagia may be accompanied by regurgitation, hiccups, sialorrhea and rapid weight loss. (7)

When there is locoregional invasion, it can invade the left recurrent nerve, resulting in vocal cord paralysis, causing dysphonia; even causing esophagotracheal fistula. (7)

Studies have shown that octogenarians have more baseline comorbidities, but have the same tumor characteristics and distribution status as their younger counterparts. (5)

Diagnosis is based on endoscopy, with biopsy samples, if Barrett's esophagus exists, the upper limit



Figure 3. Gastric duct.

and the distance of the tumor to the cardia must be identified. (7)

The European Society of Gastrointestinal Endoscopy (ESGE) suggests the placement of a partial or total expandable metallic stent to palliate malignant dysphagia, rather than laser therapy or esophageal bypass in advanced disease. They also recommended in patients with tracheo-esophageal fistulas. (3)

Stent migration can result in complications such as perforation, aspiration, severe bleeding and septic shock, particularly in patients with multiple comorbidities. (3)

In lower esophageal cancer with stent placement, migration is more frequent compared to the upper esophagus (44.44% vs. 14.81%). (3)

Migration is more frequent when stents are placed through the gastroesophageal junction, when the patient receives chemotherapy or radiotherapy and when fully covered stents are used. (4)

The size of the tumor or the diameter of the stent are not related to its migration. However, the larger the diameter of the stent, the greater the number of complications, such as hemorrhage, perforation and fistula. (3)

Currently, the most commonly used stent to palliate unresectable cancer are partially covered. (4) Dysphagia usually improves rapidly after stent placement, and recurs mainly when there is stent migration. (3)



Figure 4. Contrasted study. A) First shot with contrast, B) No evidencie of leaks

Recurrent dysphagia due to restenosis is lower in patients with partially covered stents compared to uncovered stents (8% vs 37%). Although partially covered stents are associated with a higher percentage of migration (10% vs 0%). (4)

Up to 50% of patients in long-term follow-up require reintervention due to dysphagia secondary to tumor growth or stent migration. (4)

Therapeutic endoscopic management is for superficial lesions of 2 to 3cm maximum diameter, not depressed or ulcerated and without lymph node invasion. (7) In epidermoid carcinoma it is used when it does not affect the muscularis mucosae. In adenocarcinoma on lesions affecting the superficial submucosa. (7)

Esophagectomy for esophageal cancer is a procedure with significant mortality and morbidity, with a 5-year survival of less than 50% and complications as high as 33 to 50%. (1)

Consider the criteria for inoperability. (7) Relative contraindications: age over 75 years, weight loss of more than 15%, severe arteriopathy, compensated cirrhosis. (7)

Absolute contraindications: respiratory insufficiency (maximum expiratory volume per second less than 1000 ml), decompensated cirrhosis or esophageal varices, renal insufficiency (creatinine greater than 1.25), previous myocardial infarction, weight loss greater than 20%. (7)

Unresectability criteria: T4 tumor, supracarinal tumor greater than 4cm in diameter, supraclavicular or lumbo-aortic lymphadenopathy, metastases. (7)

The Dutch Upper GI Cancer Audit recommendations for esophagectomy: the definition of

severe perioperative complications is considered to be grade 3 or higher on the Clavien-Dindo scale. (2) The minimum number of lymph nodes to be resected should be 20. The maximum postoperative in-hospital stay should be 14 days. Identify anastomotic leaks. (2)

Esophagectomy is associated with a high risk of postoperative morbidities, such as pulmonary complications, anastomotic leakage, and cardiac events with high mortality. (2)

In esophagectomy for malignancy, the proximity of the anastomosis is determined by an adequate negative margin which is influenced by the location of the tumor. (6) A more proximal esophagogastric anastomosis has a higher risk of compromised circulation, increasing the risk of leakage and stricture. However, a more proximal anastomosis may reduce symptoms such as reflux. (6) The gold standard surgical management for middle and lower third tumors is transthoracic subtotal esophagectomy with lymph node dissection of two fields (mediastinum and abdominal) and monobloc posterior mediastinectomy (Lewis-Santy). (7)

More cephalic anastomoses are associated with increased perioperative pulmonary complications and long-term insomnia. This is related to the production of acid that is conducted into the upper esophagus, increasing the risk of aspiration. (6)

More cephalic anastomoses are associated with decreased recurrence, regardless of tumor location and histology. Suggesting that having more generous margins helps to decrease the risk of recurrence. (6)

The process of gastric conduit reconstruction involves a series of linear staples over the greater curvature of the stomach. (6)

The location of the start of stapling the stomach to be resected is the surgeon's decision. (6)

This is important to reduce the symptoms of intrathoracic stomach syndrome (palpitations and chest discomfort after eating). This means that the longer the staple line, the less symptoms and insomnia will occur due to the infra-diaphragmatic antral reservoir. (6)

It is advisable to create a 5cm gastric tube, as this has been shown to decrease leakage and reflux esophagitis. In addition, diameters larger than 5cm are associated with greater stenosis. (6)

The abdominal approach makes it easier to perform a large Kocher maneuver, achieving a long gastric plasty that reaches the neck, a pyloroplasty and a feeding jejunostomy. (8)

The triangularized mechanical cervical anastomosis is a safe technique, reducing the manipulation of the anastomotic ends, which is the main cause of fistulas, and provides a wide surface with few postoperative strictures. (8) The technique and approach to esophagectomies are under continuous debate in an attempt to reduce complications. (8)

There is a tendency to perform intrathoracic anastomosis in distal tumors using the Ivor-Lewis technique, with a minimally invasive approach, avoiding cervical anastomosis, justifying that it is not necessary by oncological criteria to resect the entire esophagus, reducing lesions of the recurrent nerve and fistulas. (8)

It has been demonstrated that with multidisciplinary management, complications can be considerably reduced. (1)

Complications are mainly pulmonary (pneumopathies and acute respiratory distress syndrome), responsible for 50% of postoperative deaths. (7)

Other complications are anastomotic fistulas, chylothorax, vocal cord paralysis and rhythm disorders. (7)

It has been shown that postoperative complications are higher in octogenarians and survival was lower compared to younger groups. (5)

Most fatal postoperative complications in octogenarians occurred at 90 days, and those who survive to these days have a similar survival time to their younger counterparts. (5)

The median survival for patients with adenocarcinoma was 57 months, following the recommendations of the reviews. Survival at 3 years was 56%. Survival at 5 years was 45%. (2)

Survival at 5 years for esophageal cancer remains with an overall average of 10-20% and 30% for resected patients, thanks to advances in the surgical technique, this rate has reached 40-57% of esophagectomies. (8)

According to some studies, neoadjuvant therapy is significantly associated with increased survival. (2)

Patients with esophagectomy and neoadjuvant therapy have good results with up to 78% survival at 5 years, compared to 30% for adjuvant therapy. (8)

The main objective of neoadjuvant therapy is to achieve a higher rate of complete resections and to avoid procedures in patients who were likely to progress anyway. (8)

Palliative chemotherapy for metastatic cancer produces a 30-40% response rate and a survival of 8-12 months. (7)

Palliative endoscopic management can be with: dilatations, stents, tumor destruction (laser, electrocoagulation, brachytherapy, etc.). (7)

# Conclusion

Esophageal cancer is an increasingly frequent entity, in which curative management is mainly surgical. Currently there are discussions about which is the best approach, considering that regardless of the approach, the main thing is to maintain a multidisciplinary management, to offer the best therapy to the patient.

Therefore, we consider that neoadjuvant management is essential to improve the survival rate, and preferably refer patients to specialized centers for their management.

Always considering that it is an entity with a high morbidity, so it requires a whole team for its close management, identify complications and give them the most appropriate management.

#### Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.

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