Critical analysis of palliative surgical therapy for advanced thoracic esophageal cancer

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Jose Luis Braga de Aquino
Professor of the Graduate Program in Health Sciences of the Pontifical Catholic University of Campinas, Brazil

Vania Aparecida Leandro Merhi
Professor of the Graduate Program in Health Sciences of the Pontifical Catholic University of Campinas, Brazil

ABSTRACT

Although malignant neoplasm of the esophagus is a disease with a high incidence, its diagnosis is often still delayed. This fact combined with excessive weight loss due to dysphagia and the association with car-diopulmonary diseases resulting from excessive tobacco use, makes these patients have a difficult clinical control, which explains that more than 50% of them require palliative treatment. The ideal scenario would be to perform procedures that provide an adequate quality of life and with satisfactory rescue of swallowing, without the need for frequent hospitalizations and with a low rate of complications. Thus, this chapter aims to discredit the indications and results of palliative methods and especially shunt surgeries, discussing the technique of isoperistaltic gastric tube of great healing (GIT). In the Department of Surgery of Hospital PUC Campinas, 143 patients with unresectable esophageal squamous cell carcinoma (T4b) were studied, and all of them had clinical conditions to be submitted to GIT. In the early postoperative evaluation, 64p (44.7%) presented systemic complications, with pulmonary infection being the most frequent; 51p (35.6%) presented local complications, with dehiscence of the cervical esophagogastric anastomosis being the most frequent. 13p (9.1%) died due to postoperative complications. Of the 112 patients who were properly followed, 91 (81.2%) presented good palliation with this procedure, with adequate swallowing rescue. Chemoradiation was performed after the TGI in 82 patients, with a mean survival of 3 years in 63 patients (76.8%). With these results, it is possible to conclude that despite the postoperative morbidity not being negligible, the TGI can be performed safely, especially after the advent of mechanical suture, because it offers adequate palliation and survival. In addition, this procedure has the advantage of simultaneously providing good drainage of the esophagus and stomach, and thus potentially avoiding esophageal mucocele.

Keywords: Sphageal cancer, palliative therapy, surgical therapy, isoperistaltic gastric tube.

1 INTRODUCTION

1.1 GENERAL CONSIDERATIONS

The malignant neoplasm of the esophagus continues to be a very frequent affection, occu-pando the third place among the most frequent tumors of the gastrointestinal tract and the eighth most prevalent in the world (1,2,3,4). Recent studies demonstrate that these tumors have had an increase in the order of 10% per year, causing approximately 400,000 annual deaths and being the sixth cause of death by cancer (5,6,7).

In Brazil it is the seventh most common malignant neoplasm with an estimated 13,550 new cases in 2018, highlighting its highest incidence in the South and Southeast regions of the country (8.9).

Almost always the diagnosis is delayed, because dysphagia, the main symptom, occurs only when 50% or more of the esophageal lumen is filled by the tumor lesion. The delayed diagnosis, the excessive weight loss due to dysphagia and the association of cardiopulmonary diseases resulting from excessive tobacco abuse, make the carrier of this condition a patient of difficult clinical control, having the physician who assists him few therapeutic possibilities (3,4,10,11,)

And this comes to reflect in the indication of esophagectomy, because although this surgical procedure still remains to the present day the best indication of therapy for potential cure of this condition, due to the advanced stage of the disease in most cases and the great nutritional clinical impairment that is present in patients, makes only 30 to 40% of them can perform this treatment, which makes the prognosis very unfavorable (1,5,11,12,13).

Thus, it is necessary to perform a palliative treatment in more than 50% of patients with this neoplasm. The ideal situation should have procedures that provide more adequate quality of life and that satisfactorily re-taurasar swallowing, without the need for new hospital admissions and with lower rates of complications (14,15,16,17.)

Choosing the best therapeutic option respecting these principles is a difficult decision, since all methods have limitations and often contraindications due to the high potential for morbidity

1.2 PALIATION METHODS

In a practical way, palliative therapy can be classified into two groups:

1.2.1 non-surgical

The methods currently recommended are endoscopic techniques being indicated:

Patients who have indication of definitive chemoradiation, but who present severe dysphagia in the initial evaluation and thus requiring this intervention previously (5,18) _

Failure in the resolution of dysphagia palliation by initial therapy (5,18)

Recurrent dysphagia due to locoregional failure (5,18)

Recurrent dysphagia due to benign stenosis in patients who have had success with chemoradiation (5,18)

Patients with clinical comorbidities, mainly cardiovascular and pulmonary that contraindicate surgical treatment and/or chemoradiation. (5,18)

Of the endoscopic methods recommended, the self-pansible metallic endoprosthesis stands out, which, although costly, has shown very adequate results, with satisfactory rescue of swallowing, low morbidity index and average survival of 6 to 10 months in most of the series that have used it (19,20).

The use of endoscopic dilatation, alcoholization, and laser has little application nowadays, because in addition to the low resolution, there is a need to be performed several times, increasing the potential for morbidity (18,20,21,)

1.2.2 Cirurgical

Palliative surgical therapy is indicated mainly in patients with satisfactory clinical conditions, but who present irrese-caveal tumors. It can be performed by the following procedures:

a) Gastrostomy and Jejunostomy: this type of procedure performed alone should be remembered only to be discarded as a palliative method of choice in the treatment of advanced esophageal neoplgh easy to perform, and can even be performed with local anesthesia, it does not bring any relief of symptoms presented by patients with this unresectable condition. The patient is punished by the presence of a probe fixed to the abdominal wall that invasively, presents extravasation of digestive contents around it, as well as exuberant growth of granulation tissue. The patient continues without feeding through the mouth, besides being predisposed to aspiration of saliva to the tracheobronchial tree, due to the permanence of the esophageal obstruction. Thus, the method does not provide any quality of life, not contemplating the principles of an adequate palliative therapy. In addition, complications such as invariably aspiration bronchopneumonia, abdominal wall dehiscence, bleeding, digestive fistula with consequent mortality potential and low survival are frequently associated (5,22, 23)

Thus, the studies reported in the literature serve only as a historical review, since they are from the 1960s, 1970s and early 1980s, when the endoscopic methods presented today were not yet evident. Meniconi (22), in a literature review with 967 patients submitted to this type of procedure, reports complications ranging from 15 to 50%, with a mortality rate of up to 33% with survival time generally, not exceeding 90 days in most of the patients studied and without having rescued a satisfactory quality of life.

Thus, gastrostomy/jejunostomy are nowadays exceptional procedures, and is restricted only to unresectable cancer of the cervical esophagus or as the first time of another palliative procedure or not.

b) Resection: for several years it has been demonstrated that the best form of palliation of the patient with advanced unresectable neoplasm of the esophagus, but with low clinical comorbidity, is esophageal resection, because in addition to preventing the course of esophageal disease, tumor hemorrhage, aspiration pneumonia, fistula to the respiratory tree and mediastinitis, it also provides adequate relief of dysphagia, a fact rarely observed with any other palliative method (1,2,4,5,24). It also allows an increase in survival with better quality of life (11,15,25).

Over the years, several series of the literature have demonstrated that palliative resections present higher morbidity than curative ones, with emphasis on the work of Muller et al (26). These authors in an extensive review managed to gather 13,061 curative and 16,024 palliative resections, demonstrating that the deadness associated with the curative procedure and that associated with the palliative procedure was significant of 11 and 18%, respectively. This fact was also demonstrated by Law et al (24) who reported 9% mortality for curative resections and 20% for palliative resections.

However, in recent years with the most appropriate postoperative care, with teams trained and accustomed to surgical procedures in the esophagus, there was a decrease in morbidity and mortality (14,15,19,23).

In addition, with the evolution of radiotherapy and chemotherapy, it has been possible to adjust greater survival to these patients, on average 24 months, in relation to those who did not undergo any type of treatment. (2,5,11,13).

Thus, palliative resection has its representation well consolidated, although it offers survival below the ideal. It offers, however, an adequate quality of life by making the patient swallow by the natural way

c) Shunt Surgeries: the indication of this method occurs for patients who have advanced tumors with wide invasion of the mediastinum.

However, because it is a medium to large surgical procedure, it is necessary that such patients have satisfactory clinical and nutritional conditions, a fact that is very uncommon when the stage of the disease is advanced.

This fact was well demonstrated in the experience of AQUINO et al (27), that of 318 inoperable/irresectable patients of the series of 789, only in 34.9% it was possible to perform some type of shunt surgery. In the other 2/3, another type of non-surgical palliative treatment or even no procedure was performed due to the poor clinical conditions of the patients.

The most commonly used viscera are:

c-1) Jejunum- reconstruction idealized by WULLSTEIN (28) and ROUX (29), in cases isoplated for more than one hundred years and not being routinely used nowadays. The biggest obstacle to its use is the difficulty for the jejunum to reach the cer-vical region without tension or ischemia.

However, patients with tumors of the distal third of the esophagus that present dissemination by contiguity to the aorta and / or spine can have their swallowing rescued by the esophagojejunal laterolateral derivation, above the tumor zone, by abdominal route with median frenotomy (30).

The literature is scarce in relation to this type of procedure, highlighting the review performed by MENICONI (22), which in 93 patients who presented unresectable cancer of the distal third of the

esophagus and submitted to this type of procedure, demonstrated 30% of morbidity, with 25% of death in the immediate postoperative period and average survival of 6 months.

c-2) Put to the past, palliative colonic interposition is very old, because already in 1911, KEELING & VULLET (22) already recommended this type of reconstruction in patients with advanced unresectable tumor of the esophagus. The few patients reported died due to the limited resources of the time.

In turn, even today, this procedure has little publicity, because it is large, with extensive mobilization of the cervix, multiple anastomoses and many complications.

MENICONI (22), demonstrating the experience of the Esophageal Surgery Service of the Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (USP) in 13 patients, in which this procedure was performed with palliative intent, evidenced a high incidence of complications with 23% of deaths, 38% of anastomotic fistulas and 15% of pulmonary complications. Thus, it concluded that such a procedure should no longer be performed, due to the high morbidity rate. POSTLETHWAIT (31) also had the same opinion after evaluating the high rate of complications in 690 patients in whom this type of reconstruction was performed.

Thus, the use of coloplasty for palliative treatment of patients with advanced esophageal neoplasia nowadays should be viewed with great caution and parsimony, being indicated only as an exception, when there are no technical conditions for performing another type of reconstruction.

c-3) Stomach-in this type of procedure, several authors recommend that the cervical and abdominal esophagus be buried, with transposition of the stomagus by retrosternal route, believing that this abbreviates the surgical act (5,22,25,31,32).

However, because it acts most often in patients with precarious nutritional conditions and clinical morbidities, this procedure presents a series of local or systemic complications, such as dehiscence of the proximal and distal stump of the esophagus, fistula of the cervical esophagogastric anastomosis and pulmonary infection.

MENICONI (22), in a literature review, demonstrated that in 483 patients submitted to this procedure, there was variable morbidity from 27 to 63.3% and mortality from 4 to 37%, with a mean survival of 7.5 months, but most patients presented satisfactory swallowing.

Another fact that has always been discussed was the possibility of this procedure producing mucocele, with potential mediastinitis due to the complete exclusion of the esophagus, although the reviewed studies do not present any consistent casuistry that proves this fact (14,22, 31,32,33). To prevent this complication, some authors have recommended the drainage of the thoracic esophagus with tubular probe, which is also not free of complications, such as the exit of the tube with consequent media-tinitis and peritonitis and with fatal evolution in most patients (22, 27,31).

Based on these facts, some authors, mainly from the Chinese school, led by WONG et al (34), recommended the use of the surgery proposed by Kirschner, already in 1920 for benign stenoses of the esophagus secondary to the ingestion of caustic agen-tes. The procedure consists of transposing the stomach to the cervical region, anastomosing the cervical esophagus and draining the abdominal esophagus by a jejunal loop to Billroth II or Roux-en-Y, and thus allowing the drainage of the esophageal contents and thus preventing the potential development of mucocele in the thoracic esophagus.

In Brazil, this type of procedure is little valued. It is noteworthy only the work of BRANDALISE et al (35), which in 13 patients analyzed, presented a morbidity rate of 40%, mortality of 15.3% and average survival of 8.5 months.

AQUINO et al (27), studied 17 patients with unresectable esophageal cancer submitted to total gastric transposition, and in three of them with the Kirschner procedure also demonstrated that such procedure presents a high morbidity index. 47% of the patients had complications, most of them in the cardiopulmonary sphere, and three patients died due to clinical and/or local complications. Regarding palliation, this was adequate in 70% of the patients, who reported satisfaction with the surgical act because they were able to rescue swallowing, although with an average survival of seven months.

Due to the non-negligible morbidity rate and the new techniques of the present day, palliative total gastric transposition is not indicated as the first option for surgical treatment, being an exception in those patients in whom it is not possible to perform other procedures.

c-4) Gastric tube of great curvature- was developed in order to solve the dysphagia of patients with esophageal strictures. Its principle was to minimize the complications that commonly affect surgical procedures on the esophagus, intending to be simple and with low morbidity and mortality.

The great advantage is that it simultaneously makes a good drainage of the esophagus and stomach, thus avoiding the potential esophageal mucocele.

Historically, BECK & CARREL (36) demonstrated in cadavers and experimental animals the continent gastrostomy, using a tube made from the great gastric curvature irrigated by the left gastroepiploic artery. They also glimpsed the possibility of esophagoplasty from this long tube of great curvature

Subsequently, CARTER et al (37), in experimental animals, demonstrated the possibility of the construction of the gastric tube of great curvature nourished by both the left and right gastroepiploic artery. They began to name them according to the sense of the peristaltimum: the one nourished by the right gastroepiploic artery and with a free end close to the gastric body-fundus junction, a tube of great isoperistaltic gastric curvature; on the other hand, the one nourished by the left gastro-epiploic artery

and free extremity near the gastric junction pyloric antrum, tube of great anisoperistaltic gastric curvature.

In clinical experience, GRAVILIU (38) in 1951 reported having performed the first gastric tube of great anisoperistaltic curvature in cervical shunt with success in the treatment of esophageal stenosis

Later HEIMLICH (39), demonstrated his experience with gastric tube of great anisoperistaltic curvature in cervical shunt in the treatment of esophago-goplasties that failed with the use of stomach, colon, jejunum or even prostheses. There were 67 patients submitted to this procedure with only 3 deaths.

Almost at the same time POSTLETHWAIT (40), in the United States refers to the use of the gastric tube of great curvature in the isoperistaltic direction in the treatment of a benign stenosis and in 29 malignant neoplasms irresecacaveisi of the esophagus with 13% of mortality

In Brazil, SPERANZINI (41) refer to the first national experience in the palliative treatment of esophageal neoplasia by the gastric tube of great curvature, isoperis-taltico in cervical derivation. Of the 13 patients submitted to this procedure, none of them presented mortality.

From this time, and especially with the advent of mechanical suture, both linear and circular, made several authors began to demonstrate greater experience with this procedure, for being fast, simple and with acceptable morbidity (14, 19,27,42,43,44)

2 SURGICAL TECHNIQUES

The surgical technique involves the creation of a tube using a large gastric curvature about 2.5 cm wide, with preservation of the right gastroepiploic vessels.

To obtain this tube, the stomach is divided into a line parallel to the great curvature, extending from the bottom to the gastric antrum, with the aid of a cutting linear mechanical suture

The sectioned stomach resembles a "V", the part of which corresponds to the small curvature drains the distal esophagus in relation to the tumor

The reconstruction of the transit is performed by transposition of the isoperistaltic tube by retrosternal route, being performed in the cervical region the manual anastomosis in two planes or circular mechanics.

In all patients, jejunostomy is performed for enteral feeding, remaining until the release of the enteral diet.

AQUINO et al (14) in report of their experience in 112 patients submitted to retrosternal transposition of the gastric tube of great curvature with palliative intent, demonstrated that such procedure was advantageous. This is because although this procedure was not free of complications, these were well acceptable in view of the profile of the patient in which it was acted, with advanced neoplasia, with 25.7% of systemic complications and 34% of sites, these being mainly related to the

dehiscences and stenoses of the cervical esophagogastric anastomosis. They also demonstrated that dehiscence was significantly more incident with manual suture (31/83p- 37.3%) than with mechanical suture (4/29-13.8%).

In order to increase survival, recently, it has been demonstrated even by technically minimally invasive the advantages of performing palliative surgery prior to radiotherapy and chemotherapy, because patients rescuing swallowing, present with better nutritional status, and thus can prevent complications of radiotherapy and chemotherapy (45,46,47)

And this had already been demonstrated by AQUINO et al (27) that evaluating 36 patients submitted to chemoradiation after transposition of the palliative gastric tube, obtained an average survival of 18 months in 80.5% of the patients, and for the patients in whom after the realization of the gastric tube was not performed the chemo-radiation, this survival was 39.5%.

Some authors have also demonstrated in recent reports that in patients submitted to exclusive chemoradiation for palliative purposes, because they have advanced tumors, there is often regression of the local stage of the disease to the me-diastinal level, and thus it is possible to perform salvage esophagectomy. (3,4,13,48,49)

AQUINO & LEANDRO-MERHI (50), also demonstrated the validity of salvage esophagectomy. Of the 82 patients who underwent radiotherapy and chemotherapy after the previous preparation of the palliative gastric tube, in 37 there was tumor regression, and rescue esophagectomy was performed by thoracotomy. Although 2 patients died due to postoperative complications, in the others the so-brevida was well adequate in relation to time: from 36 to 48 months in 26 patients and 3 patients evolving to death due to metastatic disease with variable time from 9 to 15 months after salvage surgery

3 EXPERIENCES OF THE SURGERY SERVICE OF PUC CAMPINAS BRAZIL HOSPITAL

In the period from January 1993 to December 2022, 1,614 patients were diagnosed with squamous cell carcinoma of the esophagus, and the isoperisataltic gastric tube of great curvature with palliative intent was performed in 143 of them for having unresectable tumors (T4b), but with clinical conditions of being submitted to this type of procedure. In the early postoperative evaluation, 64 patients (44.7%) presented systemic complications, mainly cardiovascular and pulmonary, 51 patients (35.6%) local complications, with the fistula of the cervical esophagogastric anastomosis being the most frequent and 13 patients (9.1%) died due to complications.

Of the 112 patients in whom a follow-up was performed, in 91 (81. %) the isoperistaltic gastric tube provided a good palliation, because these patients adequately rescued swallowing, with ingestion of even solid foods.

Regarding the mean survival, of the 112 patients evaluated, they presented different evolutions according to the association of complementary treatment or not:

In 30 patients in whom no complementary treatment was associated with the palliative surgical procedure, the median survival was 14 months.

In 45 patients in whom chemoradiation was associated after the palliative surgical procedure, the median survival was 29 months

And in the 37 patients in whom palliative surgery, in addition to chemoradiation, rescue esophagectomy by tumor regression was associated, the median survival was 42 months.

4 FINAL CONSIDERATIONS

The indication of the best palliative surgical therapy is a difficult decision, due to the great impairment of the general condition of patients with advanced esophageal neoplasia. So some items should be emphasized:

a) Need for adequate selection of patients, since more than 50% of them are not able to undergo any surgical procedure, due to clinical comorbidities, especially cardiopulmonary, in addition to impaired nutritional status

b) Need for adequate selection of the palliative surgical procedure, because although all have potential for complications, the isope-ristaltic gastric tube of great curvature seems to provide the lowest morbidity index, besides having a fast and safe preparation, especially after the advent of mechanical suture, offering palliation and survival well adequate

c) Association of radiotherapy and chemotherapy after palliative gastric tube in well-selected patients, as it seems to offer a higher survival rate, in addition to being able to provide the performance of rescue esophagectomy.

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