

HOW I DO IT

Modified Technique for Esophagojejunostomy After Total Gastrectomy

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INTRODUCTION

Gastric cancer is worldwide one of the most common causes of cancer death. Total gastrectomy is the gold standard treatment for gastric carcinomas originating in the gastric body or fundus. There have been important decrease in surgical morbidity and mortality after total gastrectomies. However, some major complications are related to the surgical technique. Esophagojejunostomy leaks are serious complications that, if not recognized and managed expeditiously, can be life-threatening. Esophagojejunostomy is the most common type of reconstruction after total gastrectomy but there are several ways to perform it [1–6]. The authors describe a modified technique for an easier esophagojejunostomy after total gastrectomy.

SURGICAL TECHNIQUE

The esophagus is not transected prior to performance of the anastomosis. A transversal incision on the anterior esophageal wall, at the point of the transection, is made (Fig. 1). The stomach is used as a “handle” during mobilization and placement of stay sutures at terminal esophagus. A purse string suture (manual or with a purse string instrument) can be easily performed with gentle gastric traction, avoiding the use of crushing clamps at the distal esophagus. The partial esophageal transection facilitates the placement of the stapler at the distal esophagus, enabling the anvil to slip on the intact posterior mucosa. Following the anvil placement at the distal esophagus, the purse string suture is tied and the posterior esophageal wall is then transected (Fig. 2). The trocar tip of the main instrument, that had been introduced in the open end of the Roux, is now advanced through the side of the Roux limb (Fig. 2). The anvil is inserted into the main instrument, the ends are brought

together, the stapler device is fired and an end-to-side anastomosis is completed. The open end of the Roux is closed by a linear stapler. The last mesenteric vessels of the open end had been ligated before construction of the esophagojejunostomy in order to facilitate the insertion of the linear stapler (Fig. 3).

RESULTS

We have successfully used this technique in 30 consecutive total gastrectomies between January 1996 and December 2000. Twenty-eight patients presented gastric adenocarcinoma and two patients underwent total gastrectomy for gastric lymphoma. In three patients, the gastrectomy was palliative. All the patients had the esophagojejunostomy regardless of the characteristics of the distal esophagus. There were no postoperative morbidity related to the esophagojejunal anastomosis. No postoperative death has occurred. It was particularly useful in obese patients and in those who required distal esophageal resection.

DISCUSSION

Total gastrectomy is the gold standard treatment for gastric carcinomas originating in the gastric body or fundus. Sometimes, for undifferentiated carcinomas located in the gastric antrum, total gastrectomy may also be performed in order to obtain adequate surgical margins.

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Fig. 1. Transversal incision on the anterior esophageal wall with performance of a purse string. This incision can be done after use of a purse string instrument. Note that with traction of the remnant stomach, the anvil is easily introduced.

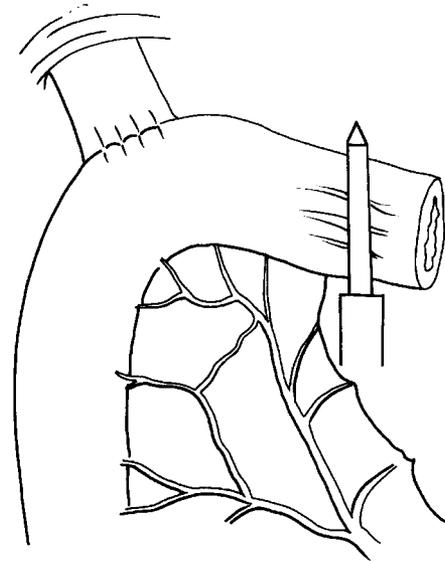


Fig. 3. The open end of the Roux is closed by a linear stapler. Note that the last mesenteric vessels of the open end had been ligated before construction of the esophagojejunostomy.

There have been important advances in anesthesia and postoperative care which are responsible for a considerable decrease in surgical morbidity and mortality after total gastrectomies. However, some major complications are related to the surgical technique. Suture line leaks are serious complications that, if not recognized and managed expeditiously, can be life-threatening. Duodenal stump leaks have become much less common due to

the dramatic declining need for surgical interventions in patients with acid-peptic disease. In these patients, an extensive inflammation surrounding the pylorus and duodenal bulb may be present leading to a difficult stump closure. During gastrectomies for gastric cancer, duodenal inflammation and scarring are not present, for this reason stump leaks became rare events.

Esophagojejunostomy is a critical point after total gastrectomies. When resection of the distal esophagus must be carried out, the anastomosis may become a technical challenge. The anastomosis, in this setting, is usually placed in the inferior mediastinum and its leakage may cause acute mediastinitis with high morbidity and mortality rates.

The standard procedure for reconstruction is a simple Roux-en-Y, with an end-to-side esophagojejunostomy. Some authors have outlined the advantages of mechanically stapled anastomosis [7,8]. Usually, the anastomosis is performed only after complete esophageal transection above the cardia and gastric removal. At this time, a clamp must be placed at the transected esophagus to avoid its retraction.

In our technique, the esophagus is not transected prior to performance of the anastomosis. The stomach is used as a "handle" during mobilization and facilitates the placement of the stapler at the distal esophagus, enabling the anvil to slip on the intact posterior mucosa. Furthermore, unlike in the complete section, the esophageal diameter remains the same avoiding dilatation procedures and manipulation over the esophageal mucosa.

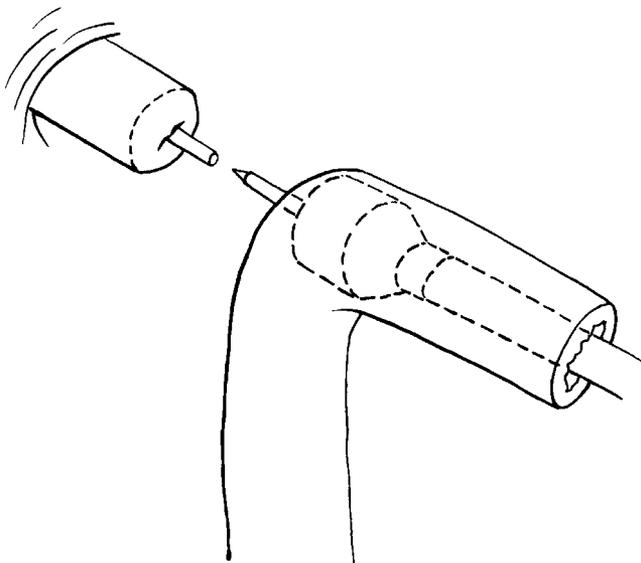


Fig. 2. After the anvil placement, the purse sting suture is tied and the posterior esophageal wall is then transected. The trocar tip of the main instrument is introduced in the open end of the Roux limb.

This technique is a variety of the technique of Ceraudo et al. [4] which consists of introducing into the esophagus the anvil by gastrotomy before sectioning the esophagus. In this technique, the anvil may pass close to the tumor and spread cancer cells, and it is difficult or impossible in cases of obstructive cancer of the cardia. Several authors have proposed other modifications to esophagojejunostomy [5,6]. Elhomsey et al. [5] replaced the purse string by a linear stapling after having introduced the anvil in the esophagus. The Guerra et al. [6] technique is similar to ours but they preclude the use of a purse string instrument. In some difficult cases, we have used the purse string instrument before the anterior esophageal incision. Another modification of our technique is the ligation of the last mesenteric vessels of the open end of the Roux. This helps the insertion of the linear stapler and the esophagojejunostomy can be completed easily and quickly.

We believe that this technical variation facilitates the construction of esophagojejunostomy. It may reduce the need to manipulate the distal esophagus and its mucosa, minimizing risk for suture line leaks complications.

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