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EDITORIAL – GASTROINTESTINAL ONCOLOGY

What Factors Are Necessary for the Safe and Feasible Performance of Total Gastrectomy?

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Total gastrectomy (TG) is one of the most invasive surgical procedures for patients with gastrointestinal malignancies. Needless to say, not only experience in the surgical technique but also careful postoperative management is required for patient safety and cure. According to the Japanese Gastric Cancer Treatment Guidelines published in 2010, surgical resection removing at least two-thirds of the stomach is recommended for a standard gastrectomy.[1] Therefore, TG is selected for patients with gastric cancer located in the proximal stomach to maintain a sufficient oral surgical margin. Especially in advanced cases, because either the primary tumor or a metastatic lymph node (LN) may invade adjacent organs directly, a complicated resection is sometimes necessary to achieve a cure.

The two major severe complications after TG (pancreatic fistula and leakage of the esophagojejunal anastomosis) require intensive care to reduce the risk of mortality. The risk of pancreatic fistula is increased because injury to the pancreas may occur during LN dissection along the common hepatic and splenic arteries. Skilled techniques including removal of the pancreas serosa and mobilization of the spleen and pancreatic tail are needed to retrieve these LNs completely and safely. Katai et al.[2] reported that LN dissection along the distal splenic artery in older obese patients was a risk factor for pancreas-related abscess after TG.

Costa et al.[3] analyzed the outcomes of single-institution experiences with TG and reported a pancreatic fistula rate of 4.4 %. According to the results from an analysis of a Japanese nationwide Internet-based database, pancreatic fistula occurred in 2.6 % of patients after TG.[4] As a speculative explanation for this narrow difference, we note that Western countries have more patients with intraabdominal fat than Asian countries, and it is sometimes difficult to discriminate the parenchyma of the pancreas from fatty tissue, including LNs.

Together with surgical skill, rescue treatment for postoperative complications is important to avoid an increased mortality rate. Early diagnosis of complications is expected for proper treatment. A previous report showed that measurement of the amylase level in the drainage fluid might be useful for the early diagnosis of pancreatic fistula.[2] Nutritional support, infection control, and additional drainage depending on the abscess situation were required to manage the pancreatic fistula.

In the last decade of their study, Costa et al.[3] noted that introduction of an esophagojejunal anastomosis with a stapler technique might decrease the rate of leakage. Their rate of esophagojejunal leakage was 4.4 %, the same as the result of the Japanese nationwide Internet-based database analysis.[4] The mechanical stapling technique for anastomosis has been widely applied in digestive surgery with advantages. Nomura et al.[5] described the existence of a learning curve with this technique, similar to that for the procedure of extended LN dissection, to decrease the complication rate. Thus, know-how and pitfalls exist for TG, as for any surgical procedure.

To date, splenectomy is recommended for completion of D2 LN dissection, including splenic hilar LN for proximal gastric cancer.[1] In two European trials, splenectomy increased the risk of morbidity and mortality in gastrectomy.[6,7] Therefore, an unresolved clinical question remains: Does splenectomy offer a survival benefit for proximal advanced gastric cancer?

Although several previous reports have described the significance of splenectomy, its clinical impact remains

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controversial.[8,9] In Japan, a large randomized controlled study (JCOG0110) evaluating the role of splenectomy in TG for advanced proximal gastric cancer was conducted.[10] Although the final results for overall survival are not available to date, the outcomes of surgery and mortalities have been reported.[10] One death occurred in the splenectomy group (0.4 %) and two deaths (0.8 %) in the spleen preservation group. Although the operative times did not differ significantly between the two groups (231 vs. 224 min), blood loss was greater in the splenectomy group than in the spleen-preservation group (390.5 vs. 315 ml; $p = 0.02$). In addition, the splenectomy group had greater morbidity (30.7 %) than the spleen-preservation group (16.7 %) ($p < 0.001$). In the splenectomy group, the rate of pancreatic fistula was 12.6 %, and the incidence of leakage from the gastrojejunal anastomosis was 4.3 %. In the spleen-preservation group, the rate of pancreatic fistula was 2.4 %, and the incidence of leakage from the gastrojejunal anastomosis was 3.2 %. The final results of overall survival may clarify the clinical benefit for proximal gastric cancer.

For patients with early gastric cancer, laparoscopic surgery has been the treatment of choice as a minimally invasive treatment. Kitano et al.[11] reported the first case of laparoscopically assisted distal gastrectomy for early gastric cancer. However, there are technical issues with laparoscopic gastrectomy regarding reconstruction, especially with the esophagojejunal anastomosis.

Recent improvement in anastomosis devices and modifications of various anastomotic techniques have enabled safe performance of esophagojejunostomy, and surgeons have begun to perform laparoscopically assisted TG. In particular, the circular stapler with a transorally inserted anvil, which closely approaches conventional anastomosis by laparotomy, has enabled esophagojejunostomy.[12] Although laparoscopically assisted total gastrectomy could be applied technically, no data exist to indicate that a laparoscopic approach in total gastrectomy is sufficient oncologically. Clinical trials are needed to establish this evidence.

Indeed, oncologic surgery must be safe and show good operative outcomes without compromising curability. Because both previous and ongoing randomized controlled trials have been limited to certain institutions and surgeons, it is difficult to use the results from these clinical trials to establish a standard treatment. As shown by Costa et al.,[3] total gastrectomy for gastric cancer is safe and feasible if performed by skilled surgeons who practice at high-volume centers. Hence, postoperative management is considered to be as important as experienced surgical technique.

CONFLICT OF INTEREST There are no conflicts of interest.

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