

## Present features and future vision of laparoscopy-assisted total gastrectomy (LATG)

Naoki Hiki

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Recent years have witnessed an increased incidence of early gastric cancers (EGC) in the upper third of the stomach [1]. Laparoscopy-assisted total gastrectomy (LATG) has been applied as a minimally invasive surgical modality for upper third EGC. Expanding the indication for the laparoscopic approach to include LATG has not been without its challenges even in the hands of those with considerable experience in laparoscopic distal gastrectomy, mainly due to the difficulties in esophagojejunostomy [2–5]. While circular staplers have facilitated more rapid and reliable re-establishment of esophagojejunal continuity during conventional open total gastrectomy, several technical issues have risen during the laparoscopic approach, in particular creating the purse-string sutures to the esophageal stump and inserting the anvil into the esophageal lumen within the confinements of the limited space in the upper abdominal cavity.

Lee et al. [3] compared the surgical outcomes of LATG with those of laparoscopy assisted distal gastrectomy (LADG), and found that the postoperative complication rate of LATG was higher than that of LADG, especially that of anastomotic stricture. Anastomotic stricture rate for LATG is reported as relatively higher in

comparison to previous conventional open methods [4], the reason for which is considered to be secondary to the use of hemi-double or double stapling techniques of esophagojejunostomy in the open method. The most considerable solution for preventing the anastomotic complications such as stricture and leakage in LATG is reproducing the anastomotic procedures of conventional open techniques in the laparoscopic one. Yoshikawa et al. nicely demonstrated a laparoscopic esophagojejunostomy technique similar to the conventional open methods using the EndoStitch to create the purse-thread suture for easy anvil insertion and the ENDOCAMELEON to create the clear visual field by stretching the jejunum. Their purse-thread suture and good field of vision made it possible to prevent anastomotic strictures and leakage.

Meanwhile, Wada et al. [6] recently investigated the short-term outcomes of 100 LATG cases. In their series, the most frequent complication was anastomotic or stump leakage (6 %), followed by pancreatic fistula (5 %). Reoperations were required in two patients following leakage. Despite a leakage rate at 6 % which is almost identical to the rate seen in the open method, the technique needed for the esophagojejunostomy is complex when performed laparoscopically. Furthermore, the other anastomotic related complications such as strictures are still an issue with LATG [4]; all of these issues should be solved. Hence, the standardization for the reconstruction procedures of LATG is still evolving.

Further prospective clinical trials conducted by surgeons with considerable expertise in laparoscopic gastrectomy are needed. Additionally, patients should be informed of the investigational nature of this approach and of the potential risks when compared with the conventional open surgery despite the clear advantage of LATG as a minimally invasive approach.

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N. Hiki (✉)

Department of Gastroenterological Surgery, Gastroenterological Center, Cancer Institute Hospital, Japanese Foundation for Cancer Research, 3-8-31, Ariake, Koto-ku, Tokyo 135-8550, Japan  
e-mail: [naoki.hiki@jfcrr.or.jp](mailto:naoki.hiki@jfcrr.or.jp)

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