

Totally laparoscopic total gastrectomy with D2 lymphadenectomy and esophagojejunal Roux-en-Y anastomosis

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Abstract: A case of a 67-year-old female patient with gastric body carcinoma was reported in this article. This patient underwent upper abdominal dull pain and discomfort for over 2 months repeatedly, and then hospitalized on 2015-03-22 for treatment. She underwent gastroscopy with biopsies. The gastroscopy result shown an ulcer about 2.0×1.5 cm² was located in the greater curvature of the gastric body. Pathological biopsy confirmed that it was gastric adenocarcinoma. Upper abdomen enhanced CT scan: uneven incassation in stomach wall locating in paries posterior of gastric body, light reinforcement after enhancing, and no obvious swelling of perigastric and celiac lymph nodes. The above examinations obviously shown that the preoperative clinical stage is cT3N0M0. Preoperative evaluation of the patient allowed her to undergo surgical treatment and advanced gastric cancer. Based on the NCCN guidelines, D2 lymphadenectomy was required. Preoperative examinations shown that there were no definite contraindications for surgery. Therefore, distal gastrectomy with D2 lymphadenectomy was adopted. Lymph nodes of group 1, 2, 3, 4sb, 5, 6, 7, 8a, 9, 10, 11P, 11d, 12a and 14v were dissected.

Keywords: Total laparoscopic; total gastrectomy; esophagojejunal Roux-en-Y anastomosis; lymphadenectomy

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Introduction

Medical history

The patient was a 67-year-old woman with chief complaint “upper abdominal dull pain and discomfort for over 2 months repeatedly”. She had no history of surgery, trauma, blood transfusion, hypertensive disease, diabetes, hepatitis, nephronia, heart disease and tuberculosis.

The results of examination

Gastroscopy: An ulcer about 2.0×1.5 cm² was located in the greater curvature of the gastric body.

Pathological biopsy: gastric adenocarcinoma.

Upper abdomen enhanced CT scan: uneven incassation in stomach wall locating in paries posterior of gastric body, light reinforcement after enhancing, no obvious enlarged lymph nodes of perigastric and celiac were detected.

Other preoperative routine examinations such as blood

routine, routine urinalysis, liver function, renal function, clotting function, tumor markers, chest radiography and ultrasonography were non-obvious positive found.

Operative techniques

Step 1: exploration: no obvious nodes of metastasis were found in the liver and no enlarged lymph nodes were detected in the fields of perigastric and celiac.

Step 2: dissection:

- (I) Dissection of the gastrocolic ligament. The gastrocolic ligament should be cut off close to the transverse colon;
- (II) The gastropancreatic fold could be exposed, and cranial mesenteric vein (SMV), middle colic vein (MCV), anterior superior pancreaticoduodenal vein (ASPDV), gastrocolic trunk (GTH), accessory right colic vein (ARCV) and right colic vein (RCV) could be identified. LN 14v was dissected along the

surface of the SMV. As the gastrocolic trunk was exposed, the right gastroepiploic vein and artery could be identified. Ligation and dissection of right gastroepiploic vessel (dissection of LN No. 6) was conducted.

- (III) Decorticated the pancreas upwards to reach the upper edge of the pancreas then entered the retropancreatic space. Dissected left gastric vessel and then dissected along the celiac trunk and common hepatic artery (dissection of LN No. 11P→7→9→8a). Dissected right gastric vessel (dissection of LN No. 5) and cut off hepatogastric ligament (dissection of LN 12a). After that, freed esophagus (dissection of lymph node No. 1).
- (IV) Lymph node dissection of splenic hilum is technically demanding and challenging procedure for the anatomical variation of splenic hilar vessels and the narrow and deep space of splenic hilum. But splenic hilar lymphadenectomy is an important procedure in laparoscopy radical total gastrectomy for advanced gastric cancer. Above all, surgeons should fully understand the anatomical features of splenic hilar vessels.

When dissecting along the splenic vessel until reach their branches, two or three secondary branches of the splenic artery (SP) could be seen in most cases. The superior branch coursed towards the superior pole of spleen and the inferior one coursed directly towards splenic hilum. The lymphadenectomy of splenic hilar can be divided into three steps.

First step: dissection of the lymph nodes of the splenic hilum in the inferior pole region. The surgeon separated the greater omentum along the superior border of colon transversum toward the splenic flexure of colon. Decorticated the pancreas to expose the superior border of the pancreas and entered the retropancreatic space. The surgeon should dissect the lymphatic tissue around the vessels after the lower pole and the lower lobar vessels of spleen were exposed. The left gastroepiploic vessel (LGEV) can then be exposed and the surgeon should dissect the lymphatic tissue around it. Finally, dissected the LGEV and short gastric vessel (dissection of LN No. 4sb).

Second step: dissection of the lymph nodes around splenic vessels trunk. The surgeon should meticulously separate the lymphatic tissue while dissected along the splenic vessels trunk to the crotch of the branches. In most cases, the posterior gastric artery derives from the middle of splenic artery. Then, when dissecting the lymphatic tissue around

the splenic vessels, the surgeon should cut off the posterior gastric artery at their roots (dissection of LN No. 11d).

Third step: dissection of lymph nodes of the splenic hilar in the superior pole region. The surgeon used the ultrasonic scalpel to dissect the lymphatic tissue around the terminal branches of the splenic vessels from the division point of the LGEV. Several short gastric vessels (SGVs) derive from the terminal branches of splenic vessels. The surgeon should dissect the lymphatic tissue around the SGVs gently and meticulously because they are very short and easy to cause bleeding. Then, the SGVs should be cut off at their roots. After that, the surgeon continued to expose the vessels and dissect the lymphatic tissue completely in the splenic hilum (dissection of LN No. 10).

All vessels of the splenic hilum were saved and both pancreas and spleen were preserved after the three steps above. Meanwhile, the lymph nodes could be dissected completely.

Step 3: reconstruction: before the reconstruction of digestive canal, a suture with a needle which was linked with the anvil of the circular stapler was required. The needle was inserted into the esophagus through the opening in the end of esophagus. The anvil should be ensured advance to the end of esophagus, and the suture attached to the central rod of the anvil was pulled out of the esophagus with the anvil together for conducting the central rod of the anvil penetrating the esophagus wall. Then we removed the suture and the opening of the esophagus was transected by linear staplers. The jejunum was cut off in 15-20 cm below the Treitz ligament. A side-to-side anastomosis was made between the distal segment of jejunum and esophagus using a circular stapler. The opening of the distal jejunum was also transected by linear staplers. A side-to-side jejunojejunostomy was performed at about 50 cm below the esophagojejunostomy using a linear stapler. Closed the common entry hole of the previous linear stapler using another one linear stapler.

Comments

Compared with the laparoscopy-assisted operation, total laparoscopic radical total gastrectomy with D2 lymphadenectomy has not been adopted widely as it is more complex and requires longer operation time. The major difficulty is intracorporeal reconstruction, for it is very challenging. It poses a difficult question to surgeons that how to make the anastomotic procedure safely completed and simply performed. However, the totally laparoscopic surgery has several advantages such as a shorter incision, less pain, and the most important one is earlier recovery (*Figure 1*).



Figure 1 Totally laparoscopic total gastrectomy with D2 lymphadenectomy and esophagojejunal Roux-en-Y anastomosis (1). Available online: <http://www.asvide.com/articles/684>

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Ye K, Wu Y, Lin J, et al. Totally laparoscopic total gastrectomy with D2 lymphadenectomy and esophagojejunal Roux-en-Y anastomosis. *Asvide* 2015;2:091. Available online: <http://www.asvide.com/articles/684>