

Curettage and aspiration in splenic hilar lymph node dissection for spleen-preserving radical D2 gastrectomy

Wei Wang, Lijie Luo, Yansheng Zheng, Jin Wan

Department of Gastrointestinal Surgery, Guangdong Provincial Hospital of Traditional Chinese Medicine (the Second Affiliated Hospital, Guangzhou University of Traditional Chinese Medicine), Guangzhou 510120, China

Corresponding to: Wei Wang. Department of Gastrointestinal Surgery, Guangdong Provincial Hospital of Traditional Chinese Medicine (the Second Affiliated Hospital, Guangzhou University of Traditional Chinese Medicine), Dade Road No. 111, Guangzhou 510120, China. Email: ww1640@yeah.net.

Abstract: D2 radical gastrectomy is the standard procedure for gastric cancer in the middle or upper part of the stomach. According to the latest Japanese treatment guidelines for gastric cancer, dissection of the splenic hilar lymph nodes is required during the radical treatment for this condition. This study reports a D2 radical total gastrectomy employing the curettage and dissection techniques, in which the resection of the anterior lobe of transverse mesocolon, vascular denudation and splenic hilar lymph node dissection were successfully completed.

Key Words: Gastric cancer; gastrectomy; lymph node dissection; curettage and dissection



Submitted Jul 09, 2013. Accepted for publication Jul 13, 2013.

doi: 10.3978/j.issn.1000-9604.2013.08.10

Scan to your mobile device or view this article at: <http://www.thejcjr.org/article/view/2478/3417>

Introduction

Although the global incidence of gastric cancer is declining, it remains highly prevalent in Asia as compared to the West (1). China is one of the countries with the highest incidence of gastric cancer, and accounts for over 40% of all new gastric cancer cases in the world (1,2). Gastric cancer is the third leading cause of cancer mortality in China (1). D2 radical gastrectomy is the standard procedure for gastric cancer in the middle or upper part of the stomach. According to the latest Japanese treatment guidelines for gastric cancer, dissection of the splenic hilar lymph nodes is required during the radical treatment for this condition. This study reports a D2 radical total gastrectomy employing the curettage and dissection techniques.

Materials and methods

Materials

The patient was a 44-year-old man with gastric ulcer on the lesser curvature of approximately 25 mm × 28 mm as confirmed by gastroscopy. The preoperative diagnosis

was gastric carcinoma (proximal, poorly differentiated adenocarcinoma, cT3N0M0, Bormann II type). Intraoperative exploration revealed that the tumor was located in the lesser curvature near the cardia of the gastric body, about 30 mm × 25 mm in size, not protruding the serosa. The intraoperative diagnosis was proximal gastric carcinoma sT3N0M0 (EGA Siewert classification III type).

Surgical methods

In this video (*Video 1*), the surgery is performed under general endotracheal anesthesia with the patient in a supine position. A central incision of approximately 12 cm is made in the upper middle abdomen to access the abdominal cavity and explore the lesion. The incision is protected with sterile pads and retracted with an automatic ring retractor for better exposure.

Separating the greater omentum and the anterior lobe of transverse mesocolon: with the second assistant retracting the transverse colon downward with the left hand, the surgeon and the first assistant retract its anterior lobe with forceps in the left and right hands, respectively, the surgeon separates



Video 1 Curettage and aspiration in splenic hilar lymph node dissection for spleen-preserving radical D2 gastrectomy

the anterior lobe from left to right with a Peng's multifunction operative dissector (PMOD) in the right hand to completely transect the anterior lobe of the transverse mesocolon.

Dissection of station number 14v lymph nodes: with the transverse colon retracted downward, the lower edge of the pancreas and the middle colic artery and vein are divided. The lymphoid tissue around the lower edge of the pancreas, the superior mesenteric vein and the root of the middle colic vein are removed together.

Dissection of station number 6 lymph nodes: as the gastrocolic trunk is exposed anterior to the pancreatic head, its root is ligated with the Impact vascular ligation bundle (COVIDIEN LF4200) to separate from the right gastroepiploic vein. The surrounding fat and lymphoid tissue is dissected. The right gastroepiploic vein is divided from the deeper area of the right gastroepiploic artery, and separated from its root. Station number 6 lymph nodes are dissected as well.

Dissection of station number 5 lymph nodes: the liver is pulled away with an S-shaped retractor to expose the hepatoduodenal ligament and the lesser omentum. The lesser omentum is transected near the liver to expose the hepatic artery, and the right gastric artery and vein. The right gastric artery and vein are cut near the root of the hepatic artery. Station number 5 lymph nodes are dissected.

Transection of the duodenum and resection of the pancreatic capsule: the duodenum is freed and cut 2 cm away from the pylorus. Its distal end is closed. The gastric body is retracted towards the upper left direction to expose the pancreas, and the pancreatic capsule is completely resected.

Intrathecal dissection of stations number 7, 8 and 9 lymph nodes: with the pancreas retracted downward to reveal the hepatopancreatic fold and gastropancreatic fold, the vascular sheaths of the common hepatic artery, celiac trunk, proximal end of the left gastric artery, and proximal end of the splenic artery are opened from the bifurcation of the gastroduodenal artery and the common hepatic artery with a PMOD. With retraction by the vascular retracting bundle, the left gastric artery is ligated and cut at the root, and stations number 12, 8, 9 and 7, as well as part of the station 11p, are completely dissected from right to left. The coronary vein is transected at the junction of the left gastric vein into the portal vein posterior to the common hepatic artery with an Impact.

Dissection of stations number 1 and 2 lymph nodes followed by transection of the esophagus: the fat and lymphoid tissue around the abdominal segment of the esophagus and both sides along the cardia is completely dissected with an Impact. The esophagus is transected about 4 cm above the upper edge of the tumor. The disinfected esophageal stump is placed in the anvil of a 25# curved stapler.

Spleen-preserving dissection of the splenic hilar lymph nodes via the antegrade approach after the spleen is retracted: while holding the spleen fixed with the left hand, the assistant denudes the splenic hilar vessels with a PMOD close to the spleen, and transect the left gastroepiploic vessels and short gastric vessels at their roots. The gross specimen is then removed.

The splenic artery sheath is open close to the upper edge of the pancreas. The splenic artery and vein are denuded from distal to proximal. The perivascular lymphoid tissue is dissected and removed en bloc. Caution is given to avoid accidental injury to the spleen, pancreas and splenic vessels. The spleen is replaced into the spleen nest.

Esophagojejunal Roux-en-Y anastomosis: the jejunum is transected 15 cm below the Treitz ligament. A Roux-en-Y intestinal loop is freed for the end-to-side anastomosis between the esophagus and the jejunum anterior to the colon with a stapler (COVIDIEN DST EEA™ end-to-end stapler). The proximal jejunum is stapled in a side-to-side jejunal anastomosis 45 cm distal to the previous anastomosis. Upon confirmation that the anastomoses are free of stenosis, the mesangial holes are closed.

Results

The length of operation was 270 min, with intraoperative

bleeding of 100 mL. The patient remained supine for 48 hours after surgery. The resected specimen was 21 cm long on the greater curvature side and 12 cm on the lesser curvature side. The closest distance from the lesion to the surgical margin was 3 cm. The tumor did not protrude the gastric wall, and the gastric and duodenal margins were both negative. A total of 46 lymph nodes were dissected, including eight from station 14v, two from station 10, and three from station 11. No evidence of metastasis was found. The pathological diagnosis was pT3N0M0. The patient had flatus and began to ambulate on the third day after surgery. There was no pancreatitis, pancreatic fistula, intra-abdominal bleeding, subphrenic infection or other complications. The patient was discharged on the eighth day after surgery.

Discussion

Whether the dissection of lymph node stations 10 and 11 in conjunction with splenectomy is feasible for patients with advanced upper gastric cancer remains controversial. Research has shown that the conjunction with organ resection did not significantly increase the post-operative survival; rather, it increased the incidences of post-operative complications (1). Radical treatment of gastric cancer with “curettage and aspiration” technique is featured by accurate anatomy, timely hemostasis, and clear surgical field; also, it can shorten the operative time, reduce bleeding, and facilitate the removal of lymph nodes, which is particularly helpful for the spleen-preserving splenic hilar lymphadenectomy (2). One decade ago, Schwarz *et al.* proposed that the conjunction of pancreatectomy and splenectomy, when applied as an approach to the dissection of lymph nodes around the splenic hilum and splenic

vessels, could not extend the survival (3). Ji *et al.* argued that the spleen-preserving splenic hilar lymphadenectomy was feasible when performed by highly skilled surgeons (4).

We believe that spleen-preserving hilar lymph node dissection should be considered as long as the tumor has not invaded the splenic hilum or the spleen. Enabling sharp and blunt scraping, suction, cutting, coagulation, pushing and other functions, a curettage and aspiration dissector can access to narrow space and significantly reduces the length of operation, as well as intraoperative injury, thus improves the resection rate and cure rate.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

References

1. Sheng HG, Liang L, Jiang YM, et al. Relative research of the recurrence and metastasis and prognosis of the patients with the radical excision of upper gastric cancer with preserving of the spleen. *Chin J Curr Adv Gen Surg* 2010;13:357-9, 396.
2. Zhu JH, Liu YB, Peng SY. Application of “curettage and aspiration” technique in the treatment of gastric cancer. *Zhejiang Practical Medicine* 2008;135:340-2.
3. Schwarz RE. Spleen-preserving splenic hilar lymphadenectomy at the time of gastrectomy for cancer: technical feasibility and early results. *J Surg Oncol* 2002;79:73-6.
4. Ji JF, Li ZY. Completeness of splenic hilar lymphadenectomy and the risk of spleen injury during the radical treatment of gastric cancer. *Chin J Pract Surg* 2008;28:508-9.

Cite this article as: Wang W, Luo L, Zheng Y, Wan J. Curettage and aspiration in splenic hilar lymph node dissection for spleen-preserving radical D2 gastrectomy. *Chin J Cancer Res* 2013;25(4):471-473. doi: 10.3978/j.issn.1000-9604.2013.08.10