

RAPID COMMUNICATION

Dissection of No. 13 lymph node in radical gastrectomy for gastric carcinoma

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Abstract

AIM: To evaluate the feasibility and safety of No. 13 lymphadenectomy in radical gastrectomy for gastric carcinoma.

METHODS: Medical records of the patients undergone No. 13 lymph node dissection during D2 gastrectomy for gastric carcinoma, were reviewed from March 2003 to May 2007.

RESULTS: One hundred and fifty-eight patients underwent No. 13 lymph node dissection for D2 gastric carcinoma, of them, 4 (2.53%) were found to have metastasis in No. 13 lymph node. Metastasis to No. 12 lymph node was detected in 6 patients and 4 of them had positive No. 13 lymph node. The operative morbidity except for wound infection was 15.19% (24/158), and hospital death rate was 1.27% (2/158). No obstructive jaundice caused by No. 13 lymph node metastasis after No. 13 lymph node dissection in radical gastrectomy for gastric carcinoma was detected during the follow-up study to end of January 2007.

CONCLUSION: Dissection of No. 13 lymph node in D2 gastrectomy for gastric carcinoma is safe with a low morbidity and mortality rate. Further study is needed to explore its long-term effect.

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Key words: Gastric carcinoma; Lymphadenectomy; Gastric carcinoma; No. 13 lymph node

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INTRODUCTION

Although gastric carcinoma tends to decline in its incidence, it still remains the most common cancer and the leading cause for cancer-related death in China^[1-3]. D2 gastrectomy has been increasingly employed to treat patients with gastric carcinoma since 1990s in China^[4,5]. In some medical centers, dissection of No. 12 lymph node has been performed in combination D2 gastrectomy for several years^[5-7].

Regional recurrence and distant metastasis are the main causes for death of patients with gastric carcinoma after operation^[8-10]. Metastasis from gastric carcinoma to retropancreatic nodes following radical gastrectomy can result in obstructive jaundice. We assume that we could prevent obstructive jaundice resulting from No. 13 lymph node metastasis if we dissect No. 13 lymph node in D2 gastrectomy for patients with gastric carcinoma. Therefore, the present study was to evaluate the results and feasibility of No. 13 lymphadenectomy in radical gastrectomy for gastric carcinoma.

MATERIALS AND METHODS

One hundred and fifty-eight patients (75 males, 83 females, average age of 67 years, range 38-75 years) with gastric carcinoma, who underwent D13 lymph node dissection in combination with D2 lymphadenectomy from March 2003 to May 2007, were enrolled in this study. Tumor TNM staging was performed, showing stage I in 20 patients, stage II in 71 patients, and stage III in 67 patients. No. 13 lymphadenectomy was performed for tumors located in the lower third of the stomach. Coronary artery disease, chronic obstructive pulmonary disease, immunodeficiency disease, liver cirrhosis, and diabetes, and those at the age of over 75 years were excluded from the patients who were going to receive No. 13 lymph node dissection. Signs of distal lymph

Table 1 Complications of operation

	No of complication	No of death
Injury to CBD	3	1
Injury to spleen	4	0
Injury to portal vein	1	0
Injury to splenic vein	1	0
Injury to IVC	1	0
Pancreatic fistula	1	0
Duodenal fistula	1	0
Gastrojejunostomy fistula	3	0
Pulmonary infection	9	1

CBD: Common bile duct; IVC: Inferior vena cava.

node, liver, lung, and peritoneal metastasis were found both at pre-operation and at intra-operation.

D2 lymph node dissection was performed, followed by No. 13 lymph node dissection. The No. 13 lymph node dissection procedure consisted of incision of the lateral peritoneal attachment to duodenum, sharp dissection of duodenum and head of the pancreas from the inferior vena cava (IVC), exposure of posterior aspect of the pancreas. Subsequently 1-4 lymph nodes were removed. Reconstruction of digestive continuity was performed in a fashion of Billroth-II. Complications were recorded prospectively. Hospital death was defined as within 30 d after surgery or during hospital stay longer than 30 d. The patients were followed up by regular clinic examination and telephone.

RESULTS

Among the 158 patients who underwent No. 13 lymph node dissection and D2 gastric carcinoma removal, 4 were positive for No. 13 lymph node with a positive rate of 2.53% (4/158). The metastasis to No. 12 lymph node was detected in 6 patients and 4 of them were positive for No. 13 lymph node. Injury to the spleen occurred in 4 patients and two of them underwent splenectomy during gastrectomy because of uncontrollable hemorrhage. Injury to the common bile duct was found in 3 patients and treated with placement of a T tube and choledochojejunostomy. Of these three patients, one developed peritonitis. The three patients had massive bleeding due to the injury to portal vein, splenic vein and inferior vena cava, respectively. Homeostasis was achieved with the stitch suture. After operation, one patient had pancreatic fistula, 3 patients had enteral fistula and two of them were managed conservatively. Nine patients had pulmonary infection and one of them developed acute respiratory distress syndrome (ARDS) and died finally. The overall operative morbidity was 13.92% (22/158) except for wound infection. The hospital death rate was 1.27% (2/158) (Table 1).

During the follow-up, no obstructive jaundice was found in patients undergoing radical gastrectomy with No. 13 lymph node dissected.

DISCUSSION

Surgical resection is the only curative treatment modality

available for gastric carcinoma and radical lymph node dissection is an important part of curative resection^[5,11]. Theoretically, removal of lymph nodes by extended lymph node dissection increases the chance for cure. However, the extent of nodal dissection is also a significant risk factor for complications and death^[12,13]. It is generally accepted that D2 dissection is the standard procedure for patients who undergo surgery with curative intent, although there is a disagreement about the optimal extent of lymph node dissection.

The D2 gastrectomy procedure is known as “extended lymphadenectomy” in Western countries, while Japanese surgeons employ D2 as a standard technique, and use the term “extended” for para-aortic dissection^[6,14-17]. The mortality of D2 gastrectomy is around 5% in Western countries, whereas it is less than 2% in Japan, and less than 1% in specialized institutions^[15, 17-19]. Therefore, specialized surgeons can safely perform gastrectomy in combination with D2 lymphadenectomy for gastric carcinoma with a relatively low operative risk. Furthermore, some surgeons have performed D3 lymphadenectomy at gastrectomy for gastric carcinoma, which can remove all lymph nodes located in compartment 3^[13,20]. Although complications of D3 lymphadenectomy are in an accepted range, the morbidity and mortality rates for D3 lymphadenectomy are significantly higher than those for D2 lymphadenectomy.

D2 dissection in gastrectomy, defined by the Japanese Research Society for Gastric Cancer, has been performed for gastric carcinoma since 1990s in China^[4,6]. No. 13 lymph node dissection in gastrectomy for carcinoma is based on the follow-up studies showing metastasis of gastric carcinoma to No. 13 lymph node^[4,6]. This is the reason why we performed No. 13 lymph node dissection for gastric carcinoma. In our series, complications (except for wound infection) occurred in 24 patients (15.19%) and the mortality rate was 1.27%, which is comparable to the reported data^[13,17]. In our study, injury to the inferior vena cava was the only procedure-related complication and only one patient suffering from this kind of complications could be managed with the stitch suture, suggesting that extending the surgery to lymph nodes posterior to the pancreas does not increase hospital deaths.

Patients with co-morbid diseases are not fitted for surgery, such as those suffering from liver cirrhosis and ischemic heart diseases, two important risk factors for mortality^[21,22]. Interestingly, studies from UK and Holland showed that splenectomy with or without distal pancreatectomy are highlighted as a major risk factor for operative morbidity and mortality^[23,24]. The relatively low morbidity and mortality in our study may be due to the following factors: patients selected with good tolerance to the extending D2 lymphadenectomy, skillful/experienced surgeons performing the surgery^[25], no need for splenectomy or pancreatectomy, and rational postoperative management.

In conclusion, No. 13 lymph node dissection in combination with D2 lymph node dissection in radical gastrectomy for gastric cancer can be performed with a low morbidity and mortality rate. Further study is needed to explore its long-term effect.

COMMENTS

Background

Gastric carcinoma is the most common cancer and the leading cause for cancer-related death in China. Up to now, operation is still the first choice of treatment. However, what is the appropriate extent of radical gastrectomy remains controversial.

Research frontiers

Most surgeons believe that D2 gastrectomy is the best procedure for most patients. However, metastasis of No. 13 lymph node has been found in patients with obstructive jaundice after gastrectomy. We studied the feasibility of No 13 lymphadenectomy in radical gastrectomy for gastric carcinoma and found that No. 13 lymph node dissection in combination with D2 lymph node dissection in radical gastrectomy for gastric cancer could be performed with a low morbidity and mortality rate.

Innovations and breakthroughs

In our study, No. 13 lymphadenectomy was safe and effective, showing that No13 lymphadenectomy in radical gastrectomy is feasible.

Applications

According to our study, it is safe and effective to perform No. 13 lymphadenectomy in radical gastrectomy, which can prevent obstructive jaundice due to No. 13 lymph node metastasis.

Terminology

No. 13 lymphadenectomy means that dissecting lymph nodes around the head of pancreas during radical gastrectomy.

Peer review

This is a valuable record of a large series of extended gastrectomies for gastric cancer and, with amendments, worthy of consideration for publication.

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