Case Report

Laparoscopic Subtotal Gastrectomy for Gastric Carcinoma Treatment

Zdravko Perko, Darko Sršen, Zenon Pogorelić, Nikica Družijanić
Damir Kraljević, Joško Juričić
University Department of Surgery, Clinical Hospital and Medical School Split, Split, Croatia
Corresponding Author: Zenon Pogorelić, MD, University Department of Surgery, Clinical Hospital Split
Spinčićeva 1, 21 000 Split, Croatia
Tel: +38521556250, Fax: +38521556225, E-mail: zenon@vip.hr

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SUMMARY

Laparoscopic surgery of the stomach is not well accepted in patients with malignant disease. This paper shows the first experiences with this procedure at the Clinical Hospital and Medical School, Split, in two patients with early stage gastric carcinoma. The first patient was a 57 year old man who had had some gastric symptoms for a while. The other patient was a 73 year old man who had ulcer disease 52 years ago. Laparoscopic subtotal gastrectomy with omentectomy and Roux-en-Y reconstruction of the alimentary tract was performed on both patients. Pathohystological analysis of the resected part of the stomach showed the early stage gastric adenocarcinoma without metastases to the lymph nodes around the stomach or any pathological changes in the omentum for both of the patients. There were no complications during postoperative period. The first patient was released from the hospital after 8 and other after 9 days. All oncological principles were satisfied with laparoscopic subtotal resection with good and fast postoperative recovery without complications.

INTRODUCTION

Laparoscopic surgery has been in development since the early 1990s at the Clinical Hospital Split, including progression of surgical skills, technical advances and increasing numbers of indications for laparoscopic procedures. Laparoscopic cholecystectomies, choledochus explorations, appendectomies, hernioplasties, implantation of peritoneal catheters, liver and spleen procedures and colorectal operations are examples of laparoscopic procedures performed at this clinic. Owing to the excellent results of such procedures and increasing technical proficiency of the surgeons, laparoscopic gastrectomy was initiated for the treatment of gastric carcinoma.

Laparoscopic surgery for gastric cancer was introduced in the past decade because it was considered less invasive than open surgery, resulting in better postoperative recovery, improved quality of life and low mortality and morbidity (1,2). Despite the questionable ability of the laparoscopic procedures to achieve oncological principles for gastric carcinomas and the technical difficulty of making appropriate reconstruction of the gastrointestinal tract, recent studies have shown that laparoscopic radical total or subtotal gastrectomy with extended lymphadenectomy for gastric cancer is a feasible, safe, and oncologically effective procedure (2). Short-term follow-up evaluation showed no difference in survival rates between the open and laparoscopic approaches which gives an advantage for laparoscopic approach because of less intra and postoperative complications (e.g. less operative blood loss or earlier recovery of bowel activity) (3,4). The technical difficulties of creating an appropriate reconstruction of the gastrointestinal tract, including the risk of twisting the Roux loop under limited vision through a laparoscope, have been solved by using new techniques (5). Taken together these facts provided sufficient motivation for our decision to perform our first laparoscopic gastrectomy for gastric cancer.

CASE REPORTS

Case 1

The first treated patient was a 57 year old male who had had some gastric symptoms such as heartburn and a sensation of heaviness in the epigastrium for a long time. These symptoms were associated with an 8kg loss of weight over the last few months. Despite antiulcer therapy, the symptoms persisted.

After standard laboratory tests which were unremarkable, a gastroscopy was performed, demonstrating abnormalities in the antrum area of the stomach. The mucosa of the antrum was ulcerated and rough with marked spotty hyperemia and enlargement of the prepyloric fold and partly ulcerated mucosa. The biopsies were taken. Pathohistological analysis of the biopsy specimens showed abnormality of the antral mucosa consistent with the intestinal type of gastric adenocarcinoma. Computerized tomography scans showed neither metastases in the organs of the upper abdomen nor the presence of enlarged lymph nodes.

Case 2

The second patient was a 73 year old male with

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the history of treated peptic ulcer disease 52 years ago and only minor gastric complaints since. He was admitted at the Clinic for Internal Disease, of the Clinical hospital Split, after vomiting black contents associated with black stool over the period of 1 month. He reported no history of weight lost.

Standard laboratory tests were unremarkable. Gastric examination of the stomach showed ulceration of the middle third of the lesser curve of the stomach, which was suspicious for gastric cancer. Duodenoscopy showed no new ulcerations but there were some fibroses, likely due to earlier ulcerations. Pathohistological analysis of biopsy specimens demonstrated the gastric adenocarcinoma. The computerized tomography scans showed no metastatic changes of the other upper abdomen.

Surgery

The same procedure was performed in both of the patients. After establishing pneumoperitoneum, the stomach was visualized. The gastrocolic ligament was cut and bursa omentalis was subsequently opened with a harmonic scalpel (Ultracision, Ethicon endo-surgery, INC., Cincinnati, USA). The gastroepiploic arteries and then right gastric artery were ligated using a bipolar sealant (LigaSure, Valleylab, Boulder, USA). The duodenum was resected with an endoscopic cutter (ETS Flex 45, Ethicon Endosurgery, INC., Cincinnati, USA). Finally the left gastric artery was dissected, clipped and removed. An upper resection line was established to retain approximately 10% of the stomach. An aperture on the mesentery of the transverse colon was made. A loop of jejunum, about 20cm from the ligament of Treize, was cut and the distal part pulled through. The loop was fixed with one absorbable suture to the aperture. A gastro-entero anastomosis was made then with a endoscope cutter (ETS Flex 45) and the opening sutured with interrupted stitches. Using the minilaparotomy the resected part of stomach was removed together with the omentum. This was followed by an entero-enteral anastomosis made with the linear cutter (ETS Flex 45) which allowed for the creation of a gastrojejunal Roux-en-Y anastomosis and preparation for reconstruction of the gastrointestinal tract. An abdominal drainage was performed and the procedure finalized with the placement of a nasojejunal feeding tube.

In both cases pathohistological analysis demonstrated an area of carcinoma at the ulceration in the antred part of the stomach. Histological analysis showed the intestinal type of the gastric adenocarcinoma composed of irregular glands of mucosa coated with well to partly differentiated malignant epithelia. All 13 lymph nodes in the first patient and all 14 lymph nodes in the second patient, isolated from the lesser and greater curvatures of the stomach, did not show metastases. The histological analysis of the omentum showed no pathological changes.

The basic hematological laboratory and biochemical laboratory (glucose in blood, urea, proteins and electrolytes) were regularly controlled and corrigated during postoperative period in both of the patients. The patients were treated with the low molecular heparin for the prevention of deep vein thrombosis, H_2 receptor blockers and analgesics.

The postoperative period was without complications in both patients. The patients tolerated enteral feeding well and abdominal drainage tubes were taken out 5 days from the procedure in the first, and 6 days from the procedure in the second patient. The correct intestinal passage was performed on the 9th postoperative day in the first, and on the 4th postoperative day in the second patient. The patients were discharged on the 8th and 9th postoperative day, respectively.

A diet was recommended for both of the patients together with an obligate regime of feeding with an increase number of small meals during the day.

DISCUSSION

Laparoscopic treatment for gastric adenocarcinoma has been accepted as one of the possible approaches due to its minimally invasive nature when compared to open surgery. It results in better postoperative recovery, improved quality of life and low operative mortality and morbidity (7% and 12%) (1,2). Despite these facts, some doubt remains about the laparoscopic approach with the main concern being the ability to accomplish oncological principles. During the last few years, many studies have showed that laparoscopic radical total or subtotal gastrectomy with extended lymphadenectomy for gastric cancer is a feasible, safe, and oncologically effective procedure (2). Some studies showed that the 3-year survival is 75% after laparoscopic subtotal or total gastrectomy (2). Other studies showed that the 5-year survival after postoperative oncological therapy is around 29% for advanced gastric cancers (3) and that no difference exists in survival rates between the open and laparoscopic approaches (4). This suggests an advantage for the laparoscopic approach because of less postoperative complications (e.g. less operative blood loss, earlier recovery of bowel activity, etc) (5). Another main concern in the laparoscopic treatment of the gastric carcinoma is difficulty in the reconstruction of the gastrointestinal tract. However, the technical difficulties of creating an appropriate reconstruction including the risk of twisting the Roux loop under limited vision through a laparoscope, was solved by the development of new techniques (6), especially that of the linear staplers and other instruments (harmonic scalpel, bipolar sealant).

We performed laparoscopic subtotal gastrectomies for gastric adenocarcinoma in 2 patients. The procedures were performed without any intraoperative or postoperative complications with good, fast and complete postoperative recovery.

CONCLUSION

Despite the fact that these were the first 2 cases of laparoscopic subtotal gastrectomy in the Clinical

Hospital and Medical School Split, basing an opinion upon these experiences of the laparoscopic treatment of the colorectal carcinoma, it remains clear that the laparoscopic procedure can be performed safety and it can achieve oncological demands of the treatment of the carcinoma with less postoperative complications. Because of that, laparoscopic approach for treatment of the gastric carcinoma can have the same role as the open approach. Furthermore, we think that it should be recommended for the early stages of gastric carcinoma. Our opinion is that laparoscopic subtotal or total gastrectomy may become the standard procedure for gastric carcinoma treatment, especially for the early stages and for the benign diseases of the stomach.

REFERENCES

1 **Carboni F, Lepiane P, Santoro R, Mancini P, Lorusso R, Santoro E:** Laparoscopic surgery for gastric cancer: preliminary experience. Gastric Cancer 2005; 8:75-77.

2 **Ibanez FJ, Azagra JS, Goergen M, Bordas JM, Almendral ML, Erro JM:** Laparoscopic surgery of gastric cancer. An Sist Sanit Navar 2005; 28:21-31.

3 **Huscher CG, Mingoli A, Sgarzini G, Sansonetti A, Lirici MM, Napolitano C, Piro F:** Videolaparoscopic total and subtotal gastrectomy with extended lymph node dissection for gastric cancer. Am J Surg 2004; 188:728-735.

4 **Weber KJ, Reyes CD, Gagner M, Divino CM:** Comparison of laparoscopic and open gastrectomy for malignant disease. Surg Endosc 2003; 17:968-971.

5 **Noshiro H, Nagai E, Shimizu S, Uchiyama A, Tanaka M:** Laparoscopically assisted distal gastrectomy with standard radical lymph node dissection for gastric cancer. Surg Endosc 2005; 19:1592-1596.

6 Takaori K, Nomura E, Mabuchi H, Lee SW, Agui T, Miyamoto Y, Iwamoto M, Watanabe H, Tanigawa N: A secure technique of intracorporeal Roux-Y reconstruction after laparoscopic distal gastrectomy. Am J Surg 2005; 189:178-183.