Curative distal gastrectomy for Stage IV gastric cancer with gastrojejunal gastric bypass followed by chemoradiotherapy: a case report

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Abstract

Background

Stage IV gastric cancer with pyloric stenosis often receive multidisciplinary treatment following bypass of gastrojejunostomy. And R0 surgery may be indicated for the patients with the drastic efficacy for distant lesion. We present a rare case of Stage IV gastric cancer subjected to curative surgery followed by multidisciplinary treatment, in which gastrojejunostomy could be utilized as the route of reconstruction in gastrectomy. There have been no reports on distal gastrectomy utilizing previous gastrojejunostomy as gastric bypass followed by chemotherapy and/or chemoradiotherapy.

Case presentation
An 80-year-old female who had advanced gastric cancer with pyloric stenosis was admitted to Kagoshima University Hospital. Because of the positive washing cytology, the patient received laparoscopic gastrojejunostomy to improve food passage and the combination of S-1 plus paclitaxel was administered. Although the tumor was reduced temporarily after 4 courses, abdominal computed tomography showed progressive disease. Then, chemoradiotherapy was indicated. Remarkable tumor shrinkage and negativity of CY were achieved. Curative gastrectomy with D2 lymphadenectomy was performed. We performed distal gastrectomy with lymph node dissection, and gastrojejunostomy made for gastric bypass was preserved. The patient has not suffered from tumor relapse two years after surgery.

**Conclusion**

When performing gastrojejunostomy as gastric bypass for advanced gastric cancer, the site of anastomosis should be considered in order to facilitate curative gastrectomy followed by chemotherapy.

**Keywords:** gastric cancer, gastrojejunostomy, distal gastrectomy, chemoradiotherapy

**Background**
Intensive chemotherapy is indicated for Stage IV gastric cancer and the chemotherapeutic effect determines patient outcome. Several reports demonstrate the potential of S-1 as a key drug for advanced or recurrent gastric cancer in Japan [1]. Advanced gastric cancer occupying the lower third of the stomach often develops stricture of the gastric cavity and causes digestive symptoms such as appetite loss and vomiting. Additional gastrojejunostomy has often been indicated to improve such symptoms [2]. The advent of new anticancer agents for gastric cancer has drastically improved the response rate and distant lesions can be destroyed [3-6]; we surgeons have the chance to lead Stage IV gastric cancer to R0 gastrectomy following intensive chemotherapy as conversion therapy. In this situation, gastrojejunostomy that was previously made as a bypass has the possibility to be used as the route of reconstruction after curative gastrectomy. We present a rare case of Stage IV gastric cancer subjected to curative surgery followed by multidisciplinary treatment, in which gastrojejunostomy could be utilized as the route of reconstruction in gastrectomy.

Case presentation

An 80-year-old woman was admitted to Kagoshima University Hospital with a chief complaint of epigastralgia. Gastroscopy revealed type 3 gastric cancer in the
lesser curvature of the antrum. The pathological diagnosis of the biopsy specimen was poorly differentiated adenocarcinoma. Abdominal computed tomography (CT) revealed thickening of the wall in the antrum and suggested perigastric lymph node metastases. Blood test showed serious anemia (Hb 4.7), and the levels of carcinoembryonic antigen (CEA) and carbohydrate antigen (CA19-9) were normal. The patient received a staging laparoscopy under general anesthesia, and perioperative cytology of ascites was positive. She was diagnosed as having Stage IV gastric cancer and received gastrojejunostomy at the middle third of the stomach to improve the difficulty of food passage. Four courses of the combination of S-1 (100 mg/body, days 1-14) plus paclitaxel (120 mg/body, days 1 and 15) resulted in the disappearance of positive cytology and transient shrinkage of the tumor. The gastric cancer was found to have regrown after the four courses of chemotherapy, so then chemoradiotherapy (CRT: total 56 Gy, S-1 60 mg/body, CDDP 5 mg/body, days 1-5) was started. CRT induced drastic tumor and nodal shrinkage, as determined by CT and gastroscopy (Fig. 1). Furthermore, preoperative peritoneal cytology revealed negativity (CY0). Then, distal gastrectomy with D2 lymphadenectomy was performed with curative intent. The stomach was resected at the distal side of the gastric bypass, so the
gastrojejunostomy was reused for reconstruction between the remnant stomach and the jejunum (Fig. 2). Macroscopically, the gastric lesion became scarred in the resected specimen (Fig. 3). Histologically, lymph node metastases had disappeared, and a tiny cancer lesion was found in the stomach. The patient’s postoperative course was uneventful. Two years after the operation, she is well and no tumor relapse has been found.

Discussion

Our initial regimen for this patient was biweekly paclitaxel plus S-1. This regimen was originally established in our department [7,8], and Nakajo reported that the response rate was 43.6% and the MST was 268 days, which are not inferior to those of the standard regimen for gastric cancer. Moreover, elderly patients well tolerated this approach and were repeatedly treated with this regimen. In this case, cytology positivity disappeared due to this chemotherapy. Because of resistance to the first regimen, we chose CRT after confirming the controlled distant metastases. It seems to be common to select second-line chemotherapy after the failure of first-line chemotherapy. Hironaka et al. [9] suggested the clinical usefulness of second-line chemotherapy for Stage IV gastric cancer. However, the response rate was lower than 21%, which was significantly
lower than that for the first-line chemotherapy.

CRT has begun to be applied in the standard regimen for advanced gastric cancer. Ajani et al. [10] reported that the R0 resection rate was 77% and the pathological CR rate was 26% in combined treatment of radiation and chemotherapy, 5-FU plus cisplatin, in a neoadjuvant setting. Moreover, in Japan, Saikawa et al. [11] reported a remarkable response rate in a phase II study of CRT with S-1 and cisplatin for unresectable gastric cancer. Finally, we achieved a drastic histological effect for gastric cancer by CRT. It is suggested that CRT is one of the options for second-line therapy for advanced or recurrent gastric cancer. Therefore, multidisciplinary treatment involving CRT may be useful for locally advanced gastric cancer as the second-line treatment.

Gastric cancer patients with cancerous obstruction have been indicated for three surgical strategies, namely, palliative gastrectomy, alimentary bypass, and stent insertion. Patients with a good performance status are often indicated for gastrojejunostomy as an alimentary bypass [2]. In the present case, we performed gastrojejunostomy for a patient with unresectable Stage IV gastric cancer; her pyloric stenosis improved and she received treatment as an outpatient. A laparoscopic approach for gastrojejunostomy has prevailed; in a series, we performed gastrojejunostomy following staging laparoscopy [12].
In the second surgery, we simply resected the distal stomach with lymph node dissection. We could utilize gastrojejunostomy that was made by first surgery in which the alimentary tract was reconstructed by a Billroth II method.

There have been no reports on distal gastrectomy utilizing previous gastrojejunostomy as gastric bypass followed by chemotherapy and/or CRT. More and more Stage IV gastric cancer patients may have a chance to receive R0 gastrectomy after the therapy, so we should keep in mind the option of reconstructing the stomach and jejunum in alimentary bypass for Stage IV gastric cancer.

Conclusion

We experienced a rare case of a patient with Stage IV gastric cancer with cancerous pyloric stenosis who was treated by R0 surgery following gastrojejunal bypass and multidisciplinary treatment. We may have a chance to utilize gastrojejunostomy, so we should deeply consider the anastomotic position of gastrojejunostomy in order to facilitate curative distal gastrectomy.

Consent

Written informed consent was obtained from the patient for publication of this
Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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**Abbreviations**

- CT Computed tomography
- CEA Carcinoembryonic antigen
- CA19-9 Carbohydrate antigen19-9
- CRT Chemoradiotherapy
- CDDP Cisplatin
- 5-FU Fluorouracil
- MST Median survival time

**Footnotes**

**Competing Interests**

The authors declare that they have no competing interests.

**Authors’ Contributions**

MS participated in the conception, coordinated with other doctors about the
design of the study, collected data and a consent, and drafted the manuscript. SI participated in the surgery and in drafting the manuscript. TA and YU participated in the surgery. HO, YU, YK, YK, HK, YM, KM and SN conceived of the study, participated in its design and coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

References


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FIGURE LEGENDS

Fig. 1 Findings of gastroscopy
(a) Gastroscopy revealed type 3 gastric cancer with pyloric stenosis in the lesser curvature side of the antrum. (b) Regrowth of the gastric cancer was
found after four courses of chemotherapy. Gastrojejunostomy was indicated (➤). (c) CRT induced drastic tumor shrinkage.

Fig. 2  Figures of procedure

The stomach was resected at the distal side of the gastric bypass, so the gastrojejunostomy was reused for reconstruction between the remnant stomach and the jejunum.

Fig. 3  Resected specimen

Gastric lesion became scarred in the resected specimen (➤).
Additional files provided with this submission:

Additional file 1: CAREchecklist-English.docx, 1486K
http://www.biomedcentral.com/imedia/1061354734162048/supp1.docx