

Case Report

A Case of Noncuratively Resected Gastric Cancer and Postoperative Chemotherapy with S-1 Monotherapy Resulting in Long-Term Survival for Over 8 Years

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Keywords

Gastric cancer · Noncurative resection · Chemotherapy · S-1

Abstract

We report the case of a noncuratively resected gastric cancer patient who was successfully treated with S-1 monotherapy, resulting in long-term survival of 96 months. A 72-year-old woman underwent noncurative resection of subtotal gastrectomy for advanced gastric cancer with conglomerated lymph node metastasis and pancreatic invasion. She received chemotherapy with S-1 monotherapy postoperatively. S-1 (100 mg/day) was administered orally after breakfast and dinner for 28 days followed by a 14-day break for a total of 52 months. Regular checkups with esophagogastroduodenoscopy, abdominopelvic computed tomography, and fluorine-18-fluorodeoxyglucose positron emission tomography revealed no evidence of cancer 96 months after the operation. The patient was effectively treated with long-term administration of S-1 after noncurative gastrectomy for advanced gastric cancer.

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Introduction

Gastric cancer is the second leading cause of cancer mortality, with 1,000,000 deaths per year worldwide [1]. The incidence of gastric cancer is high in Northeast Asian countries, with up to 69 cases per 100,000 people per year [1]. Due to its high incidence, Korea and Japan have adopted nation-wide screening programs that have led to early detection, and radical operations have resulted in a better survival rate (52%) than that on the other side of the world (20–25%) [1]. Radical gastric resection with D2 lymphadenectomy and adjuvant chemotherapy remains the most powerful treatment modality for advanced gastric cancer [2]. However, the prognosis of gastric cancer patients with noncurable factors remains very poor [3]. S-1 (TS-1®, Taiho Pharmaceutical) is an orally active combination of tegafur (a pro-drug that is converted by cells to fluorouracil), gimeracil (an inhibitor of dihydropyrimidine dehydrogenase, which degrades fluorouracil), and oteracil (which inhibits the phosphorylation of fluorouracil in the gastrointestinal tract, thereby reducing the gastrointestinal toxic effects of fluorouracil) in a molar ratio of 1:0.4:1 [4]. S-1 has demonstrated a better response rate against gastric cancer, and this agent has become a first-line chemotherapy for advanced and recurrent gastric cancer in Japan [4, 5]. We report on a 72-year-old woman who underwent noncurative resection with subtotal gastrectomy for advanced gastric cancer with extensive lymph node metastasis cancer who was successfully treated with S-1 monotherapy, resulting in long-term survival of 96 months.

Case Presentation

A 72-year-old woman was admitted to our hospital due to advanced gastric cancer, which was diagnosed by esophagogastroduodenoscopy (EGD) performed at a local clinic. The EGD showed a diffuse ulceroinfiltrative ill-defined lesion from the gastric angle to the pyloric ring. A histopathological examination of the endoscopic biopsy specimen confirmed moderately differentiated tubular adenocarcinoma. A blood test showed evidence of anemia. Her hemoglobin level was 6.8 g/dL, and her hematocrit proportion was 23.4%. The serum level of the tumor marker carcinoembryonic antigen was 1.5 ng/dL. The carbohydrate antigen (CA19-9) level was 5.37 U/mL. Abdominopelvic computed tomography (CT) showed a 5-cm-sized ulceroinfiltrating mass along the lesser curvature side of the gastric antrum abutting the pancreas with perigastric infiltration with multiple lymphadenopathy (Fig. 1). Fluorine-18-fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography (PET/CT) showed advanced gastric cancer located at the prepyloric antrum and hypermetabolic lymphadenopathy at the metastatic lymph nodes in the prepyloric and pancreatoduodenal area (Fig. 2). On November 18, 2008, laparotomy was performed, and the operative findings were a large tumor extending to the pancreatic head and porta hepatic area with extensive lymph node metastasis. The patient underwent palliative subtotal gastrectomy with B-2 anastomosis. The conglomerated lymph nodes around the pancreas were left behind, but a duodenal cuff was resected in a nontumor invasion area. The pathological report was as follows: a macroscopic 3.5 × 2.5-cm-sized ulceroinfiltrative lesion was located at the anterior wall of the gastric low body 7.0 and 1.0 cm from the proximal and distal resection margins. Microscopically it was a tubular adenocarcinoma that was moderately differentiated with invasion into the serosa (pT3), and there was an absence of lymphovascular invasion and a presence of neural invasion with clear proximal and distal resection margins. Metastatic cancer was noted in 8 out of 27 resected lymph nodes. The postoperative course was uneventful, and the

patient was discharged from the hospital 15 days after the operation. Postoperative chemotherapy with S-1 monotherapy was performed. S-1 (100 mg/day) was administered orally after breakfast and dinner for 28 days followed by a 14-day break for a total of 52 months. Regular checkups with EGD and CT every 6 months after the operation were conducted. EGD (Fig. 3), abdominopelvic CT (Fig. 4), and PET/CT (Fig. 5) performed 96 months after the operation revealed no evidence of cancer. We have followed up this patient in the outpatient department. She now has a good performance status, and her last visit to the outpatient department was on September 5, 2016.

Discussion

Curative resection and adjuvant chemotherapy are the mainstay treatments for advanced gastric cancer. However, the prognosis of advanced gastric cancer patients with noncurative factors remains very poor [3]. Palliative resection alone cannot prolong the survival of patients with noncurable factors. The overall median survival of patients with noncurative gastrectomy is reportedly 8–10 months [6, 7]. Chemotherapy is the standard treatment for these patients. Fujitani et al. [3] reported that gastrectomy plus chemotherapy did not provide a survival advantage compared with chemotherapy alone in the treatment of a single noncurable factor. However, some reports have focused on the long-term survival of gastric cancer patients after noncurative resection [5, 8]. Saito et al. [9] reported that long-term survival can only be expected in patients with the Cy-factor who have neither macroscopic peritoneal metastasis nor lymph node metastasis or in patients with the M-factor who have a well-differentiated tumor. A Dutch gastric cancer trial reported that palliative resection may be beneficial for patients under 70 years of age if the tumor load is restricted to one metastatic site but without long-term survival, and the 5-year survival rate for resected patients with one incurable factor was 14% [7]. The operative findings of the patient in this case did not show peritoneal metastasis of cancer, and the differentiation of cancer was moderate. The incurable factors of our patient were cancer invasion into the head of the pancreas and conglomerated lymph nodes. A chemotherapy regimen with a high response rate could improve the prognosis of patients with noncurative gastric cancer resection. S-1 is an effective adjuvant treatment for East Asian patients who have undergone a D2 dissection for locally advanced gastric cancer [4]. The dosage schedule set up in the Japanese phase II study was as follows: body surface area (BSA) <1.25 m²: 80 mg/day; 1.25 m² < BSA <1.5 m²: 100 mg/day; BSA >1.5 m²: 120 mg/day [8]. The BSA of the patient in this case was 1.43 m² (height 155 cm, body weight 47 kg); therefore, 100 mg/day of S-1 was administered to the patient every day. Some clinical trials have demonstrated that S-1 alone showed high response rates of up to 50% [5]. Ishizone et al. [10] reported that in patients with advanced gastric cancer and peritoneal metastasis, S-1 monotherapy led to long-term survival with minimum toxicity. S-1 contributed to prolonging the survival of patients with the peritoneal metastasis of gastric cancer. They also reported that the mean survival time of patients with gastrectomy was significantly greater than that for those without gastrectomy [10]. In our case, radiological complete remissions were observed after noncurative gastric resection and the prolonged administration of S-1. Such long-term survival after noncurative resection is very rare. S-1 might have affected the conglomerated nodes after R1 resection. Generally, 5-fluorouracil, a widely used antineoplastic agent, leads to several types of toxicities, such as stomatitis, diarrhea, and hand-foot syndrome [11]. However, S-1 showed a low incidence of severe toxicities [10]. Our patient did not suffer from a severe adverse reaction during the

cycles of S-1 administration. The only adverse effect was skin pigmentation of the hands (grade 1).

In conclusion, even though the prognosis of patients with advanced gastric cancer with noncurative factors is very poor, some patients benefit from noncurative gastric resection and chemotherapy with S-1. Further studies might be needed to elucidate the factors concerning the long-term survival of patients with noncurative resection and S-1 chemotherapy.

Statement of Ethics

Written informed consent for the publication of this paper was obtained from the patient.

Disclosure Statement

I wish to confirm that there are no known conflicts of interest associated with this publication and that there has been no significant financial support for this work.

References

- 1 Parkin DM: Global cancer statistics in the year 2000. *Lancet Oncol* 2001;2:533–543.
- 2 Oh S, Suh B, Park J, Oh S, Yu H: Prognostic discrepancy of the 6th and 7th UICC N classification for lymph node staging in gastric cancer patients after curative resection. *Case Rep Oncol* 2017;10:57–65.
- 3 Fujitani K, Yang H, Mizusawa J, et al: Gastrectomy plus chemotherapy versus chemotherapy alone for advanced gastric cancer with a single non-curable factor (REGATTA): a phase 3, randomised controlled trial. *Lancet Oncol* 2016;17:309–318.
- 4 Sakuramoto S, Sasako M, Yamaguchi T, et al: Adjuvant chemotherapy for gastric cancer with S-1, an oral fluoropyrimidine. *N Engl J Med* 2007;357:1810–1820.
- 5 Sakaguchi Y, Kabashima A, Okita K, et al: Long-term outcome of S-1 and cisplatin combination therapy in patients with advanced or recurrent gastric cancer. *Gastric Cancer* 2005;8:111–116.
- 6 Miner TJ, Jaques DP, Karpch MS, Brennan MF: Defining palliative surgery in patients receiving noncurative resections for gastric cancer. *J Am Coll Surg* 2004;198:1013–1021.
- 7 Hartgrink H, Putter H, Klein Kranenbarg E, Bonenkamp J, Van de Velde C: Value of palliative resection in gastric cancer. *Br J Surg* 2002;89:1438–1443.
- 8 Iwahashi M, Nakamori M, Tani M, et al: Complete response of highly advanced gastric cancer with peritoneal dissemination after new combined chemotherapy of S-1 and low-dose cisplatin: report of a case. *Oncology* 2001;61:16–22.
- 9 Saito H, Yamada Y, Tsujitani S, Ikeguchi M: Clinicopathologic characteristics of gastric cancer patients who underwent noncurative gastrectomy with long-term survival. *Langenbecks Arch Surg* 2009;394:99–103.
- 10 Ishizone S, Maruta F, Saito H, et al: Efficacy of S-1 for patients with peritoneal metastasis of gastric cancer. *Chemotherapy* 2006;52:301–307.
- 11 Barutca S, Ceyhan C, Meydan N, et al: A new perspective on cardiotoxicity of 5-fluorouracil. A novel research tool “cardiac ultrasonic integrated backscatter analysis” indicates transient, subclinical myocardial dysfunction due to high-dose leucovorin and infusional 5-fluorouracil regimen. *Chemotherapy* 2004;50:113–118.

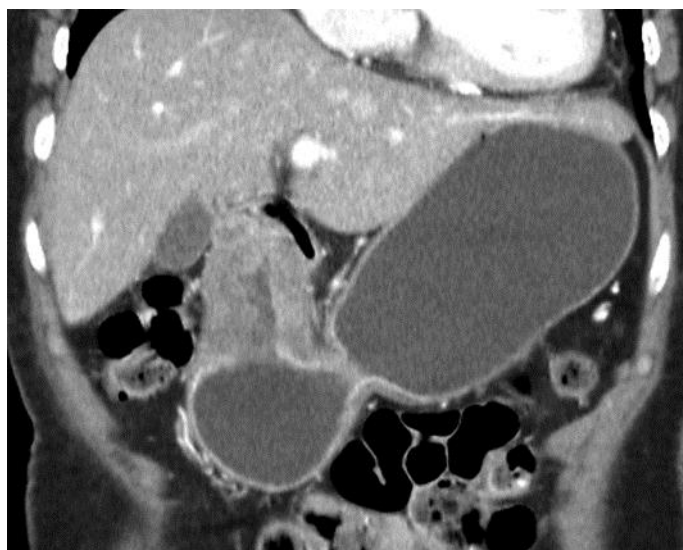


Fig. 1. Abdominopelvic CT shows an ulceroinfiltrating mass of 5 cm in size along the lesser curvature side of gastric antrum abutting the pancreas with perigastric infiltration with multiple lymphadenopathy in the perigastric area, the proper hepatic artery, and the common hepatic artery.

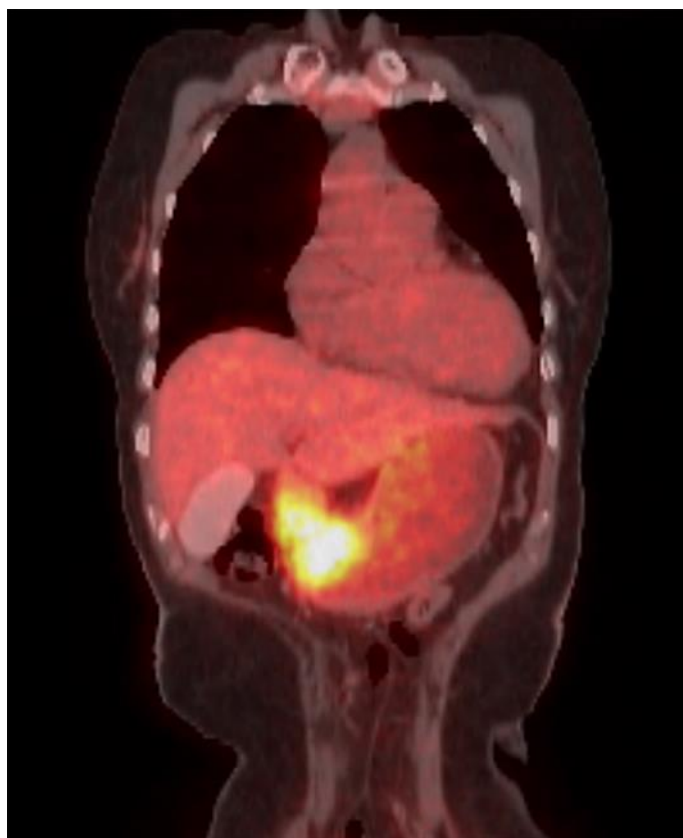


Fig. 2. The ^{18}F -FDG PET/CT scan shows advanced gastric cancer located at the prepyloric antrum and hypermetabolic lymphadenopathy at metastatic lymph nodes in the prepyloric and pancreatoduodenal area.

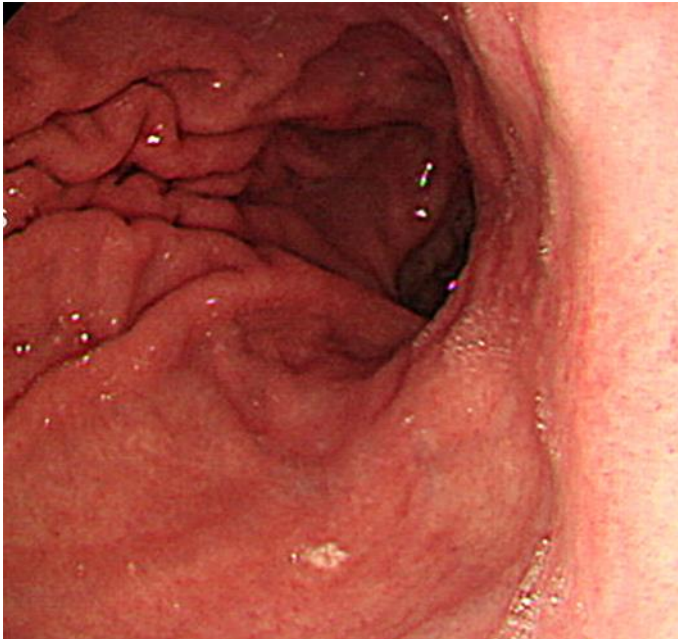


Fig. 3. Follow-up EGD 8 years after operation shows no evidence of cancer recurrence.



Fig. 4. Follow-up abdominopelvic CT 8 years after operation shows no evidence of cancer recurrence.

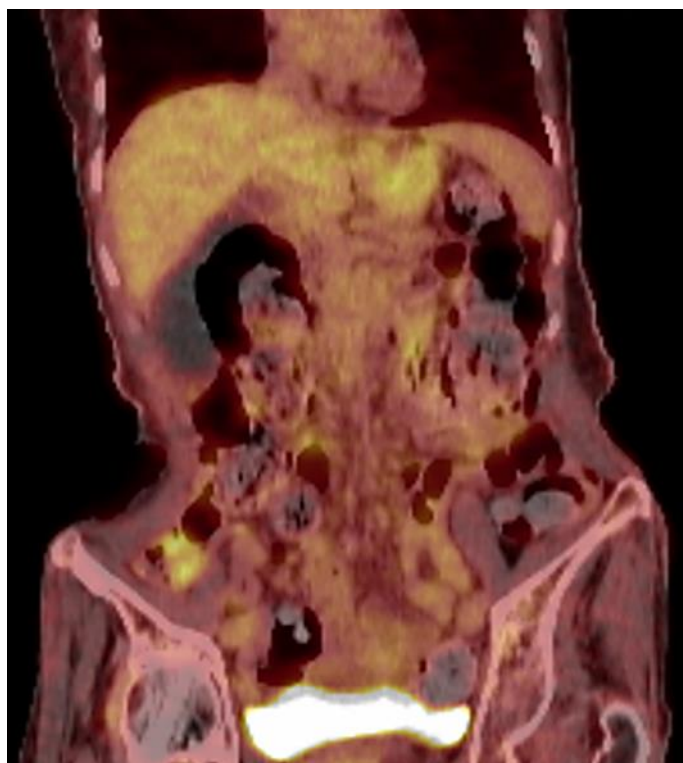


Fig. 5. Follow-up ^{18}F -FDG PET/CT 8 years after operation shows no evidence of cancer recurrence.