INTRODUCTION

Carcinosarcoma is a malignant tumor that is composed of malignant epithelial and mesenchymal elements. Carcinosarcoma is commonly found in the uterus, ovary, breast, esophagus, thyroid gland, lung, larynx, and urinary systems [1]. However, carcinosarcoma in stomach is extremely rare. The first report of carcinosarcoma in stomach was by Queckenstadt in 1904 [2]. Since then several cases have been reported, and most of them in the Japanese literature [3]. In this study, we report a case of a 59-year-old man with rapid growing gastric carcinosarcoma.

CASE REPORT

A 59-year-old man was admitted to the department of surgery, Konkuk University Medical Center, reporting a history of melena with dizziness and weight loss (3 kg for 2 months). He reported a recent history of epigastric discomfort. Physical examination revealed no specific findings. Laboratory examinations revealed severe anemia (hemoglobin, 7.3 g/dL) and other laboratory findings were in the normal range.

Endoscopy was done for bleeding control. Endoscopic findings showed a fungating mass that originated from the posterior wall of upper body. Radical total gastrectomy with Roux-en-Y esophagojejunostomy was performed. In the resected specimen, immunohistochemical studies for epithelial and mesenchymal markers showed positive reactions. The mass invaded the submucosa without regional lymph node metastasis. Adjuvant chemotherapy with TS-1 (Taiho Pharmaceutical Co. Ltd, Japan) was performed after surgery despite early clinical stage due to aggressive features of carcinosarcoma.

Keywords: Carcinosarcoma, Pathology, Prognosis, Stomach
The patient subsequently underwent radical total gastrectomy with D2 lymph node dissection and Roux-en-Y esophagojejunostomy. Macroscopically, a luminal protruding polypoid mass (Borrmann type I) was observed at the posterior wall of the fundus, measuring $5.5 \times 4.3 \times 3.5$ cm. The cut surface of the mass showed a grayish white solid appearance with hemorrhage invading into the submucosa (Fig. 3). Tumor necrosis was not grossly evident.

The mass invaded the submucosa (SM2: 8 mm from muscularis mucosae). There was no lymph node metastasis among the 88 examined lymph nodes. The stage was IA ($pT1bN0M0$). Venous and lymphatic involvement with adenocarcinoma components were not observed. Microscopically, this polypoid mass was composed of biphasic components including epithelial carcinomatous glands and mesenchymal sarcomatous spindle cells. On high power view, epithelial tubular adenocarcinoma was noticeably intermixed with fasciculating sarcomatous spindle cells (Fig. 4). Mitotic activity was frequently observed and flank tumor necrosis was not noted in the sarcomatous lesion. In the meticulous multiple sections of the tumor mass, there was no histological evidence of heterologous components such as leiomyosarcoma or rhabdomyosarcoma. Immunohistochemically, cytokeratin (epithelial marker) and vimentin (mesenchymal marker) reveal inverse expression in each epithelial and spindle cell components, which were cytokera-
sarcomeric actin show affinity for the sarcomatous elements [1,8]. Therapy for carcinosarcoma always should be radical, if possible. Partial or total gastrectomy with regional lymph node dissection should be performed [3]. The effect of chemotherapy or radiotherapy has not yet been reported. He et al. [9] reported the possible treatment of tumor reduction with methionine/valine-depleted enteral nutrition, although its efficacy in humans is ambiguous. In our patient, radical total gastrectomy with D2 lymph node dissection was performed and adjuvant chemotherapy with TS-1 was performed which was based upon a carcinoma treatment. Unfortunately there is no standard chemotherapy regimen for gastric carcinosarcoma because of the rare incidence of the disease and far advanced stage at diagnosis.

Prognosis of carcinosarcoma in the stomach is extremely poor. In most reviewed cases of gastric carcinosarcoma, patients were commonly diagnosed at an advanced clinical stage [1,10]. The mean survival period is estimated to be 10–15 months, and overall tumor recurrence rate in the first postoperative year is greater than 50% [3]. In this case, the mass invaded the submucosa and no metastatic lymph node was found in all 88 examined lymph nodes. Additionally, adjuvant chemotherapy was sustained for six months without definite evidence of recurrence.

In conclusion, we reported a case of early stage gastric carcinosarcoma with rapid growth. Even though carcinosarcoma in stomach is a rare tumor, gastric carcinosarcoma should be considered as a part of differential diagnosis on rapid growing gastric mass. It also requires more detailed descriptions and collections of individual cases. Furthermore, a more effective chemotherapy regimen should be identified to improve survival.

**DISCUSSION**

Gastric carcinosarcoma is a rare malignant, biphasic tumor. In the upper gastrointestinal tract, it is most frequently observed in the esophagus, rarely in the stomach [4]. Some gastric carcinosarcoma was reported and most of them showed rapid growth [5-7]. In this paper, we presented the case of gastric carcinosarcoma with rapid growth. This patient had previous urinary stone about one year prior, and abdominal CT scan was performed. At that time, there was no abnormal finding in abdominal CT and also in retrospective review. The gastric mass grew rapidly within 15 months.

Immunohistochemistry is helpful in making the diagnosis of carcinosarcoma. Carcinoembryonic antigen (CEA), Epithelial membrane antigen (EMA), pancreatin, chromogranin A, CD56 and synaptophysin staining are highly specific markers for carcinomatous components. Desmin, vimentin and α-smooth muscle/sarcomeric actin show affinity for the sarcomatous elements [1,8].

Therapy for carcinosarcoma always should be radical, if possible. Partial or total gastrectomy with regional lymph node dissection should be performed [3]. The effect of chemotherapy or radiotherapy has not yet been reported. He et al. [9] reported the possible treatment of tumor reduction with methionine/valine-depleted enteral nutrition, although its efficacy in humans is ambiguous. In our patient, radical total gastrectomy with D2 lymph node dissection was performed and adjuvant chemotherapy with TS-1 was performed which was based upon a carcinoma treatment. Unfortunately there is no standard chemotherapy regimen for gastric carcinosarcoma because of the rare incidence of the disease and far advanced stage at diagnosis.

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CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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