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CASE REPORT

Small cell carcinoma of the gastric remnant: a case report

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Abstract

Objective Small cell carcinoma (SCC) is mostly found in the lungs. It is extremely rare in the gastric remnant. Here, we report a case and review the literature in order to improve the diagnosis and treatment of SCC of the gastric remnant.

Methods We report a case of SCC of the gastric remnant in a 71-year-old male Chinese patient who presented with epigastric pain, acid regurgitation, and belching and who underwent Billroth II gastrectomy more than 38 years ago.

Results Physical examination showed no obvious abnormalities. Laboratory data were within normal limits, except for anemia. Pathology of the mass showed a protruded tumor measuring 5.0 × 5.0 × 2.5 cm at the anastomotic edge of the gastric remnant that infiltrated through the full wall of the stomach; this was confirmed by immunohistochemical staining for cytokeratin [CK (-)], leukocyte common antigen (LCA) (+), synaptophysin (+), CD56 (+), and Ki-67 (+ > 50%).

Conclusion SCC of the gastric remnant is extremely rare, although the pathology, symptoms, diagnosis, treatment, and prognosis of SCC are similar to those of gastric SCC. Although the standard treatment of SCC of the gastric remnant remains unclear, effective surgical resection and subsequent multiagent chemotherapy should be performed for long-term survival. Our case shows the efficacy of tegafur-gimeracil-oteracil-potassium capsule chemotherapy. Examination of a large series is required to determine the optimal treatment strategy for SCC of the gastric remnant.

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Gastric small cell carcinoma (GSCC), a malignant cancer characterized by invasion and metastasis [1], is extremely rare in the gastric remnant. SCC of the gastric remnant is similar to GSCC in terms of clinicopathologic features and biological characteristics. Histological and immunohistochemical (IHC) analyses are helpful for pathological diagnosis [2]. SCC of the gastric remnant is extremely difficult to diagnose and is associated with a poor prognosis, and the standard treatment remains unknown due to its rarity [3].

Here, we report a patient with SCC of the gastric remnant who remains alive more than three years after treatment that included a combination of surgery and chemotherapy in order to improve the diagnosis and treatment of SCC of the gastric remnant.

Case report

The patient, a 71-year-old man, was referred to our hospital with epigastric pain, acid regurgitation, and belching for three months, without nausea, emesis, fever, or chills. Billroth II gastrectomy was performed 38 years ago. Physical examination showed a body temperature of 36.5°C, pulse rate of 74 beats/min, and blood pressure of 100/70 mmHg. A scar of about 12 cm was observed in the middle of his abdomen; his abdomen was soft and nontender, and the liver and spleen were not palpable. Laboratory data were within normal limits, except for anemia that was indicated by a hemoglobin level of 108 g/L and a hematocrit level of 22.6%. The levels of tumor markers, including carcinoembryonic antigen (CEA), alpha fetoprotein, and carbohydrate antigen 19-9 were

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also within normal limits (2.77 ng/mL, 1.75 μg/L, and 23.77 U/mL, respectively).

Gastroscopy revealed a post-gastrectomy appearance and an ulcerative lesion measuring approximately 2.0×2.5 cm on the anastomotic edge of the gastric remnant (Fig. 1). The pathological diagnosis of the biopsy specimen indicated a poorly differentiated SCC. Laparoscopy-assisted total gastrectomy was performed successfully on November 21, 2014, and the patient recovered well. Pathological examination of the mass showed a protruded tumor measuring 5.0 × 5.0 × 2.5 cm at the anastomotic edge of the gastric remnant, which infiltrated the full wall of the stomach but had not invaded the incised edge and omentum majus. In addition, none of the perigastric lymph nodes showed metastasis. Microscopically, the mass showed diffuse proliferation of the small cells with scanty cytoplasm and hyperchromatic nuclei (Fig. 2). IHC analysis showed CK (-), leukocyte common antigen (LCA) (+), synaptophysin (Syn) (+), CD56 (+), and Ki-67 (+ > 50%) (Fig. 3). Histomorphology and immunohistochemistry of this patient were consistent with those for SCC. The patient underwent adjuvant chemotherapy that included four courses of three tegafur, gimeracil, oteracil, and potassium capsules twice daily for two weeks with a one-week break. Up to now, the patient has been free of recurrence, and long-term, regular follow-up is in progress.

Discussion

SCC is a malignant cancer frequently observed in the lungs, whereas extrapulmonary small cell cancer (EPSCC) is uncommon. EPSCC has been reported in the

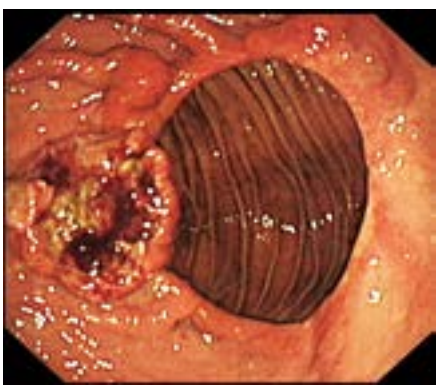

Fig. 1 Gastroscopy showed an ulcerative lesion measuring approximately 2.0 × 2.5 cm on the anastomotic edge of the gastric remnant.

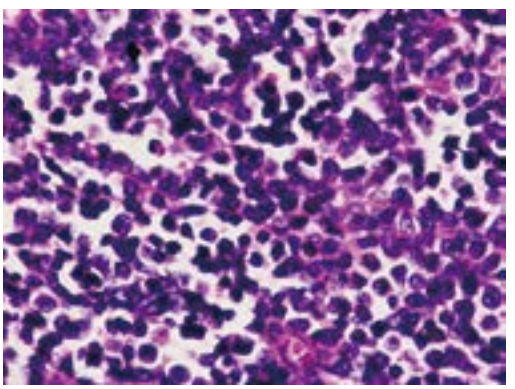

Fig. 2 Pathological examination of the gastric remnant mass showing diffuse proliferation of the small cells with scant cytoplasm and hyperchromatic nuclei.

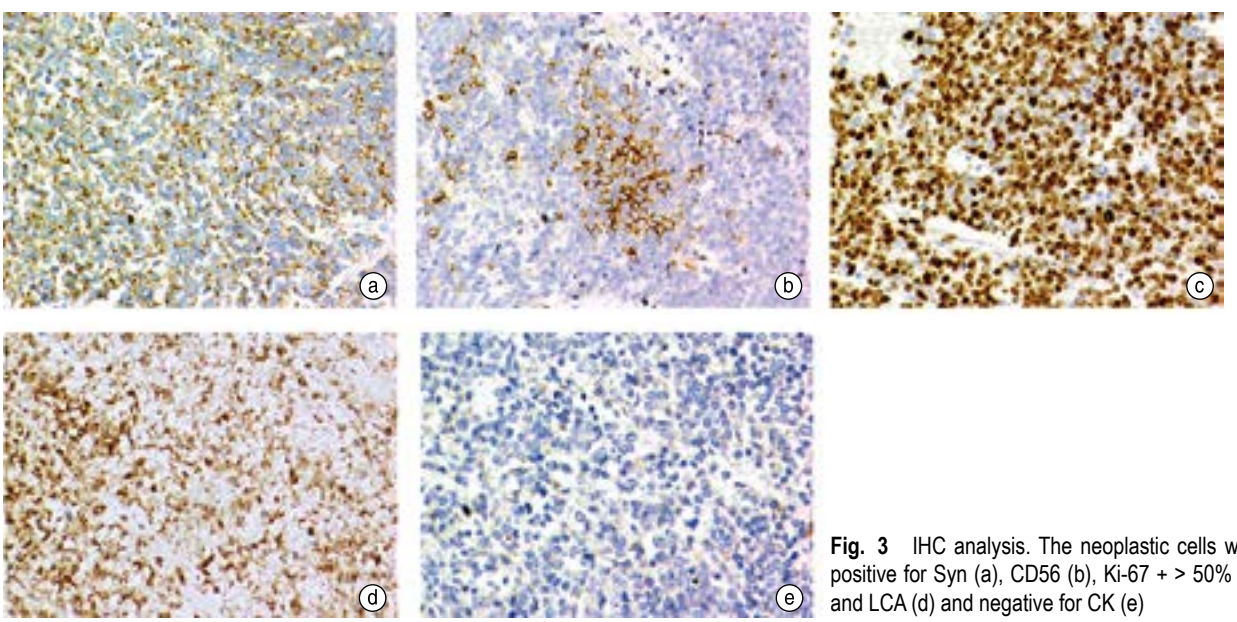

Fig. 3 IHC analysis. The neoplastic cells were positive for Syn (a), CD56 (b), Ki-67 + > 50% (c), and LCA (d) and negative for CK (e)

head, neck, and urinary tract and is rarely observed in the gastrointestinal tract [2]. Brenner [4] reported that SCC of the gastrointestinal tract mostly involved the esophagus (53%), followed by the colon (13%) and stomach (11%). Primary GSCC accounts for 0.1% of all gastric carcinoma cases [3] and was first described in 1976 by Matsusaka [5]. SCC of the gastric remnant is even less common.

GSCC may be either a pure or composite types. Pure-type GSCC is based on histologic specimens in which no other tumor types are identified, whereas composite-type GSCC consists of glandular and/or squamous differentiation along with SCC [2]. Moise [2] reported approximately equal numbers of cases of the two types. Matsui [6] reported that SCC originates from preexisting neuroectodermal cells, adenocarcinoma precursor cells, or pluripotent epithelial stem cells, which can result in dual or multiple differentiation such as a mixture of small neoplastic, squamous, and adenocarcinomatous cells. The microscopic features are frequently similar to those of other malignancies such as malignant lymphoma or undifferentiated carcinoma [7]. The histologic features of GSCC are similar to those of EPSCC, including features such as scanty cytoplasm and solid growth of small cells with hyperchromatic nuclei [3].

GSCC mostly occurs in men in their mid-sixties [7] who present with epigastric pain, nausea, anorexia, early satiety, and weight loss [2]. It is extremely difficult to diagnose GSCC before surgery [8]. Only 40% of patients with GSCC are diagnosed correctly [9]. Histological and IHC analyses are valuable for pathological diagnosis [2], including positive staining for neuron-specific enolase (NSE), chromogranin A (CGA), Grimelius, and Syn, which are reported to have high positivity rates in GSCC [8], with only 10%-20% of GSCC cases being negative for these tumor markers [2]. CEA staining is helpful to rule out adenocarcinoma [9]. CD56 markers can also be used to differentiate SCC from large cell carcinoma [10].

Our patient, who presented with epigastric pain, acid regurgitation and belching, was diagnosed based on histological and IHC staining. Pathology of the biopsy specimen showed SCC of the gastric remnant, with hyperchromatic nuclei and scant cytoplasm, whereas IHC analysis revealed neoplastic cells positive for Syn, LCA, CD56, and Ki-67 +>50%, similar to GSCC, as previously published. The diagnosis of SCC of the gastric remnant is similar to that of GSCC, although it is less reported. Therefore, to improve the accuracy of diagnosis, when SCC of the gastric remnant is morphologically suspected, additional IHC staining of CGA, Syn, NSE, Grimelius, and CD56 should be performed.

The standard treatment of GSCC remains unclear due to the rarity of this disease. Surgical treatment and intensive chemotherapy have been used alone or in combination with other treatments [11]. However, previous literature reported that GSCC was characterized by invasion and metastasis, which led to a poor prognosis [6]. Most patients with GSCC died within one year after diagnosis [9]. Matsui [5] reported a median GSCC survival time of less than 10 months. Most patients did not undergo chemotherapy in the postoperative period. However, Koide [1] reported a relapse-free survival period of more than 45 months following treatment with cisplatin (CDDP) and fluoropyrimidine S-1. Huang [11] reported a median survival of 48.5 months in patients who underwent curative surgery and adjuvant chemotherapy. Tanemura [8] reported PVP therapy, combining CDDP and etoposide (VP-16), to be effective against GSCC. Treatment of SCC of the gastric remnant is less reported. Our patient underwent total gastrectomy and adjuvant chemotherapy. Until now, he has been free of recurrence for 36 months. Long-term, regular follow-up is in progress.

In conclusion, SCC of the gastric remnant is an extremely rare malignant cancer characterized by invasion and metastasis [1]. Only few cases on SCC of the gastric remnant have been reported. Here, we report a patient with SCC of the gastric remnant to improve the diagnosis and treatment of SCC of the gastric remnant.

Acknowledgments

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Conflicts of interest

The authors indicated no potential conflicts of interest.

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