

Gastric metastasis of ovarian serous cystadenocarcinoma

Shiqiang Yang

Xintai Hospital Affiliated to Taishan Medical University, Tai'an City, People's Republic of China

Background: Gastric metastasis from ovarian serous cystadenocarcinoma is extremely rare.

Case presentation: We herein report one case of a 45-year-old female with ovarian carcinoma who underwent cytoreductive surgery. Two years later, endoscopic ultrasonography-guided fine needle aspiration revealed gastric metastasis. The patient underwent laparoscopic resection of gastric metastases. She is currently in complete remission.

Conclusion: Gastric metastasis from ovarian cancer should not be ignored in the clinic.

Keywords: gastric neoplasm, ovarian neoplasm, metastasis

Introduction

Ovarian cancer is one of the common gynecologic tumors, and the mortality is the first among all kinds of female tumors.¹ Metastasis of ovarian cancer to the stomach is extremely rare because ovarian cancer typically spreads along the peritoneum and throughout the pelvic and abdominal cavities.² Most gastric metastases are reported to arise from breast cancer, lung cancer, and melanoma.³ The incidence of gastric metastasis in breast cancer and lung cancer is 3.6% and 1.3%, respectively.⁴ We herein describe the first case of gastric metastasis from ovarian carcinoma in our hospital. Gastrointestinal stromal tumor was suspected based on the imaging and endoscopic findings. The diagnosis of gastric metastasis of ovarian cancer was confirmed by biopsy and pathological investigation.

Case presentation

In October 2015, a 45-year-old female was admitted to our hospital with a 1-year history of pelvic mass. Computed tomography (CT) examination showed bilateral ovarian tumors. Her serum cancer antigen 125 (CA125) level was 11.22 kU/L (reference range: 35.0 kU/L). Serum carcinoembryonic antigen (CEA) level was 1.31 µg/mL (reference range: 0–6.5 µg/mL). She underwent a total hysterectomy with bilateral salpingo-oophorectomy and pelvic and para-aortic lymph node dissection with total omentectomy subsequently. Postoperative pathological examination showed bilateral ovarian serous cystadenocarcinoma. Immunohistochemical examination yielded the following results: CK (+++) (Figure 1A), Ki-67 (+++) (Figure 1B), P53 (+++) (Figure 1C), S-100 (–), and villin (–) (Figure 1D). The International Federation of Gynecology and Obstetrics (FIGO) stage was IIA. After cytoreductive surgery, the patient followed eight cycles of adjuvant chemotherapy with paclitaxel 175 mg/m²

Correspondence: Shiqiang yang
Xintai Hospital Affiliated to Taishan Medical University, No 1329, Xinfu Road, Xintai, Tai'an City, People's Republic of China
Tel +86 158 5383 0875
Email sdzbysq@163.com

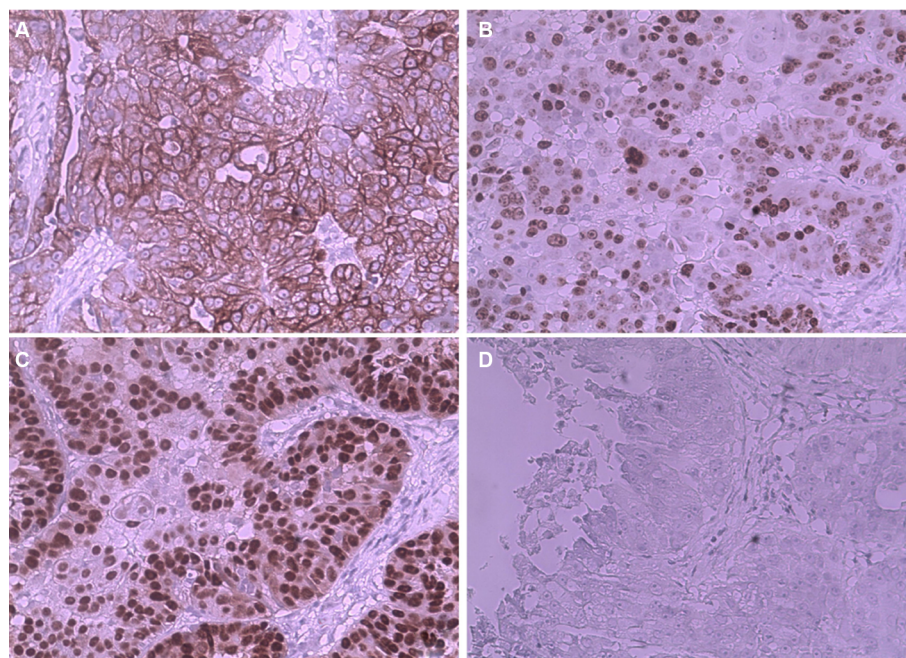


Figure 1 Immunohistochemistry revealed (A) CK(++); (B) Ki-67(++); (C) P53(++); (D) Villin(-).
Note: Magnification $\times 200$.



Figure 2 Abdominal CT examination showed the occupying lesion of the lesser curvature of gastric antrum (size 3.6 \times 2.8 cm).

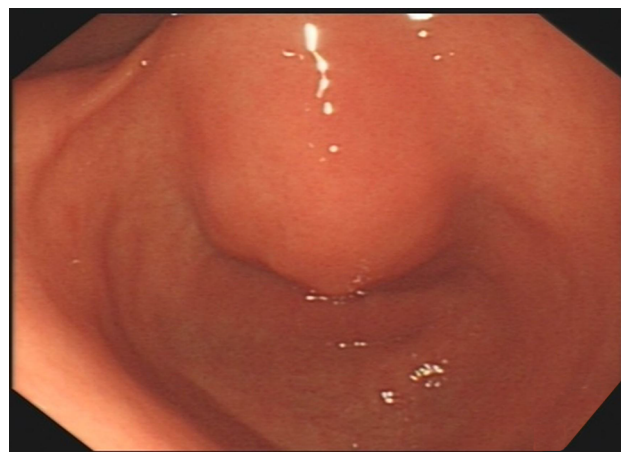


Figure 3 Gastroscopy showed chronic superficial gastritis and submucosal eminent lesions in the lesser curvature of gastric antrum (size 3.5 \times 2.5 cm).

over 3 hours plus carboplatin area under the curve (AUC) =5, every 21 days as one cycle. After the chemotherapy, the patient was followed up by means of reexamination every 3 months. Therapeutic evaluation was stable.

In November 2017, the patient was presented to our hospital again with abdominal pain. Subsequent abdominal enhanced CT examination showed the lesion occupying the lesser curvature of the gastric antrum, which was of size 3.6 \times 2.8 cm (Figure 2). Gastroscopy showed chronic superficial gastritis and submucosal eminent lesions in the lesser curvature of the gastric antrum (size 3.5 \times 2.5 cm; Figure 3). Combined with the results of CT and gastroscopy,

we diagnosed the patient with gastrointestinal stromal tumor (GIST). Then, we performed a fine needle aspiration (FNA) biopsy under endoscopic ultrasonography. The gastric metastasis was located in the intrinsic myometrium. H-E staining revealed the gastric metastasis of ovarian serous cystadenocarcinoma (Figure 4A and B). The serum CA125 level was 10.40 kU/L. The patient underwent pelvic enhanced CT examination and brain magnetic resonance imaging (MRI) examination, and no other metastases were found. Subsequently, laparoscopic resection of the gastric metastasis was accepted. Because the interval between the last chemotherapy was \sim 18 months, ie, the platinum-free interval (PFI) was

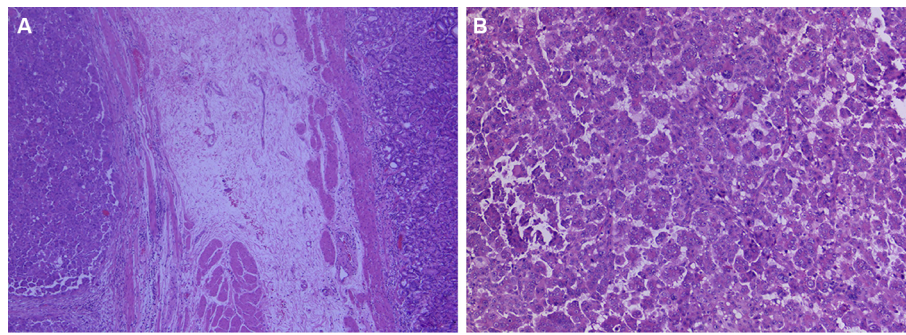


Figure 4 Gastric metastasis of ovarian serous cystadenocarcinoma $\times 50$ (A); $\times 100$ (B).

>12 months,⁵ the patient underwent another eight cycles of adjuvant chemotherapy with carboplatin plus gemcitabine. The patient was reexamined after every two cycles of chemotherapy. The serum CA125 levels showed no elevation. She is currently in complete remission. Written informed consent has been provided by the patient to have the case details and any accompanying images published.

Discussion

Ovarian carcinomas are mainly composed of three pathological types: epithelial cancer, malignant germ cell tumor, and sex cord stromal tumor. Among the three types, the incidence of epithelial cancer is the highest. In epithelial cancer, serous cystadenocarcinoma is the most common, accounting for ~75%–80% of all cases. The early clinical symptoms of ovarian serous cystadenocarcinoma are not obvious. The most common symptom is abdominal mass. Implantation metastasis is the main path of ovarian cancer. Epithelial ovarian cancer usually spreads along the peritoneum to the entire pelvic cavity, or even the abdominal cavity, and often metastasizes to the intestinal serosa, mesentery, and greater omentum, followed by local spread and lymph node metastasis. Ovarian cancer with hematogenous metastasis is very rare and usually metastasizes to solid organs, such as the liver, brain, lung, and bone. The central nervous system, skin, and pericardium are rarely metastasized.⁶ Even if gastrointestinal metastasis occurs, it is usually transferred from the outer serous layer to the inner.

Gastric metastasis from ovarian serous cystadenocarcinoma is extremely rare in the clinic.⁷ Ovarian cancer comprises only 0.013%–1.6% of all gastric metastatic tumors.⁸ The most frequent locations of occult metastatic disease from ovarian cancer are the omentum, the uterus, the fallopian tubes, the lymph nodes, the abdominal peritoneum, and the pelvic peritoneum.⁹ Although the mechanism of gastric metastasis remains unclear, it can be explained by

the stomach receiving a rich supply of blood; so, it should be considered a possible target organ of metastasis. Clinical manifestations of gastric metastasis are nonspecific and include epigastric pain, melena, anemia, nausea, and vomiting. The patient was presented for abdominal pain in this case. A GIST was suspected in the present case based on the abdominal CT and gastroscopy. Kang et al¹⁰ reported one case of ovarian carcinoma with gastric metastasis that mimicked GIST. Similarly, in this present case, we misdiagnosed that the gastric lesion was GIST. After endoscopic ultrasonography-guided fine needle aspiration and pathological examination, it was diagnosed as ovarian cancer with gastric metastasis.

In this case, the patient was diagnosed with gastric metastasis 2 years after cytoreductive surgery of ovarian cancer and chemotherapy. We performed laparoscopic resection of the gastric metastases. Combined with the PFI, we carried out subsequent systemic chemotherapy. The best long-term survival strategy for metastatic ovarian cancer is complete cytoreductive surgery. Chi et al¹¹ have found that cytoreductive surgery for recurrent ovarian cancer was an independent prognostic factor. Additional systemic chemotherapy was administered when gastric metastasis was confirmed. Endoscopic ultrasonography with fine needle aspiration or biopsy is useful for the correct diagnosis of gastric submucosal lesions. The prognosis for patients with gastric metastasis is poor, and the median survival period is 170 days (range: 16–892 days) for all cases.¹² Currently, the patient has achieved complete remission after surgery and chemotherapy. Now, the patient is reexamined every 3 months. We will continue to focus on the follow-up treatment of the patient.

Conclusion

Gastric metastasis of ovarian serous cystadenocarcinoma is a rare event. Clinicians should nevertheless be aware that, in

patients with a submucosal tumor and a history of ovarian cancer, gastric lesions may be secondary metastases from the ovarian cancer. For gastric metastatic lesions, laparoscopic resection is recommended when possible.

Disclosure

The author reports no conflicts of interest in this work.

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