Gastric perforation secondary to metastasis from ovarian cancer: Case report

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A B S T R A C T
INTRODUCTION: Metastasis from ovarian cancer occurs frequently through the peritoneal cavity in the form of peritoneal carcinomatosis; isolated gastric metastasis is rarely reported in literature.
PRESENTATION OF CASE: We present a case of 43-year-old infertile lady, who developed a picture of acute abdomen four days post total abdominal hysterectomy and salpingooopherectomy for ovarian cancer. Further contrast-enhanced CT scan demonstrated massive free gas and fluid in the abdomen. She underwent antrectomy with truncal vagotomy due to 3 cm × 4 cm prepyloric gastric ulcer. Final pathology proved the presence of metastatic serous cystadenocarcinoma of ovarian origin.
DISCUSSION: Our patient had a gastric perforation secondary to ovarian metastasis. Being isolated, the absence of ascites and the transmural nature of the gastric metastasis suggest haematogenous spread. To the best of our knowledge perforated gastric metastasis secondary to ovarian cancer was not reported in literature before.
CONCLUSION: Gastric metastasis should be kept in mind in patients with a well-known ovarian cancer who present with gastric lesions, ulcers, bleeding or perforation.

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1. Introduction
In general, blood-borne metastasis to the stomach is a rare event. Lung cancer, melanoma, and breast cancer account for the majority of tumors that may give gastric metastasis.1–3 Metastasis from ovarian cancer occurs frequently through the peritoneal surfaces in form of peritoneal carcinomatosis,4 it may lead to seromuscular infiltration of the bowel and shortening of the mesentery with subsequent intestinal obstruction.5 Isolated gastric metastasis in the absence of peritoneal seeding suggests hematogenous spread of metastasis. There are few reports described this route of metastasis and most of them were diagnosed in asymptomatic patients during follow up by elevated CA 125 or by images, which showed presence of gastric tumors suggestive of GIST.4,6 Others had gastric hemorrhage,7 and only one case of late gastro-splenic perforation was reported 17 years after the diagnosis of primary ovarian cancer.8 Here we report the first case of early postoperative life threatening gastric perforation secondary to metastasis from ovarian cancer that mimicked complicated peptic ulcer disease.

2. Case report
A 43-year-old infertile lady presented to gynecology clinic complaining of lower abdominal pain of one month duration. Upon investigations, her CA 125 was high 960.5 U/ml (normal < 35 U/ml), other tumor markers were within normal limits. CT scan of the abdomen and pelvis showed bilateral ovarian cystic lesions with huge uterine mass (Fig. 1). She underwent right salpingooopherectomy with uterine myomectomy and left ovarian cystectomy. Both ovarian masses were sent for frozen section evaluation and were reported to be benign. Postoperative period went smooth and the patient was discharged home. The final paraffin histopathology report showed bilateral poorly differentiated ovarian papillary serous cystadenocarcinoma with right and left pelvic lymph nodes metastasis, the peritoneal fluid cytology was negative for malignant cells and there were no peritoneal nodules, due to lymph nodes involvement she was staged IIIC. The patient was readmitted for further oncological surgery. Completion total abdominal hysterectomy with left salpingooopherectomy and omentectomy was performed. On the fourth post operative day she developed progressive abdominal pain and distension with peritoneal signs, tachycardia, and fever suggestive of peritonitis. Her white cell count was 2.150 cells/cmm (4.300–10.800 cells/cmm). Subsequent contrast enhanced CT scan revealed massive free fluid and gas in the abdomen indicating possibility of perforated viscus, with no evidence of gastric or bowel masses were

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identified (Fig. 2). Exploratory laparotomy was performed. Intraoperatively 3 cm × 4 cm prepyloric gastric perforation with induration of surrounding gastric wall and enlarged lymph nodes along the hepatoduodenal ligament was found. Since the patient had history of peptic ulcer disease three years earlier thus subtotal gastrectomy with Roux-en-Y gastrojejunostomy and truncal vagotomy were done as we thought that this could be perforated postoperative stress ulcer. At the same time presence of this giant perforation with enlarged lymph nodes raised the possibility of malignant ulcer, for this reason excisional biopsy of two lymph nodes from the hepatoduodenal ligament was done. The resected specimen consisted of distal part of stomach measuring 11 cm × 5 cm × 3 cm containing an ulcer measuring 6 cm × 3 cm. Microscopic examination of the ulcer site revealed a moderately differentiated papillary adenocarcinoma present mainly in submucosa and muscularis propria infiltrating throughout the muscular wall and serosa (Fig. 3) with extensive vascular permeation (Fig. 4). The overlying mucosa showed mixed inflammatory cell infiltrate and multifocal intestinal metaplasia. Immunohistochemical stains revealed positivity to CA125 marker (Fig. 5) and WT1 (Fig. 6) while the tumor was negative for CK20.
The appearances were consistent with metastatic papillary adenocarcinoma of ovarian origin. On day seven postoperatively she developed enterocutaneous fistula with minimal discharge (50–150 cc/day) from jejuno-jejunostomy, which was confirmed by contrast study. The fistula was treated conservatively and she was discharged with complete healing of the fistula after three weeks and she was referred to receive adjuvant chemotherapy.

3. Discussion

Dissemination of ovarian cancer occurs commonly to the peritoneum, in form of carcinoma peritonei, which may contribute to ascites and recurrent intestinal obstruction due to infiltration of the bowel wall by malignant cells, also, it may metastasize to the lymph nodes, or to the surrounding structures by direct extension.\(^9\) Hematogenous spread of ovarian tumors occurs infrequently to organ parenchyma like the liver and lungs.\(^6\) The absence of peritoneal seeding and ascites and involvement of the whole wall rather than the serosal surface suggest blood born metastasis as a mode of spread to internal viscera. The stomach is considered a target because it has a rich blood supply.\(^10\) There are some well known extra-intestinal tumors that may metastasize to the stomach like melanoma, lung cancer, and breast cancer. Ovarian metastases secondary to a gastric tumor (Krukenberg tumor) is well described in literature, but a few reports were published describing the hematogenous metastasis from an ovarian cancer to the stomach, all were asymptomatic and discovered during routine follow up. In our case, we did not anticipate the possibility of metastasis from ovarian cancer as an underlying cause of such perforation. That was partly due to the infiltrative nature of the tumor rather than forming a mass or an ulcer, and partly because we had a low index of suspicion and thus we did a rough examination of the stomach rather than a detailed one.

In patients with a well-known ovarian cancer, gastric metastasis should be kept in mind in those who present with gastric lesions or ulcers.

Conflict of interest statement

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Dr Firas Obeidat study design, data collections Dr Ayman Mismar data analysis, writing Dr Mohammad Yousef study design, review Dr Maha Shomaf data collections, data analysis, writing Dr Kamil Fram study design, data collections

References