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CASE REPORT

Gastric metastasis from ovarian adenocarcinoma presenting as a subepithelial tumor and diagnosed by endoscopic ultrasound-guided tissue acquisition

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Abstract

We describe an uncommon case of a patient with a metastatic adenocarcinoma of ovarian origin presented as a gastric subepithelial tumor (SET) and that was diagnosed by endoscopic ultrasound fine-needle biopsy (EUS-FNB). Malignant gastric lesions are rarely metastatic and the primary tumor is mainly breast, lung, esophageal cancer or cutaneous melanoma. Gastric metastasis from ovarian cancer is unusual, presenting synchronously with the primary tumor but also several years later than the initial diagnosis. From an endoscopic point of view, gastric metastasis does not present specific features. They may mimic both a primary gastric tumor or, less frequently, an SET.

This case demonstrates the importance of EUS-FNB in distinguishing SETs and how this may alter treatment and prognosis.

Key words: Metastasis; Subepithelial lesion; Gastric cancer; Ovarian; Endoscopic ultrasonography

Core tip: Gastric metastasis from ovarian cancer is unusual, either as synchronous with the primary tumor or appearing several years after its initial diagnosis. The diagnosis is challenging because of the low incidence, especially when gastric metastases present as a subepithelial tumor. This case emphasizes the crucial role of endoscopic ultrasound fine-needle biopsy in the differential diagnosis of this rare condition.

Antonini F, Laterza L, Fuccio L, Marcellini M, Angelelli L, Calcina S, Rubini C, Macarri G. Gastric metastasis from ovarian adenocarcinoma presenting as a subepithelial tumor and diagnosed by endoscopic ultrasound-guided tissue acquisition. *World J Gastrointest Oncol* 2017; 9(11): 452-456 Available from: URL: http://www.wjgnet.com/1948-5204/full/v9/i11/452.htm DOI: http://dx.doi.org/10.4251/wjgo.v9.i11.452

INTRODUCTION

Gastrointestinal (GI) subepithelial tumors (SETs) are lesions located under a normal-appearing mucosa that include several neoplastic and non-neoplastic conditions. Most of the GI-SETs are asymptomatic, therefore their real incidence is unknown. Stomach is the GI tract where the highest incidence is documented[1]. The diagnosis of SETs can be challenging because conventional endoscopic biopsies are frequently inconclusive. Endoscopic ultrasound (EUS) is currently recommended as the preferred investigation modality to establish the exact nature of SETs because of its accuracy in differentiating them from extrinsic compression and providing information about morphology and layer of origin[2]. Lesions arising from the muscularis propria usually represent mesenchymal tumors, such as gastrointestinal stromal tumors (GIST), leiomyomas and schwannomas[1,2]. Metastasis to the GI tract generally involves the fourth and fifth layers and can be misleading as a GIST[1,2].

Herein, we describe an uncommon case of a patient with a metastatic adenocarcinoma of ovarian origin presented as a gastric SET mimicking a GIST and diagnosed by EUS-guided tissue acquisition.

CASE REPORT

The patient was a 61-year-old woman diagnosed in November 2013 with stage Ⅳ high-grade serous carcinoma of the ovary treated with cycles of carboplatin and taxol chemotherapy with partial clinical response. After 1-year of therapy, due to the persistence of abdominal and pelvic disease, cytoreductive surgery had been performed. In June 2015, her CA125 levels had increased to 138 U/mL (normal value < 35 U/mL) and a computed tomography (CT) of the abdomen showed progression of the disease.

She was referred at that time to our endoscopic center for evaluation of dyspepsia. Upper GI endoscopy revealed an SET covered by normal mucosa on the posterior wall of the gastric antrum (Figure 1). Biopsies of the overlying mucosa proved inconclusive. EUS showed a 23-mm mass within the muscularis propria, hypoechoic but more hyperechoic than the muscular tissue (Figure 2). EUS-guided fine needle biopsy (FNB)

Figure 1 Upper gastrointestinal endoscopy revealing a subepithelial tumor with intact overlying mucosa (black arrow) on the posterior wall of the gastric antrum.

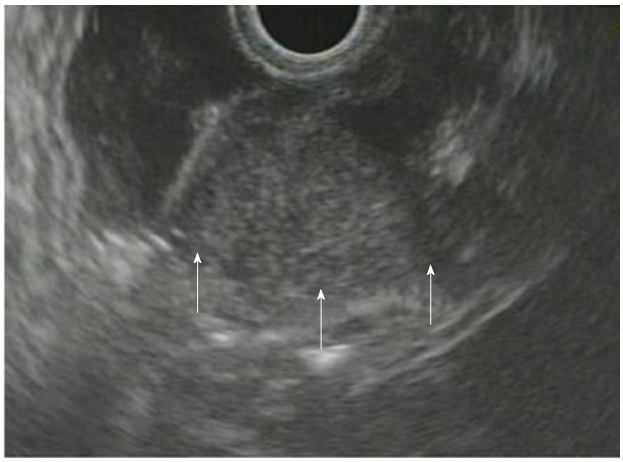

Figure 2 Endoscopic ultrasonography showing a homogenous, hypoechoic mass within the muscularis propria (white arrows). Its echogenicity appears to be more hyperechoic than that of the muscle layer.

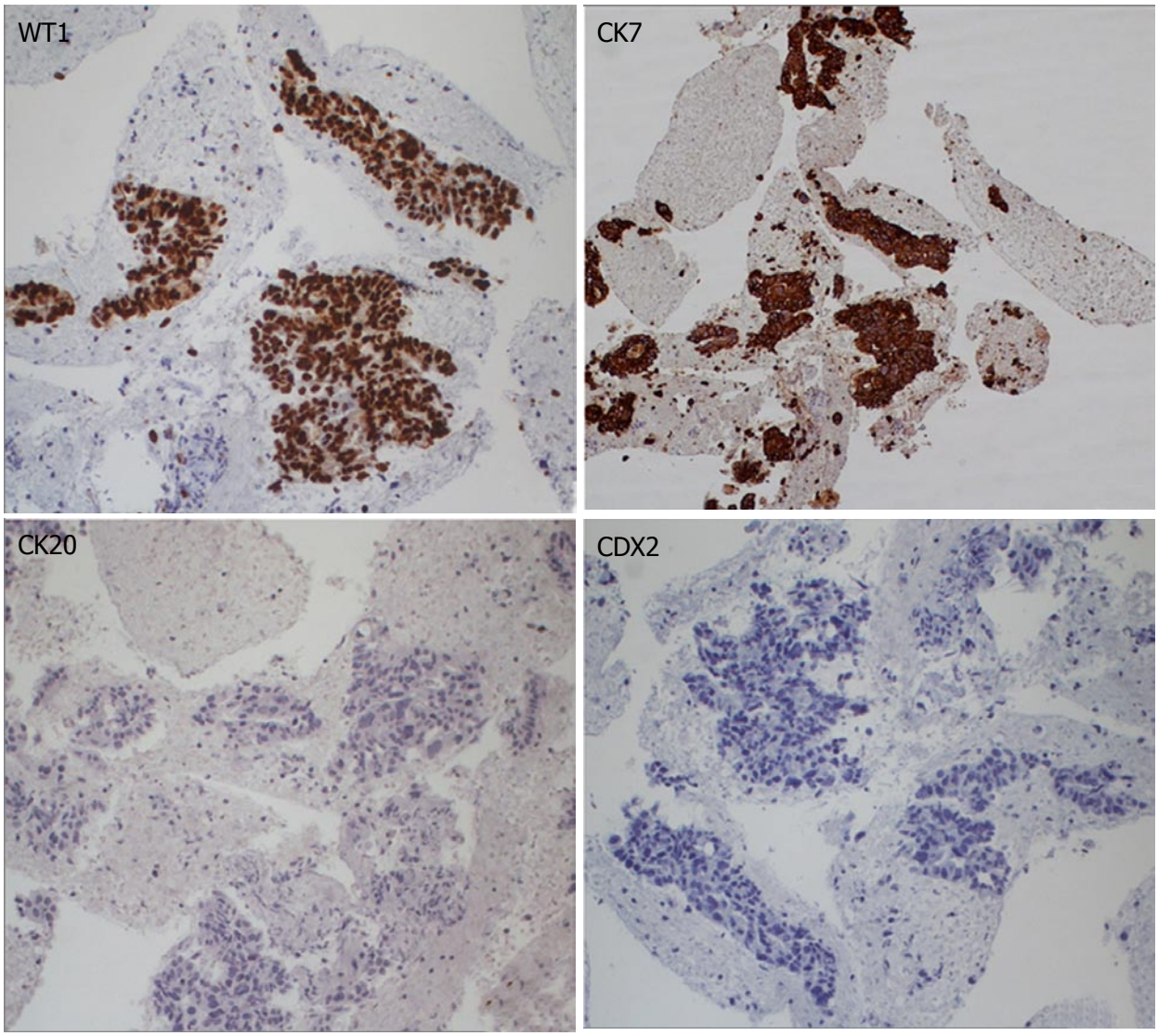

Figure 3 Histopathological images showing adenocarcinoma with immunohistochemistry positive for WT1 (× 20) and CK7 (× 16), and negative for CK20 (× 20) and CDX2 (× 20).

was performed for tissue diagnosis. Histology showed adenocarcinoma with immunohistochemistry positive for WT1 and CK7, and negative for CK20 and CDX2 (Figure 3). These findings supported the final diagnosis of a metastatic adenocarcinoma of ovarian origin. The patient started paclitaxel chemotherapy and was alive at the 18-mo follow-up visit.

DISCUSSION

Gastric metastasis is rare and has been reported mainly from breast, lung, esophageal cancer or cutaneous melanoma[3]. Ovarian carcinoma regularly metastasizes to the peritoneal surface[4]. The acquisition of invasiveness in ovarian carcinoma is accompanied by the process of epithelial to mesenchymal transition. Cancer-associated fibroblasts originating from stromal fibroblastic cells are a component of the tumor microenvironment and promote tumor angiogenesis and lymphangiogenesis[5]. Also, the MUC4 mucin has a role in the invasiveness of ovarian cancer cells because it is overexpressed in ovarian tumors. The overexpression of MUC4 in ovarian cancer is a morphological alteration, along with a decreased expression of epithelial markers (E-cadherin and cytokeratin-18) and an increased expression of mesenchymal markers (N-cadherin and vimentin)[6].

GI involvement from ovarian cancer is limited to the seromuscular layer of the small and large bowels but it also metastasizes through the lymphatic and hematogenous route, with a frequency ranging from 0.7% to 1.8%[7]. The stomach is highly vascularized, therefore the dissemination of ovarian carcinoma is possible but rare. Gastric metastasis from ovarian cancer is unusual, either as synchronous with the primary tumor or appearing several years after its initial diagnosis[8]. The diagnosis is challenging because of its low incidence. Clinical manifestations include epigastric pain, nausea, vomiting, anemia, melena or occult GI blood loss. Obstructive symptoms may

Table 1 Cases of gastric metastases from ovarian adenocarcinoma presenting as subepithelial tumor and diagnosed by endoscopic ultrasound-guided tissue acquisition

Ref.	Age	Clinical presentation	Diagnosis of ovarian cancer	Endoscopic aspect of gastric SET	EUS morphology
Shanga *et al*[13], 2003	62	Epigastric discomfort	7 yr before	Body, 4 cm	Irregular border, hypoechoic lesion, fourth layer
Jung *et al*[10], 2009	49	Asymptomatic	52 mo from surgery	Antrum, 2.5 cm × 2.5 cm	Hypoechoic lesion, fourth layer
Carrara *et al*[14], 2011	70	Mild anemia, dyspepsia	NR	Body, 3.8 cm × 4.8 cm, ulcerated	Third layer
Akce *et al*[15], 2012	55	Anemia, melena	5 yr before	Antrum, 3.4 cm × 3.7 cm and body, 1.2 cm × 0.8 cm	Hypoechoic lesions, fourth layer
Yamao *et al*[16], 2015	51	NR	25 mo from surgery	Antrum, 3 cm	Hypoechoic lesion with marginal rim, fourth layer
Current case	61	Dyspepsia	2 yr before	Antrum, 2.3 cm	Hypoechoic lesion (more hyperechoic than the muscular tissue), fourth layer

EUS: Endoscopic ultrasound; NR: Not reported;. SET: Subepithelial tumor.

be present in case of involvement of the cardia or pylorus[9]. In asymptomatic patients, CA-125 levels beyond normal range may be the only warning sign[7,9]. The prognosis of gastric metastases of ovarian carcinoma is still unknown, a 1-year survival rate can be optimistically expected[10,11]. From an endoscopic point of view, gastric metastases do not present specific features. They may mimic both a primary gastric tumor or, less frequently, an SET[8,12] and can be solitary or more rarely multiple[13].

Several cases of metastatic ovarian cancer presenting as gastric SET have been reported in the literature[10,13-17] but only few have been diagnosed by EUS-guided tissue acquisition, as in our case (Table 1). In other cases, surgical excision or endoscopic submucosal dissection with enucleation has been performed[8,11].

In the present case, the lesion was mimicking a GIST, even if a metastasis from ovarian cancer had been considered. For these reasons, a tissue diagnosis was considered necessary. After a diagnosis of metastatic ovarian cancer to the stomach had been achieved, surgical intervention or more aggressive options would become unnecessary considering the progression of the disease.

In conclusion, although rare, gastric metastasis from primary ovarian cancer should be considered in any patient with a history of ovarian adenocarcinoma who presents with gastric tumor. This case emphasizes the crucial role of EUS-FNB in the differential diagnosis.

COMMENTS

Case characteristics

A 61-year-old woman diagnosed 3 years previously with stage Ⅳ high-grade serous carcinoma of the ovary and treated with debulking surgery and chemotherapy presented for evaluation of dyspepsia.

Clinical diagnosis

General physical examination was unremarkable.

Differential diagnosis

Gastrointestinal stromal tumor, gastric tumor, metastasis.

Laboratory diagnosis

CA125 levels had increased to 138 U/mL (normal value < 35 U/mL).

Imaging diagnosis

Endoscopic ultrasonography (EU) showed a 23-mm mass within the muscularis propria, hypoechoic but more hyperechoic than the muscular tissue.

Pathological diagnosis

Histology obtained *via* EUS-guided fine needle biopsy showed adenocarcinoma with immunohistochemistry positive for WT1 and CK7, and negative for CK20 and CDX2, supporting the final diagnosis of a metastatic adenocarcinoma of ovarian origin.

Treatment

Palliative chemotherapy.

Related reports

Several cases of metastatic ovarian cancer presenting as gastric subepithelial tumor have been reported in the literature, but only few of them have been diagnosed by EUS-guided tissue acquisition, as in our case. In other cases, surgical excision or endoscopic submucosal dissection with enucleation has been performed.

Experiences and lessons

Although rare, metastatic ovarian cancer to the stomach should be considered in any patient with a history of ovarian adenocarcinoma who presents with gastric tumor.

Peer-review

This is an interesting case report.

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