



## Gastric mucosa as a rare recurrence location of endometrial endometrioid adenocarcinoma

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### ABSTRACT

Endometrial cancer is the most common gynecologic malignancy in the United States, with a prevalence of 25.7 per 100,000 women per year (Mahdy et al., 2023). Recurrences of endometrial carcinoma have a mean interval of occurring 2–3 years after primary treatment, with 64 % of cases occurring within 2 years and 87 % by the third year (Kurra et al., 2013). The most common sites of recurrence include the pelvis, pelvic and *para*-aortic lymph nodes, peritoneum, and the lungs (Kurra et al., 2013). Here, we describe a 72-year-old female with recurrent Stage IIIA endometrial adenocarcinoma in the gastric mucosa, an unusual location for recurrence of this type of cancer.

### 1. Introduction

Endometrial cancer is the most common gynecologic malignancy in the United States (Mahdy et al., 2023). Patterns of recurrence of endometrial endometrioid carcinoma most commonly occur in the pelvis, the pelvic and *para*-aortic nodes, peritoneal, and the lungs (Kurra et al., 2013). In the literature, unusual sites of metastasis that have been reported include extra-abdominal nodes, intra-abdominal organs (liver, adrenal glands, and spleen), and the central nervous system (Kurra et al., 2013). A single case report described an isolated focal metastasis of Stage IB endometrial adenocarcinoma to the small intestine without additional extrauterine disease (Bosscher et al., 1994). Seven cases of gynecologic metastases to the gastric mucosa have been reported. Zullo et al describe a patient with leiomyosarcoma with metastasis to the gastric mucosa (Zullo et al., 2016), and Jeladharan et al reported a case of cervical cancer to the gastric mucosa (Jeladharan et al., 1992). The remaining five reports including a total of 24 patients with gastric metastases of uterine origin, though did not describe the histology of the pathology (Zullo et al., 2016; Kobayashi et al., 2004; Oda et al., 2001; De Palma et al., 2006; Moldovan et al., 2012). Our patient is the first clearly described patient with a recurrence of endometrial endometrioid carcinoma in the gastric mucosa.

### 2. Case description

Our patient is a 72-year-old female with a history of deep venous thrombosis (DVT), chronic kidney disease, tricuspid and aortic valve regurgitation with a grade 1 diastolic dysfunction with preserved ejection fraction, class III obesity, and stage IIIA endometrial endometrioid adenocarcinoma presented to the emergency room with complaints of fatigue, lower extremity edema, and dark colored stools. She endorsed shortness of breath with exertion but not at rest. The patient was ultimately admitted for evidence of acute kidney injury and acute-on-chronic anemia with concern for gastrointestinal bleed. The chronic anticoagulation that she had previously taken was held in the setting of melanic stools and anemia.

Admission labs were remarkable for a BNP elevated at 270, creatinine of 2.1, hypercalcemia at 8.0. Her CBC was otherwise remarkable for anemia of 6.8 and hematocrit of 22.5, negative for leukocytosis. Hepatic function panel was also within normal limits. CT abdomen/pelvis on admission showed moderate ascites, mild anasarca, mild gastric wall thickening, concerning for gastritis. Additionally, there was a micro-nodular contour of the liver suggesting cirrhosis (Fig. 1). Abdominal and chest X-Rays were negative for acute cardiopulmonary or intestinal obstruction, and lower extremity dopplers negative for DVT.

Gastroenterology was consulted by the primary team for the concern

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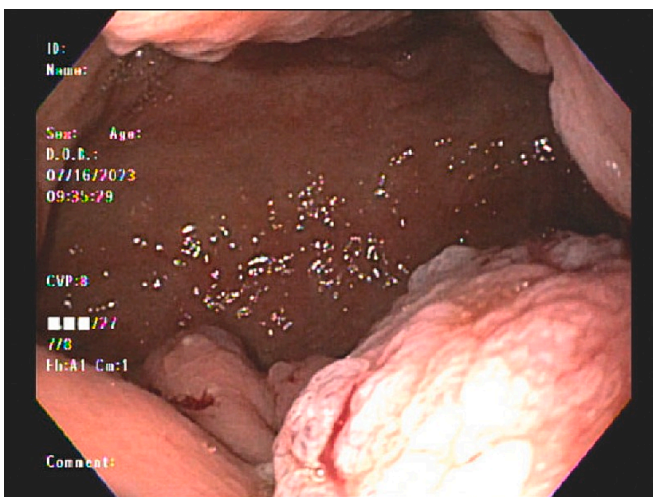
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**Fig. 1.** CT abdomen and pelvis obtained upon admission for melena demonstrating gastric wall thickening.

for acute gastritis and cirrhosis with ascites. On hospital day 2 the patient underwent paracentesis with 3 L of serous fluid drained. On hospital day 3 she then underwent esophagogastroduodenoscopy (EGD) with the following observations: (1) Irregular Z-line, no esophageal varices seen, (2) Nodular appearing mass versus portal hypertension gastropathy seen in the proximal stomach (cardia) with cold forceps biopsies taken, (3) duodenum normal to D2. (Fig. 2) A second paracentesis performed on hospital day 5 yielded an additional 1 L of serous fluid. Pathology results from the paracentesis and EGD were reported on hospital day 7, with metastatic adenocarcinoma most consistent with endometrium primary, at which point Gynecology Oncology was consulted.

Three years prior to this admission, the patient’s Stage IIIA endometrial adenocarcinoma was treated with surgical staging, as well as adjuvant chemotherapy with carboplatin and paclitaxel and radiation. Her first recurrence was two years after surgery, diagnosed in surveillance imaging with a new mass at the vaginal cuff, carcinomatosis, and ascites, and was treated with an additional 7 cycles of chemotherapy and there was evidence of clinical response. Despite being an endometrial cancer, CA-125 was proven to be a marker of disease for this patient, so when it became elevated within the year of surveillance, there was



**Fig. 2.** Bleeding mass in the gastric mucosa visualized on esophagogastroduodenoscopy.

concern for subclinical recurrence.

The mass of the gastric mucosa biopsied during the EGD this admission identified her second recurrence. Gynecology Oncology recommended PET/CT for characterization of disease burden for consideration of additional systemic therapy versus surgical resection, but through shared decision making with her family, the patient elected for hospice care and declined additional imaging or treatment.

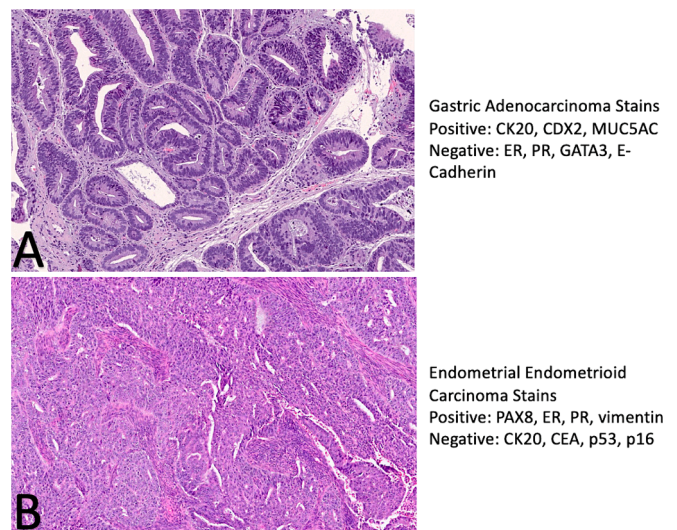
**3. Histology**

Histologic evaluation distinguished this metastasis as endometrioid adenocarcinoma from gastric adenocarcinoma (Fig. 3). Uterine endometrioid carcinoma typically stains positive for PAX-8, estrogen receptor (ER), progesterone receptor (PR), and vimentin, and stains negative for p53, p16, CK20, CEA, HNF-1B (Sharma and Lastra, 2023). Gastric adenocarcinoma, on the other hand, typically stains positively for CK20, CDX2, MUC2, MUC5AC, CK5/6, and negatively stains for ER, PR, GATA3, and E-Cadherin (Martinez Ciarpaglini, 2023). Together, with the morphological differences of each of these adenocarcinomas, they demonstrate the distinction in origin of metastasis.

**4. Discussion**

The gastric mucosa is a generally infrequent location for tumor metastasis. Three large autopsy series reported an incidence rate of gastric metastases between 0.54 and 1.7 % with even less being diagnosed antemortem via clinical-endoscopic studies (0.2 %) (Zullo et al., 2016). The highest rates of gastric metastasis have been associated with malignant melanoma, and other common malignancies that metastasize to the gastric mucosa include lung, renal, breast, and esophageal carcinoma (Zullo et al., 2016; Oda et al., 2001). Interestingly, a study of 347 autopsies of patients with gastric metastasis revealed only 87 had undergone endoscopy pre-mortem, of which only 12 had diagnosed gastric metastasis (Oda et al., 2001).

Our patient had her first recurrence at the vaginal cuff two years following her staging procedure, consistent with reported recurrence rates and typical locations (Kurra et al., 2013). With continued elevation of her CA-125 but negative surveillance imaging, a subclinical recurrence was suspected. Less than one year transpired from her first recurrence to when she was admitted for melena, acute blood loss



**Fig. 3.** Pathological differences of endometrial endometrioid adenocarcinoma and gastric adenocarcinoma with distinct differences in staining patterns. A: Gastric adenocarcinoma. B: Endometrial endometrioid carcinoma. Images obtained from pathologyoutlines.com (Martinez Ciarpaglini, 2023; Cui et al., 2018). ER: estrogen receptor, PR: progesterone receptor.

anemia and a gastric tumor on EGD, which confirmed her second recurrence of stage IIIA endometrial endometrioid adenocarcinoma.

This is the first clearly described case of endometrioid endometrial adenocarcinoma recurrence in the gastric mucosa. While other reviews report gastric metastasis of uterine origin, these do not describe the histology of the pathology. The reported most common sources of gastric metastases include squamous cell-type cancers, including melanoma, lung, and esophageal carcinomas. The limited case reports of uterine metastases to the gastric mucosa include cervical cancer and leiomyosarcoma. Furthermore, metastatic uterine and cervical to the gastric mucosa are rarely diagnosed antemortem, and isolated metastases are exceedingly rare (Cui et al., 2018).

## 5. Informed consent

Unfortunately, the patient is now deceased, and this case report was written after the patient had passed. Thus, informed consent was unable to be obtained. The authors affirm there is no personal identifiable information included in this report, nor are there descriptors that could potentially identify the patient.

## CRedit authorship contribution statement

**Kathleen Lundeberg:** . **Juliet Wolford:** Writing – review & editing, Supervision. **Thomas Reid:** Supervision.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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