CASE REPORT | ENDOSCOPY

Breast Cancer Metastasis to the Gastrointestinal Tract With Unusual Endoscopic and Histologic Presentations

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ABSTRACT

The gastrointestinal (GI) tract is an infrequent site of breast cancer metastasis, but it often poses a diagnostic challenge when it occurs. The symptoms of GI metastases are often nonspecific, and the endoscopic manifestations are variable, requiring tissue biopsies for histologic examination. We report 2 cases of breast cancer metastasizing to the GI tract: a case of human epidermal growth factor receptor 2-positive invasive ductal carcinoma that metastasized to the stomach, a rare location for this histologic subtype, and another case of invasive lobular cell carcinoma that metastasized to the colon with unusual findings of mucosal pallor and edema on colonoscopy.

INTRODUCTION

Distant metastases are known to be a significant cause of mortality among patients with breast cancer. Overall, the most common sites of metastatic disease include the brain, liver, bones, and lungs.[1,2] Breast cancer metastasis to the gastrointestinal (GI) tract is rare. When it occurs, the stomach is the most frequent site of metastasis, with invasive lobular carcinoma (ILC) being the predominate histologic subtype.[3] The diagnosis of GI metastasis is challenging because many patients present with nonspecific clinical symptoms and varied pathology on endoscopy; therefore, tissue biopsies are needed for histopathologic confirmation.[1] We report 2 cases of breast cancer metastasis to the GI tract: a case of invasive ductal carcinoma (IDC) with rare invasion of the stomach and another case of ILC with metastasis to the colon demonstrating unusual mucosal morphology on colonoscopy.

CASE REPORT

Patient 1: A 77-year-old woman with a history of estrogen and progesterone receptor-negative, human epidermal growth factor receptor 2 (HER2)-positive breast IDC with metastases to the brain, liver, and lung on fam-trastuzumab deruxtecan presented to our hospital with 1 month of abdominal pain and melena. On evaluation, the patient was hemodynamically stable with an abdominal examination demonstrating moderate tenderness in the epigastric region. Laboratory testing revealed an acute normocytic anemia with a hemoglobin level of 8.2 g/dL. There was no evidence of GI tract involvement of her metastatic disease on prior imaging. Endoscopy was performed and revealed a 1.5 cm ulcer at the gastric cardia with surrounding erythema and friable tissue (Figure 1). Pathology from the gastric ulcer biopsy showed poorly differentiated adenocarcinoma in the deeper aspect of the lamina propria with immunohistochemistry positive for GATA-3, E-cadherin, and HER2 consistent with metastatic breast IDC (Figure 2). The patient was discharged home with oral pantoprazole and iron supplements. She was later seen in the oncology clinic with laboratory tests confirming improvement in her anemia, and cancer treatment was resumed.

Patient 2: A 69-year-old woman with a history of triple-negative breast ILC with known metastatic disease to the bone, stomach, and liver presented to our hospital with 1 month of profuse diarrhea with greater than 10 nonbloody, loose stools
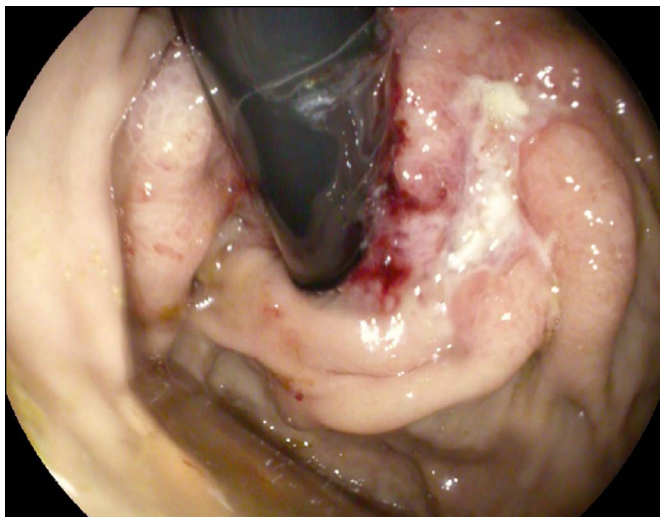
Figure 1. Retroflexed view of the gastric cardia showing the 1.5 cm ulcer with surrounding erythema and friable tissue on endoscopy.

per day. Her cancer treatment with capecitabine had been held 3 weeks before presentation shortly after the onset of symptoms. On evaluation, the patient was afebrile and hemodynamically stable. Laboratory testing revealed a mild leukocytosis with a white blood cell count of 11.4 K/μL. An abdominal computed tomography scan showed mild diffuse

circumferential wall thickening of the colon, most prominent in the right and transverse colon. Additional laboratory tests for infectious, autoimmune, and inflammatory etiologies were negative. Upper endoscopy with gastric biopsy performed 2 months earlier had revealed metastases to the stomach. The decision was made to proceed with a colonoscopy, which showed diffuse edema and pallor throughout the entire length of the colon with no masses, ulcerations, or evidence of colitis (Figure 3). Histopathology from random colon biopsies revealed a diffuse atypical cellular infiltrate in lamina propria that stained positive for pan-cytokeratin, consistent with metastatic breast ILC (Figure 4). Because the patient's clinical status continued to decline, she was transitioned to comfort care and died shortly thereafter.

DISCUSSION

Although both histologic types of breast cancers, IDC and ILC, have the potential to localize to distant sites, metastasis to the GI tract is a rare occurrence.[3] Within the digestive system, the stomach is the most common site of breast cancer metastasis; however, the incidence remains remarkably low, approximately 0.2%–0.7%.[4,5] ILC is the most frequent histologic type of breast cancer encountered on tissue biopsy specimens from GI metastases.[4,6] A recent review article found a total of 32 cases of
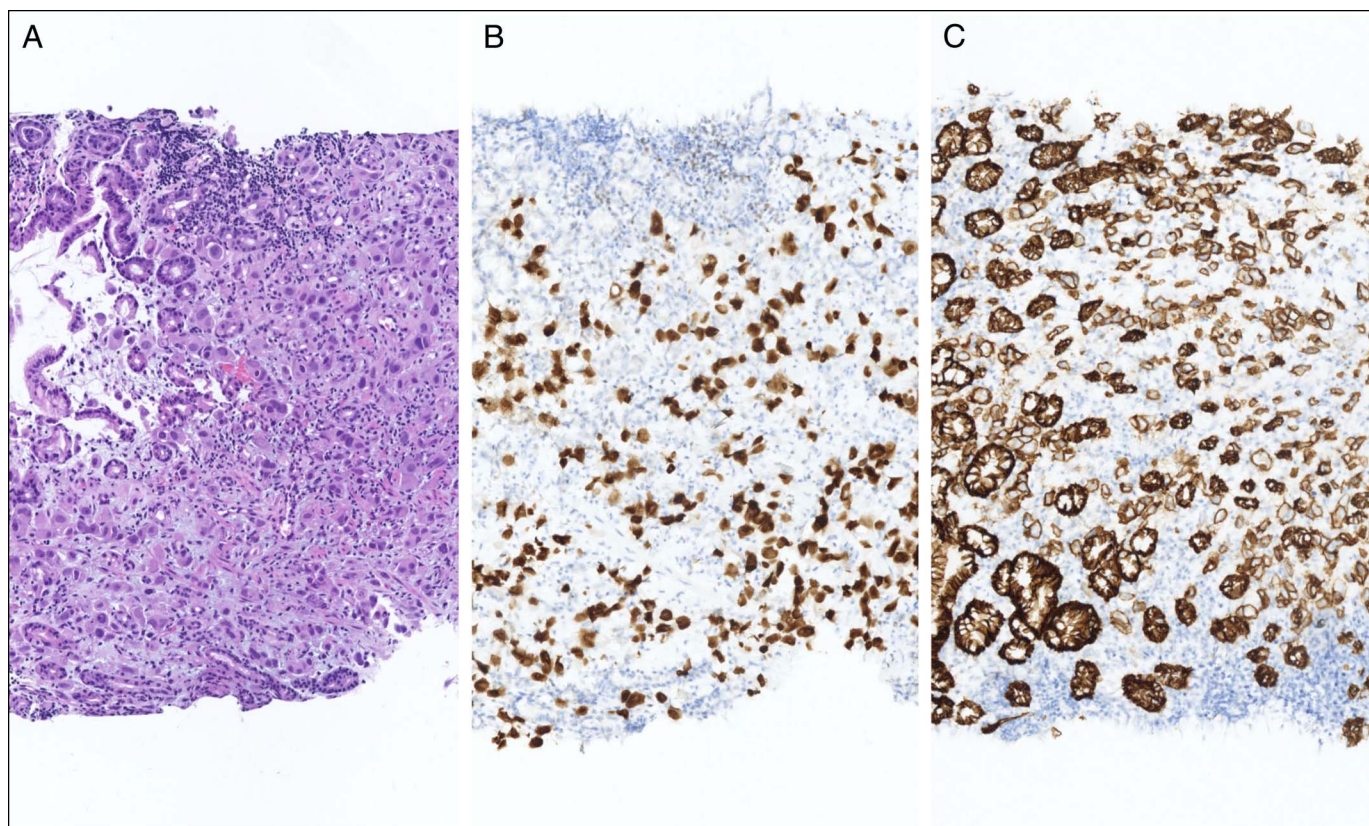

Figure 2. (A) H&E shows gastric mucosa with expansion of the lamina propria by malignant cells (10×). (B) The malignant cells are positive for GATA-3 immunostain, which supports metastasis from the patient's known breast primary carcinoma (10×). (C) The malignant cells are positive for E-cadherin immunostain additionally supporting a ductal phenotype of the metastatic breast carcinoma (10×).

Figure 3. Colonoscopy findings of diffuse edema and pallor of the colonic mucosa extending the entire length of the colon. (A) Transverse colon. (B) Descending colon. (C) Sigmoid colon.

gastric metastases reported over a 5-year period with the majority having ILC histology and only 3 cases being positive for HER2.[3] In our report, tissue examination from the gastric ulcer biopsy of patient 1 revealed HER2-positive IDC, which is an unusual histologic finding for breast cancer metastasizing to the GI tract.[1,3] In the case of patient 2, the biopsy specimens from her colonoscopy demonstrated the more typical ILC histology, but the extension of her metastases to involve the colon is an uncommon manifestation of a primary breast malignancy with a rate of approximately 0.1%.[5,7]

The discovery of GI metastasis is often delayed with symptoms being attributed to more common GI disorders, infectious pathogens, or chemotherapeutic agents.[1] The main clinical symptoms reported in patients with gastric metastasis are epigastric abdominal pain and dyspepsia.[1,3] Patients with colonic involvement may present with nonspecific abdominal pain and diarrhea that is difficult to distinguish from inflammatory bowel disease or primary colon cancer.[1] One case report described a patient with colonic metastases who had resolution of her diarrhea after receiving treatment with tamoxifen.[5] Furthermore, the diagnosis of GI metastasis remains challenging because of variable findings on endoscopy. Ambroggi et al reported the most frequent endoscopic presentation of gastric metastasis to be linitis plastica, followed by obstructive or stenotic lesions.[1] Metastasis can also occasionally manifest as a single ulcerative lesion, which may be difficult to differentiate from primary gastric cancer.[1,6] Similarly, endoscopic reports of colonic metastases demonstrate a variety of pathology including obstructive masses, strictures, polyps, and linitis plastica.[1] In addition, one case reported by Bakker et al had widespread erythema of the colon with decreased vascularity and haustra.[5]

In our case, the presentation of patient 1 with epigastric abdominal pain and a gastric ulcer could have been attributed to peptic ulcer disease or even primary gastric cancer if biopsy had not been performed revealing metastatic breast cancer. Although the symptoms of abdominal pain and diarrhea presented by patient 2 are consistent with those seen in prior cases, the diffuse edema and pallor extending throughout the colon is to our knowledge an unusual presentation of colonic metastases.

The 2 cases discussed in this report demonstrate the various clinical and endoscopic manifestations of metastatic breast cancer localizing to the GI tract and emphasize the importance of tissue biopsy for histologic confirmation of the diagnosis. Although a rare occurrence, metastatic disease should remain on the differential for patients with breast cancer presenting with signs and symptoms of common GI disorders.
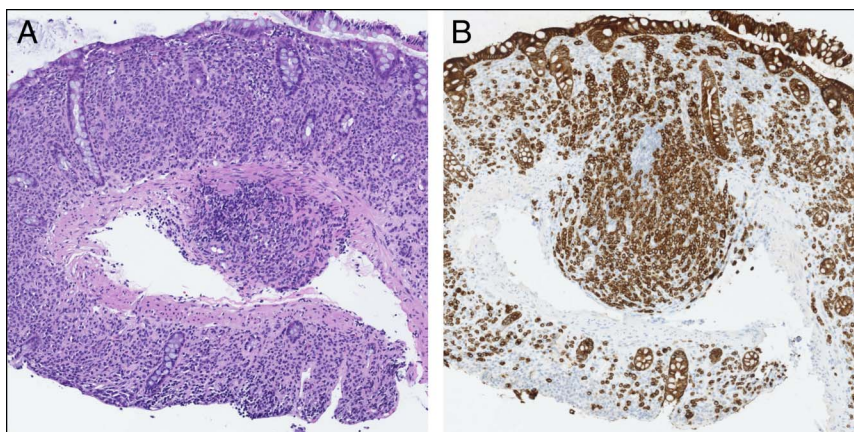

Figure 4. (A) Colonic mucosa with diffuse atypical cellular infiltrate in the lamina propria (10×). (B) The infiltrating atypical cells in the lamina propria are strongly and diffusely positive for pan-cytokeratin confirming the diagnosis of metastatic mammary lobular carcinoma (10×).

DISCLOSURES

Author contributions: All authors participated in the writing and editing of this case series and agreed to submission to ACG case reports. A. Kimchy is the article guarantor.

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Previous presentation: The cases were presented as poster presentations at the American College of Gastroenterology Annual Scientific Meeting; October 24 and 25, 2022; Charlotte, NC.

Informed consent was obtained for this case report.

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