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## CLINICAL VIGNETTE

# Breast Cancer with Small Bowel Metastasis

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### Case Presentation

A 69-year-old female was being evaluated by her primary care physician for fatigue. Laboratory evaluation which revealed a hemoglobin of 8.7 with iron level of 17, iron binding capacity of 227, saturation of 7%, and ferritin of 8. She also had a positive fecal immunochemical test (FIT). She was referred to Gastroenterology for consultation and denied abdominal pain, change in bowel habits, or blood per rectum. Her appetite was normal and there was no weight loss. She had mild intermittent heartburn and nausea without vomiting. Her past medical history was significant for hypertension and left sided breast cancer (stage pT2N3b), treated with lumpectomy, chemotherapy (Docetaxel/Cyclophosphamide), radiation therapy five years prior. The patient decided to stop chemotherapy after four cycles and did not complete the entire recommended regimen. There was no other significant surgical history and she was not anticoagulated or taking nonsteroidal anti-inflammatory drugs. On physical examination, her heart rate was 89, blood pressure was 117/74, and BMI was 47.47 kg/m<sup>2</sup>. Her examination was unremarkable, including no abdominal tenderness.

Based on her iron deficiency anemia and positive fecal immunochemical test, upper endoscopy and colonoscopy were scheduled. Upper endoscopy showed a 5 mm nodule in the esophagus, with biopsies revealing a squamous papilloma. Duodenal biopsies were normal, with no evidence of celiac disease. The colonoscopy showed small internal hemorrhoids, and was otherwise unremarkable. Because none of the findings explained her iron deficiency anemia, she was scheduled for small bowel capsule endoscopy. This revealed a nodular lesion vs. erosion with erythematous mucosa in the proximal small bowel. There was also fresh blood seen in this same area. Small bowel enteroscopy showed a 5 cm long circumferential ulceration with heaped up mucosa along the margins, located in the fourth portion of the duodenum. Biopsies showed metastatic high-grade carcinoma, consistent with breast origin. Based on the persistent bleeding with symptomatic anemia she underwent radical resection of the left retroperitoneal and mesenteric tumor of the fourth portion of the duodenum, greater than 10 cm with side-to-side functional end-to-end stapled duodeno-jejunostomy. Liver biopsy and superior mesenteric artery lymph node dissection were also performed. The liver biopsy was negative for malignancy, but the duodenum and superior mesenteric artery lymph node were both positive for metastatic adenocarcinoma, consistent with breast origin. There was no evidence of further gastrointestinal bleeding after the surgery and she is being considered for systemic chemotherapy.

### Discussion

As with other malignancies, metastatic disease from breast cancer is not limited to one particular organ system. The most typical sites for metastatic breast cancer include brain, liver, lungs, and bone. Breast cancer rarely metastasizes to the small bowel.<sup>1</sup> Two different studies, including thousands of breast cancer patients, reported 0.19% and 0.68% of patients with metastatic disease to the gastrointestinal tract.<sup>1,2</sup> Gastrointestinal metastasis may occur as long as 30 years after the initial diagnosis of breast cancer.<sup>3</sup> Our patient had invasive ductal carcinoma, which has an even lower rate of gastrointestinal tract metastasis than invasive lobular carcinoma.<sup>4</sup> Autopsy results of breast cancer related deaths, found 9% with small bowel metastasis.<sup>5</sup> The presentation of small bowel disease can be variable and may include abdominal pain, dyspepsia, bloating, bowel obstruction, melena, hematochezia, nausea, vomiting, early satiety, weight loss, anemia, or palpable mass.

Establishing the diagnosis of small bowel metastasis from breast cancer can be challenging. Imaging studies such as CT, MRI, and fluoroscopy often reveal non-specific findings. Additionally, the findings can mimic other non-malignant gastrointestinal diseases.<sup>6</sup> The most reliable method of diagnosis is endoscopic evaluation with biopsy and histologic evaluation. However, depending upon the specific location of the metastases in the small bowel, reaching certain areas with endoscopy can present challenges, and early stage metastasis may only involve the submucosal layer. Therefore, in some cases superficial mucosal biopsies may not be conclusive.

Breast cancer with small bowel metastasis, typically have more disseminated disease and a thorough systemic evaluation is recommended.<sup>7</sup> If the disease is localized to the small bowel or there are attributable symptoms, surgical resection of the diseased bowel segment may improve the prognosis and symptoms. Typically, patients should also undergo systemic hormonal or chemotherapy along with surgery. At this time, it is unclear which of these proposed therapies provide a better long-term survival benefit.

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