

# Breast Cancer Metastasis To The Colon: A Case Report And Review Of The Literature

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## Abstract

Breast cancer is one of the most common malignancies in the United States. Breast cancer frequently metastasizes to the bones, lungs, and liver; however, metastasis to the colon is rare with the presentation often being varied and nonspecific. Early diagnosis and prompt treatment may prolong survival. The following is a case of metastatic breast cancer to the colon.

## INTRODUCTION

Breast cancer is the most common female malignancy encountered in the United States, affecting one in every eight women.<sup>1</sup> In 2005, 211,240 new cases of breast cancer were diagnosed.<sup>2</sup> With early diagnosis and treatment, many women may become long-term breast cancer survivors; however, recurrence and metastasis are quite common. The most common metastatic sites for breast cancer are bone, lung, and liver.<sup>3,4</sup> An uncommon metastatic site is the colon. Colonic metastases of breast cancer, although rare, may mimic other disease states, which may impair the clinical diagnosis and delay treatment, resulting in earlier mortality.

## CASE REPORT

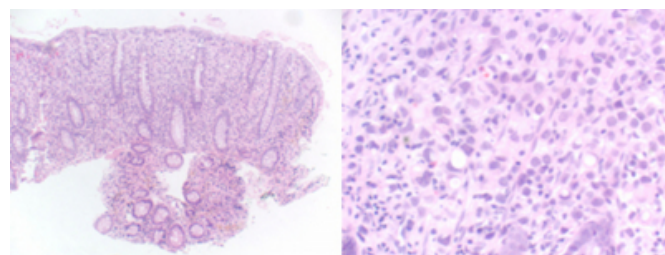
A 49 year-old female with history of breast cancer presented to an outside hospital with coffee-ground emesis, anorexia, and abdominal pain. An esophagogastroduodenoscopy (EGD) was performed revealing duodenal ulcers, gastric erosions, and pyloric obstruction with large gastric bezoars. Biopsies showed *Helicobacter pylori* without evidence of malignancy. Lansoprazole, amoxicillin, and clarithromycin were initiated, but the patient continued to experience hematemesis and abdominal pain. A carcinoembryonic antigen (CEA) level was obtained and found to be 56 U/mL. A repeat EGD was performed showing no new findings. Subsequently, the patient was transferred to the University Hospital, a regional tertiary care center, for further care and management.

Upon admission, the patient's vital signs were normal. A complete blood count and a complete metabolic panel were obtained and found to be normal except for an albumin of

2.9 g/dL and serum lipase of 530 U/L. A chest X-ray was performed showing large, bilateral, transudative pleural effusions. A repeat EGD showed duodenal ulcers, gastric bezoars, esophageal webs, and proximal esophagitis. A computed tomography of the chest/abdomen/pelvis revealed diffuse colonic thickening, focal thickening of the bladder wall, abdominal/pelvic ascites, mesenteric adenopathy, bilateral adrenal nodules, and ovarian enlargement. The patient refused diagnostic laparoscopy for lymph node biopsies, but was amenable to colonoscopy. The colonoscopy revealed diffuse edema of the colon and focal narrowing of the transverse colon with multiple polyp-like lesions, which were biopsied. Upon pathological evaluation of the tissue by hematoxylin and eosin (H&E) and immunohistochemical staining, metastatic lobular breast carcinoma was diagnosed. (FIGURE 1) The patient did not wish to have any further testing or treatment performed.

## Figure 1

Figure 1: Biopsy of colon showing intact surface epithelium with the lamina propria infiltrated by tumor cells with abundant eosinophilic cytoplasm ) and high magnification of colon biopsy showing numerous tumor cells in the lamina propria, many with eccentric nuclei, intracytoplasmic lumina, and signet ring appearance



## DISCUSSION

Metastatic breast cancer affects a multitude of tissues and organs including the gastrointestinal tract.<sup>5,6,7,8</sup> Although infiltrating ductal carcinoma is more prevalent than infiltrating lobular breast carcinoma as a primary breast tumor, the latter more commonly metastasizes to the gastrointestinal tract.<sup>9</sup> However, metastatic involvement of the large bowel is rare. The incidence of metastatic breast cancer involving the colon is unknown, but an autopsy series reported the frequency of colonic involvement of metastatic breast cancer to be 8%, not including serosal implants.<sup>10</sup>

The presentation of a patient's primary or metastatic disease involving the GI tract is often non-specific. Symptoms vary from asymptomatic abdominal masses to those mimicking ulcerative colitis.<sup>11,12</sup> Nausea, dysphagia, anorexia, hematochezia, and heme-positive stools are often common presenting symptoms.<sup>12,13</sup> These non-specific findings often mimic other GI diseases such as inflammatory bowel disease, ischemic colitis, and diverticulitis.

Differentiating primary colon cancer from metastatic breast cancer to the colon may be challenging. In those with prior histories of breast cancer, second primaries of the GI tract are more common than metastatic disease.<sup>13,14,15</sup>

Immunohistochemistry has aided in differentiating the tumor site of origin. Hormone receptors, such as estrogen and progesterone, are utilized to differentiate breast versus GI primary, but these receptors may be positive in 20-28% of primary gastric carcinomas.<sup>17</sup> The more common antigen markers include cytokeratins (CK) 7 and 20, MUC1, MUC2, and gross cystic disease fluid protein 15 (GCDFP-15).<sup>18,19</sup>

Although metastatic breast cancer is common, there is no consensus for the treatment of patients with disease involving the colon, with a poor overall prognosis. The median survival after diagnosis is less than three years, with surgical intervention not greatly affecting survival rates.<sup>20</sup> Metastatic disease involving the colon may be viewed as a systemic disease, which should be treated with chemotherapy. In patients undergoing surgery and post-operative chemotherapy, survival has been demonstrated beyond three years after initial diagnosis.<sup>21</sup>

Although patients with previous breast cancer may develop colon cancer, metastatic disease to the colon should be considered. Clinical evidence assisting in the diagnosis may be the multiplicity of lesions and a diffusely infiltrative process with marked narrowing of the large bowel lumen.

Immunohistochemistry is invaluable, just as a tissue biopsy, in identifying the primary lesion. Once identified, treatment may be initiated which may prolong patient survival.

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