

Breast Cancer Metastasis Presenting as Colonic Polyps

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ABSTRACT

Breast cancer is the most common malignancy among women and is the second leading cause of cancer-related death among women in the United States. Rarely, breast cancer can metastasize to the gastrointestinal tract. We present a case of metastatic breast cancer diagnosed after finding metastatic lesions appearing as polyps during a colonoscopy.

INTRODUCTION

Breast cancer is the second leading cause of malignancy-related mortality among women in the United States with over 260,000 new cases diagnosed each year.¹ Common sites of metastasis include the brain, bone, lungs, and liver. Metastases to the gastrointestinal (GI) tract have also been reported, although this is rare.²⁻⁴ We report a case of primary invasive lobular carcinoma of the breast diagnosed after finding metastatic lesions appearing as polyps during a colonoscopy.

CASE REPORT

A 67-year-old woman presented to her primary care clinic with a complaint of change in bowel habit. Specifically, the patient had complained of new-onset fecal urgency and seepage. On physical examination, she was noted to have decreased anal sphincter tone and a rectocele. She was referred for colonoscopy where a 2-mm sessile polyp was found in the cecum and 2 sessile polyps which were 2 mm in size in the transverse colon (Figure 1). Endoscopically, these polyps seemed to be adenomatous with its morphology consistent with the Paris classification IIa lesions. The pit pattern of these polyps most similarly represented Kudos IIIs, although given the suspicion for small adenomatous lesions, narrow-band imaging was not used during this examination. The polyps were resected and retrieved with cold biopsy forceps. Pathology from all 3 polyps showed poorly differentiated adenocarcinoma with signet ring cell features. Immunohistochemical stains performed on a transverse colon polyp showed strong diffuse positivity for GATA3 and CK7 within the high-grade adenocarcinoma, which was suggestive of metastasis from primary breast carcinoma. Staining for CDX2 and CK20 was negative, making a primary GI or appendiceal adenocarcinoma less likely. Further stains were negative for E-cadherin and positive for GCDFP-15, supporting that the tumor represented metastatic lobular breast carcinoma. Estrogen receptor and progesterone receptor staining were negative as was HER2 protein overexpression. Random colonic biopsies were normal.

The patient did undergo routine breast cancer screening approximately 3 months before colonoscopy with bilateral screening mammogram along with tomosynthesis. There were no mammographic findings of malignancy, although it was noted that her breasts were heterogeneously dense, which could obscure small masses. After colonoscopy, she underwent bilateral diagnostic contrast-enhanced mammogram which revealed 2 distinct ovoid masses in the far posterior lateral left breast measuring $1.2 \times 0.7 \times 0.8$ cm and $0.9 \times 1.1 \times 1.2$ cm. A left breast ultrasound confirmed 2 irregular masses corresponding with the mammographic findings and prominent left axillary lymph nodes measuring up to $1 \times 1 \times 1$ cm in size. The patient underwent breast biopsy of both masses and a core needle biopsy of an axillary lymph node. Pathology confirmed invasive lobular carcinoma from both masses and in the lymph node (Figure 2). Estrogen receptor and progesterone receptor stains were positive, whereas HER2 overexpression was negative. A positron emission tomography/computed tomography was subsequently obtained, which revealed a hypermetabolic left lateral breast neoplasm with axillary lymph node metastases, bone metastases, and likely abdominal

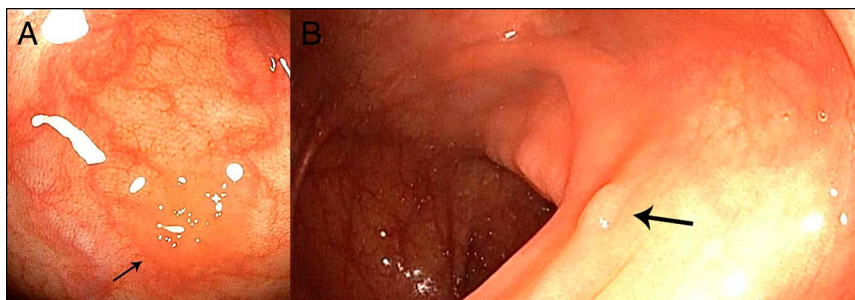


Figure 1. Colonoscopy showing (A) a 2-mm cecal polyp and (B) a 2-mm transverse colon polyp.

pelvic nodal metastases. She was initiated on treatment with palbociclib and letrozole. A follow-up positron emission tomography/computed tomography was obtained approximately 2 months after initiating therapy with findings supporting a partial response to therapy.

DISCUSSION

Breast cancer can spread to several different areas of the body, and sites of metastasis can vary based on the type of breast cancer a patient develops. Ductal carcinoma more commonly spreads to the lung, liver, bone, and brain, whereas lobular carcinoma metastasizes to the GI tract, gynecologic organs, peritoneum, and retroperitoneum.^{2,5} Given its rarity, the true incidence of colonic metastasis is not known. In 1979, a study by Cifuentes and Pickren reported that in postmortem evaluation of 707 cases of metastatic mammary gland carcinoma, 8% of cases involved the large intestine.⁶ Borst and Ingold reported in their autopsy series that the incidence of overall GI metastases was 4.5% for invasive lobular carcinoma vs 0.2% for invasive ductal carcinoma.⁷ A more recent retrospective review by McLemore et al showed that of 12,001 patients diagnosed with metastatic breast cancer, 41 patients were confirmed to have spread to the GI tract.⁸ Finally, Ambroggi et al reviewed 206 cases of GI metastasis from primary breast cancer and found that 11% had colon or small intestinal spread.⁹

Although metastatic disease to the GI tract is uncommon, it is even more unusual for a patient to obtain their initial diagnosis

of breast cancer from colonoscopy. Nonspecific and variable symptoms of metastatic disease can mimic other GI diseases and make diagnosis difficult. Metastatic lesions to the colon are considered to originate from the submucosal or seromuscular layers; however, endoscopically, it was difficult to determine this for our patient's lesions because there was no associated induration or mucosal ulceration to suggest deeper involvement as seen in metastatic lesions or primary adenocarcinoma.¹⁰ Our patient had undergone mammography for routine breast cancer screening just 3 months before her procedure with no findings of malignancy, although her breasts were described as heterogeneously dense. Most patients with GI spread will also have metastases to other organs as was the case with our patient.¹¹ Standard therapies for hormone-receptor-positive malignancy involve endocrine therapy, which is often combined with a targeted therapy such as a cyclin-dependent kinase 4/6 inhibitor.^{12,13} Surgical intervention has not been shown to affect survival and is thus typically reserved for cases of intestinal perforation, bleeding, or obstruction.^{2,8} Physicians should be aware of the possibility of GI metastases of breast cancer and have an increased suspicion in patients presenting with new-onset GI complaints. We recommend a biopsy of all atypical polypoid lesions in the colon irrespective of the size of the lesion.

DISCLOSURES

Author contributions: J. Bering and SR Gurudu wrote the manuscript. M. Ryan provided the pathology images. SR Gurudu is the article guarantor.

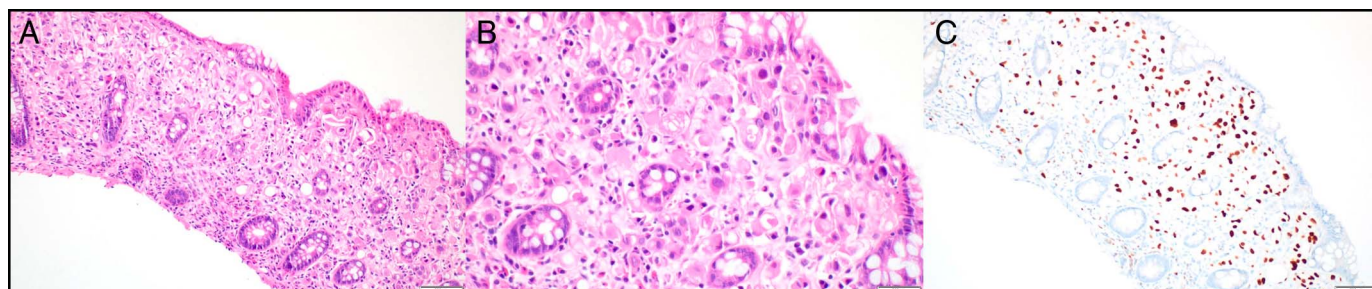


Figure 2. Immunohistochemical staining of the tumor showing (A) atypical tumor cells with signet ring features and invasion of the lamina propria (hematoxylin and eosin stain, 20× magnification), (B) atypical tumor cells with signet ring features (hematoxylin and eosin stain, 40× magnification), and (C) strong diffuse positive GATA3 representing metastasis from primary breast carcinoma.

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