

Cecal Cancer Metastatic to Breast

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Abstract

Presented is a 62-year-old woman with poorly differentiated adenocarcinoma of the cecum with an ulcerative right breast metastasis. Although extramammary metastases to the breast are rare and difficult to diagnose, our multidisciplinary workup utilizing clinical history, radiographic, and pathologic findings allowed for accurate identification of tumor origin.

Background

Extramammary malignancies metastatic to the breast are exceedingly rare occurring at a frequency of 0.2% - 7%.¹ Accurate diagnosis of metastatic cancer to the breast can spare patients from unnecessary surgeries and provide them with expedient access to the appropriate treatment. The most common metastases to the breast are melanoma, lymphomas, and ovarian cancer. Anecdotally, however, primary malignancies from any location can occur.¹⁻⁵ In up to about 50% of cases with extramammary malignancy, the breast lesion may be the first manifestation of the disease.^{1,5-7} A multidisciplinary approach and high index of suspicion are required for accurate diagnosis.

Case Description

A 62-year-old woman presented with 7 days of rectal bleeding. A CT scan of the abdomen and pelvis detected a right pelvic mass, found to be a cecal mass on colonoscopy. She underwent an exploratory laparotomy and en-bloc resection culminating in a right hemicolectomy, cholecystectomy, and total abdominal hysterectomy with bilateral salpingo-oophorectomy. Pathology reported a poorly differentiated T4bN2 adenocarcinoma with a positive right medial ureteral margin involving the colon, ovary, right uterus, and 4/36 lymph nodes (Figure 1). She underwent 12 cycles of adjuvant FOLFOX and radiation therapy.

Initial bilateral diagnostic mammogram one month following surgery revealed no new abnormalities. Two months thereafter, a post-operative surveillance PET/CT showed a metabolically active nodule measuring 1.8 x 1.0 cm with an SUV of 3.2 with no mammographic correlate. On a targeted right breast ultrasound, a heterogenous, irregularly shaped mass measuring 7 x 6 x 6 mm was found, consistent with the hypermetabolic mass on PET/CT. She underwent a core needle biopsy which demonstrated discordant pathology of blood elements and clot.

Two months later, she palpated a mass in the lateral right breast. Five months later, the patient underwent another PET/CT scan which again showed a hypermetabolic 2 x 1.7cm soft tissue nodule in the lateral right breast. A right diagnostic mammogram demonstrated a large area of hyperattenuation extending to the skin with a visible mass measuring 4.3 x 3.4cm consistent with the findings on the PET/CT (Figure 2). Abnormal hyperattenuating right axillary lymph nodes were visualized. One month later, the mass invaded the skin without ulceration.

She then underwent a punch biopsy of the right breast mass and a core needle biopsy of a right axillary lymph node. Final pathology demonstrated poorly differentiated adenocarcinoma favoring a metastatic

colonic primary (Figure 3). She was started on second line systemic therapy with FOLFIRI and Avastin. The mass began to ulcerate and she developed a transient ischemic attack. She then underwent palliative radiation therapy to the right breast for management of the ulcerating mass (Figure 4). Having failed chemotherapy, she was later hospitalized for a small bowel obstruction, perforation, sepsis, and peritonitis, and subsequently expired.

Discussion

A high index of suspicion is needed to diagnose metastatic disease to the breast with careful consideration of the patient history, imaging findings, and pathology workup. In most cases, patients will present with a history of an extramammary primary tumor, but it is also feasible for patients to be without prior history of cancer.⁶ Patients tend to present with lesions in areas consistent with primary breast tumors—the upper outer quadrant.^{3,5,8} These radiographic lesions may appear benign—well-circumscribed, homogenous, round, with minimal calcifications and spiculations.^{3,4,8-10} Pathologic workup may reveal morphology and immunohistochemical staining consistent with a neoplasm originating from elsewhere.^{1,6,9} Especially in cases of adenocarcinoma, however, it is particularly difficult to distinguish between primary breast cancer and metastatic disease.^{1,5-7,9}

Difficulty of diagnosis in this patient's case was underscored with the nonspecific morphology of the tumor on the second breast biopsy. Histologic sections of the tumor showed a poorly differentiated adenocarcinoma with necrosis and focal gland/tubule formation involving the dermis and epidermis without definitive ulceration at the time the specimen was obtained. Of note, immunohistochemical staining was positive for only CK20, but negative for CDX-2, two markers typically present in patients with colorectal cancer. CK7, ER and mammoglobin, stains, generally positive in breast cancer, were negative. Specimens of the patient's known prior cecal malignancy from an outside institution were required to evaluate for histomorphologic and immunophenotypic similarities to the breast mass for diagnosis.⁶

Author Contribution

Ness, Abigail, MS3 : This author contributed to the data collection, writing, and editing of the manuscript.

Tamar Virtelle Lan Walker, MD, MBA : This author contributed to the data collection, writing, and editing.

Berrocal, Julian, MD : This author provided the material to make this report possible and was involved in obtaining the accompanying images. He also contributed to the editing of the manuscript.

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Figure Legend

Figure 1. High power view (40x) – H&E stained section. Non-neoplastic colonic mucosa (upper left), foci of lymphovascular invasion (X), poorly differentiated adenocarcinoma (lower right). Courtesy of Bethesda East.

Figure 2. Diagnostic mammogram of right palpable breast mass.

Figure 3. Medium-power view, hematoxylin and eosin stained section. Poorly differentiated carcinoma involving skin and dermis.

Figure 4. Gross image of ulcerative breast lesion





