Metastasis to the Breast from an Adenocarcinoma of the Colon

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ABSTRACT: Metastases to the breast from extramammary malignancies are rare. We report a case of metastasis to the breast from a colonic adenocarcinoma in a 50-year-old man who was 6 years status after a right hemicolectomy for T3N1M1 adenocarcinoma of the ascending colon. Sonographic evaluation of the right breast lump showed a hypoechoic mass with slightly irregular margins, but there was no internal vascularity. Chest CT also documented a poorly enhancing suspicious mass in the right breast. The diagnosis of adenocarcinoma metastasis to the breast was achieved with sonographically guided core biopsy.

CASE REPORT

A 50-year-old man with a history of right hemicolectomy for T3N1M1 adenocarcinoma of the ascending colon 6 years previously presented with an 8-week history of a new, enlarging, mobile, nontender right breast lump. There was no nipple discharge. He had recently completed standard systemic adjuvant chemotherapy regimen (5-fluorouracil and folinic acid with irinotecan) for lung and brain metastases from colonic adenocarcinoma.

Sonographic examination of the right breast was performed using an HDI 5000 scanner (Phillips Ultrasound, Bothell, WA) equipped with a 12–8-MHz linear-array transducer. Gray-scale sonograms of the right breast lump showed a 1.5-cm, solid, hypoechoic, rounded mass with irregular margins and an echogenic rim at 11 o’clock and 1 cm from the nipple (Figure 1). There was no internal or peripheral vascularity on color Doppler imaging. A restaging contrast-enhanced chest CT examination demonstrated a poorly enhancing right breast mass (Figure 2). Sonographically guided core biopsy of the mass was performed using a Magnum biopsy gun and a 14-guage, 22-mm throw cutting needle (Bard, Covington, GA). Histopathology examination of the cores obtained showed an adenocarcinoma resembling the primary tumor (Figure 3). The patient underwent second-line treatment with monoclonal antibody therapy (cetuximab) with irinotecan-based chemotherapy. He remains alive 1 year after presenting with the breast metastasis but with overall progression of the metastases.
DISCUSSION

The most common extramammary primary malignancy that metastasize to the breast are lymphoma, melanoma, sarcoma, lung carcinoma, and ovarian tumors.1–3 Lung carcinoma and prostate carcinoma are the most common primary tumors that metastasize to the male breast.4,5 To our knowledge, there are only 2 published cases of metastases to the breast from colorectal carcinoma occurring in men, although colorectal carcinoma is one of the most common tumors in adults.6,7

Metastases to the breast from extramammary malignancies are characterized by the extraduc- tal location of the tumor, lack of in situ carcinoma, and the absence of desmoplastic reaction.8 They typically present as rapidly growing, mobile masses that are easily palpable but do not cause overlying skin or nipple retraction, or blood- stained nipple discharge.8,9 On sonography, metastases to the breast from extramammary malignancies usually appear as 1 or more circumscribed hypoechoic nodules, but indistinct and irregular lesion margins have been described.10

The presence of penetrating vascularity in metastases to the breast on color Doppler sonography is variable, but if present is more suggestive of a malignant mass.10 On mammography, colorectal metastases to the breast show no internal micro- calcification.3 Metastases to the breast from extramammary malignancies may be identified on chest CT.11 CT is commonly used in the monitoring of treatment efficacy in patients with metastatic disease, and in the surveillance of patients who have early stage disease or who are in disease remission. The breasts are usually included within the field of view of a chest CT. A new breast lesion on serial CT examinations in patients with a known tumor should be considered as suspicious for a metastasis until proven otherwise.

Image-guided percutaneous biopsy of breast lesions to establish a tissue diagnosis is now considered to be the standard of care. Sonographically guided core biopsy of breast lesions has a high accuracy.12,13 Core biopsy allows assessment of tissue architecture in contrast to fine needle aspiration cytology. The periductal and perilobular location of the tumor with the absence of in situ ductal carcinoma in the surrounding breast specimen favor a metastasis.8,9 Immunohistochemistry has an additional valuable role. The majority of colorectal carcinomas are usually cytokeratin (CK) 7-negative and CK20-positive, while the majority of primary breast carcinomas are CK7-positive and CK20-negative.14 Core biopsy with immunohistochemistry enables a more confident differentiation between a primary breast adenocarcinoma and a colorectal adenocarcinoma metastasis to the breast, which is critical for the choice of appropriate therapy.
Metastases to the breast are usually associated with disseminated metastases. Prognosis is poor, with survival of less than 12 months from the time of diagnosis of the breast metastasis. Patients with primarily localized breast metastases may benefit from aggressive local therapy—either wide local excision or radiotherapy. Patients with disseminated or refractory colorectal carcinoma metastases show a higher response rate when treated using antiepidermal growth factor receptor monoclonal therapy (cetuximab) in combination with standard systemic chemotherapy (5-fluorouracil and folinic acid with irinotecan or oxaliplatin). Local therapy in addition to systemic chemotherapy may have a role in those patients with symptomatic breast metastases, such as ulcerated or large chest wall invasive metastases, on the background of disseminated metastases.

In conclusion, a new breast mass in a patient with a known primary tumor has to be considered as a breast metastasis until proven otherwise despite the rare occurrence of metastases to the breast, especially in men. Imaging has an important role in confirming the clinical suspicion of a lump, lesion characterization, and guiding biopsy. Core biopsy may enable a more confident diagnosis than fine needle aspiration cytology. Metastases to the breast from extramammary malignancies often occur in the setting of disseminated disease, and prognosis is poor.

REFERENCES