

A Rare Case of Cutaneous and Breast Metastasis from Mucinous Colon Cancer

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Abstract

We report a case of 55 years-old female with colorectal adenocarcinoma and metastasis to skin and breast tissue. Most common site of metastases of colorectal carcinoma is lung and liver. Cutaneous metastases are rare and account for only 4-6.5% of such cases. Often skin metastasis is to the postsurgical scars as observed as in our case. After a careful review of literature less than 30 cases have been found to have metastasis from colon adenocarcinoma to breast. To have two uncommon sites metastatic in one patient to best of our knowledge is not being described. Prognosis is poor because it is usually indicative of disseminated disease.

Keywords: Colorectal adenocarcinoma; Postsurgical scars; Chemotherapy

Case Presentation

In February of 2009 a 55 years old African American women with no significant past medical history underwent colonoscopy for evaluation of microcytic anemia. Found to have a non-obstructing transverse colon mass biopsy consistent with mucinous adenocarcinoma of colonic origin. Off note patient had no family history of colon cancer. CT scan of abdomen showed no evidence of metastatic disease. She underwent hemi colectomy. Resection margin were free of tumor, no lymph vascular or perineural invasion. 3 out of 8 lymph nodes resected were positive for metastatic disease, staged III (pT3 N1 M0 G2) followed by adjuvant chemotherapy with (FOLFOX). Her treatment course was uneventful. Patient had negative surveillance colonoscopy and CT scan. She remained well till three years from her initial diagnosis [1,2]. Then on routine follow up, she was noted to have cutaneous metastasis at previous surgical scar and no evidence of disease elsewhere on PET Scan. Patient underwent resection and radiation for positive margin (Figure 1). Subsequently started on Capecitabine with a partial prolonged response. Around eight months after cutaneous metastasis she presented with self-palpable 1 cm lump in her lower-inner aspect of the right breast (Figure 2). Clinical examination revealed a 1×1 cm hard lump in the lower inner quadrant of the right breast which was not fixed to the skin or underlying structures. No palpable axillary lymph nodes were noted and left breast examination was without any significant positive findings.

Mammography was performed in March of 2012, which had confirmed a lesion in medial right breast measuring 1.4 cm×1 cm×1.6 cm. At this time CT chest/abdomen/pelvis was performed to evaluate

recurrence of the disease. Patient was found to have development of right axillary lymph node, an interval increase infiltration of anterior upper abdominal wall midline mass and development of nodule in medial inferior right breast consistent with mammography findings. She underwent an ultra sound guided biopsy of the lesion, which was consistent with metastatic adenocarcinoma of the colorectal origin, with mucinous features (Figure 3).

The tumor tissue was negative for estrogen, progesterone and her-2-neu receptors. When compared with the primary colon cancer, the histology was similar. Immunohistochemistry was positive for CDX2 and CK20 and negative for CK7, which is consistent with colorectal adenocarcinoma. Positive polyclonal Carcino Embryonic Antigen (CEA) staining. In the follow-up, the patient had a worsening of her disease. She chose to be managed with best supportive care. Unfortunately she died of disseminated disease within 6 months after her breast metastasis.

Discussion

Metastases from colon rectal cancer to the breast and skin are



Figure 2: Nodular 1.4cm×1cm×1.6cm firm, mobile mass found in medial right breast.



Figure 1: Post-surgical scar, with discoloration. Skin biopsy found to be consistent with colon adenocarcinoma.

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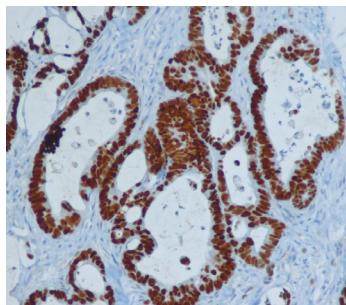


Figure 3: Histologically the lesion showed irregularly shaped tubules and branching glands lined by cuboidal epithelial cells that exhibited pleomorphism and polarization.

rare. Skin metastases from colorectal cancers account for only 5% of metastatic skin cancers [3]. Cases have been reported where metastasis to the skin was the first manifestation of cancer. A 10-year study from Veterans Administration hospitals looked over skin accessions and out of 100,453 cases a total of 77 cases were noted to have skin metastasis. Out of 77 cases only 14.2% was from the GI tract and 3.9% were localized to postoperative scars [1]. Most frequently metastatic skin lesions arise from breast and lung primary tumors, equally distributed between females and males. Invasion of colorectal cancer to the skin and subcutaneous tissues is believed to occur through capillaries and lymphatic capillaries as previously described by Kauffman et al. [4]. The mechanisms that are responsible to heterogeneous clinical and biological differences of colon cancer metastasis have not been clearly delineated.

Primary cases of breast cancer are one of the most common malignancies in women and are the leading cause of death from cancer in the female population. It is necessary to differentiate between primary malignancy of the breast versus metastatic disease in order to avoid unnecessary medical and surgical intervention. Breast metastasis from colon adenocarcinoma is typically rare. The most common metastasis to the breast is from the contralateral breast, followed by melanoma, lymphoma, ovarian, lung and gastric carcinoma respectively [5,6]. Metastasis to the breast from colorectal carcinoma is characterized by mobile masses that are easily palpable on physical examination, which do not cause nipple retraction or bloody nipple discharge [7,8]. Breast lesions are characterized as rapidly growing, with left breast predominance. It is rare to find patients with bilateral or multiple lesions [7]. Core biopsy with histological and immunochemistry evaluation is performed in order to differentiate metastatic from primary malignancy in the breast. Cytokeratin (CK) 20, CK 7, and CDX2 immunostaining are highly specific and sensitive for colorectal adenocarcinoma [9,10]. Primary breast tumors stain positive for GCDFP-15 in the cytoplasm, and half will be positive for progesterone and estrogen receptor as observed with our patient [7].

Management of metastatic breast cancer usually involves minimal surgical intervention as opposed to primary breast malignancy. Barthelmes et al. suggest avoiding surgical intervention in cases of metastatic breast cancer in order to eliminate the possibility of skin seeding [11]. Excisional biopsy is adequate and appropriate treatment of local disease in these cases [12]. If surgical treatment is considered it should be both palliative and diagnostic [7]. Diagnostic-imaging studies can serve as an added tool in differentiating metastatic lesions of the breast from primary breast cancers. Unique atypical radiological appearances of extra mammary breast metastases can mimic the appearance of multifocal primary breast cancer. It could present

as hyper echoic well-defined lesions with minimal parenchymal distortion, and can be misleading [13]. Physicians should have a high level of suspicion when evaluating patients with breast masses in order to determine if the growth is primary or metastatic in nature.

Colonic adenocarcinoma with metastasis to the skin and breast is rare and serves as a poor prognostic indicator with a median survival after diagnosis between two and four and half months, however some reports of patients with skin metastasis were found to have a longer survival time of 18 months [1,14]. Patients who are found to have skin and breast metastases from colon adenocarcinoma should be provided with symptomatic and palliative treatment given their short survival time. Differentiating between primary breast carcinoma and metastatic disease is vital, as treatment options will differ. Primary breast tumors are commonly treated with surgical management with or without adjuvant therapy, while systemic chemotherapy is required for colorectal carcinomas [15]. Our patient showed enormous therapeutic challenge in management of rare metastatic site. Thus, the care and treatment planning must incorporate multidisciplinary management strategies and interventions

Conclusion

Colorectal metastasis to the breast and skin is uncommon and unique in its characteristics. It is imperative that physicians evaluate positive findings of breast masses in a methodical and comprehensive way in order to determine whether the tumor is of a primary or metastatic nature. Once this information is obtained, a proper treatment plan may be put into place. A multidisciplinary approach is necessary to obtain the correct diagnosis. The case described above does not have the typical characteristics of a metastatic colon cancer. Timely diagnosis of this rare event required an accurate clinical history, high level of clinical suspicious and proper immune histochemical workup.

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