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Case Report Open Access

Can Metastatic Breast Cancer Spread to the Colon?

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Introduction

Breast cancer is the most commonly diagnosed cancer in females and it is very unusual for breast carcinoma to metastasis to the colon. Few cases have been reported in the literature. Here we present a case in which patient presented with colonic metastatic lesion four years after bilateral mastectomies for invasive lobular carcinomas. We will also discuss why sometimes, colonic metastasis of breast cancer is a challenging situation for physicians.

Case Report

A 51 years old, premenopausal female had bilateral mastectomies for invasive lobular carcinomas in April 2013. Both tumors were ER/PR positive HER-2 negative. Extensive work up at that time including Computed Tomography (CT) scan and bone scan did not show any metastasis except for bilateral lymph nodes involvement. She was BRCA 1 and BRCA 2 negative. After receiving radiation therapy, she completed adjuvant chemotherapy with doxorubicin, cyclophosphamide, paclitaxel and she was started on tamoxifen. Four years later, patient presented with intermittent and gradually progressive abdominal pain with relative constipation and was admitted in the hospital for further workup. Her tumor markers continued to rise slowly. Her Carcinoembryonic Antigen level was 16.7(Ref Range: 0-5 mg/ml) and Cancer Antigen 15-3 level was 384.1 (Ref Range: 0-31.3 U/ml). CT scan of the abdomen was done which showed thickening in ascending colon that was absent in previous imaging studies. PET scan showed increased uptake of FDG in right ascending colon. The patient received weekly paclitaxel therapy. Colonoscopy (Figure 1) showed a large partially circumferential mass in ascending colon 5 cm distal to cecum. Histology (Figures 2a and 2b) and immunohistochemistry of the biopsy were consistent with ER positive, PR negative and HER-2 negative lobular breast carcinoma for which she was managed conservatively.

During further follow up screening, she was found to have new metastatic bone lesions in spine. Biopsy confirmed bone lesions as ER positive, PR negative and HER-2 negative breast cancer metastasis. Tamoxifen was discontinued and she was treated with letrozole, palbocilib and monthly denosumab. She developed pancytopenia so letrozole and palbocilib were stopped. In April 2014, her re-staging scans showed many new and progressing old bone lesions. Patient was managed conservatively.

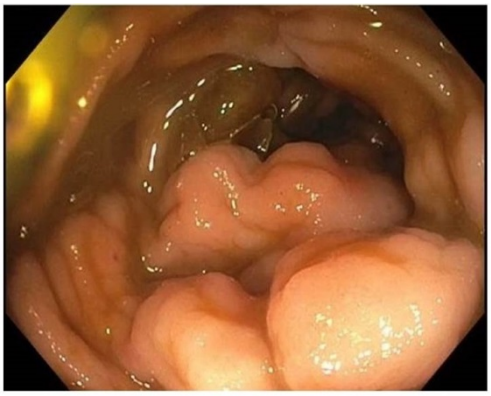

Figure 1: A partially circumferential mass at proximal ascending colon around 4-5 cm distal to the cecum.

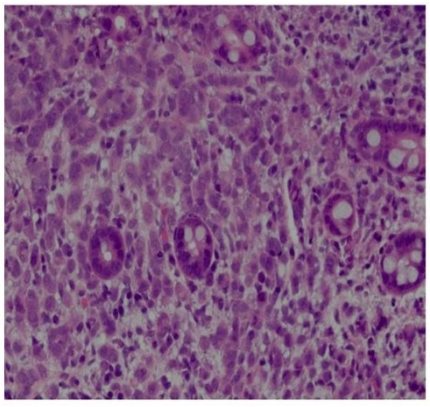

Figure 2a: H and E stained slide at 400X demonstrating sheets, single file and single malignant cells from metastatic lobular carcinoma of the breast invading around benign colorectal glands.

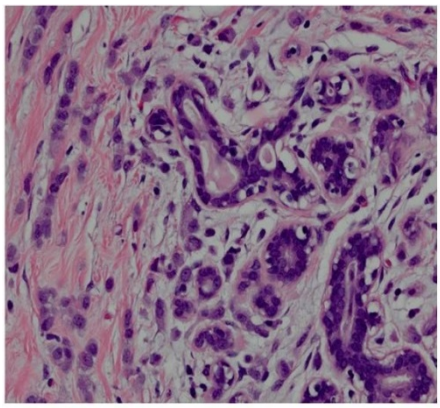

Figure 2b: H and E stained slides at 400X and demonstrates single file and single malignant cells from lobular carcinoma of the breast invading around benign breast ducts.

Discussion

Breast cancer is the most common cancer and one of the leading causes of death in women [1]. It most commonly metastasizes to lymph nodes, bones, lungs and brain but it is rare for breast cancer to cause extra-hepatic Gastrointestinal (GI) metastases [2]. Borst, et al. [3] analyzed 2605 breast cancer patients over a period of 18 years and reported only 17 had GI metastasis and also reported that the frequency of the lobular breast carcinoma to metastasize to GI tract was very small in amount i.e., 4% [3]. It is because lobular carcinoma shows distinct histological and biological features, such as inactivation of E-Cadherin [4] that leads to lack of cohesiveness between cells and typically has slow growing behavior due to HER2-negativity [5]. The clinical presentation of colonic metastases is very nonspecific and ranges from abdominal pain, intestinal obstruction to rarely as inflammatory diarrhea [6,7].

GI metastasis of breast carcinoma is a challenging situation for the physician. First, almost all the metastatic colonic lesions present like primary GI tumors on radiography and endoscopy. They can present as poorly differentiated, lintis plastica type GI lesion and can be misdiagnosed as primary GI carcinoma [8]. Calafat, et al. and Easter, et al. reported metastasis of lobular breast carcinoma that presented as Crohn's disease [7,9]. The most common mode of spread is diffuse infiltration of colon [2] but it can also present as a colonic polyp [10]. In our patient a circumferential mass was found in ascending colon, on colonoscopy. The standard method of analysis is immunohistochemistry. Metastatic breast cancers are positive for CK7, ER, PR, GCDFP-15 and Cytikine20 negative but the GI carcinomas are almost always positive for Cytokine20 [11]. Staining for p53 and Erb2/NEU are usually negative in primary colon carcinomas.

The other problem is the unusual long and unpredictable time interval between primary breast carcinoma and GI metastases [12]. The median interval between breast cancer and GI metastases is 6 or 7 years [8]. In many patients the history of primary breast cancer is known but Harslof, et al. [13] reported a case of colon metastasis compatible with lobular carcinoma of the breast although the primary breast cancer was never identified. GI metastases can even be the initial presentation of the breast carcinoma [14].

The interesting thing about our patient was that no metastases were found beyond axillary lymph nodes, when she underwent bilateral mastectomies for ER/PR positive and HER-2 negative invasive lobular carcinoma. The colonic mass presented four years after that and on immunohistochemistry it turned out to be metastases from lobular breast cancer and was ER positive and PR negative.

Treatment depends on clinical presentation and extent of the disease. Early chemotherapy and/or hormonal therapy improves prognosis vs. surgical treatment. Surgical resection should be reserved for palliation of intestinal obstruction or bleeding. Abdominal obstruction due to stenosis should be corrected with surgery [12]. The median survival after diagnosis of GI metastasis is 1 year [2].

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