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Case Report

Metastatic Signet-Ring Cell Cecum Cancer to Breast

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Abstract

The metastases of other cancers to breast tissue are not frequent. We reported a cancer metastasis to the breast tissue.

Case Report

48 yrs-old female patient with breast mass was diagnosed having signet-ring cell cancer infiltration to the breast tissue on pathological analysis of fine needle aspiration biopsy material. Colonoscopy yielded ulcero-vegetating poorly-differentiated adenocarcinoma in cecum with signet-ring cell component.

Discussion

Metastasis to breast is rare and most frequent presentation is the cancer metastasis of one breast to the other one. The most frequently metastasized cancers to breast in adults are non-Hodgkin lymphoma, leukemia and malignant melanoma; to a lesser extent, lung, gastric, ovarian, colon, rectum, carcinoid tumor, hypernephroma, tonsillar, pancreas, cervix, endometrium and bladder cancers. Clinical and radiologic findings are not diagnostic most of time, but biopsy.

Conclusions

Correct diagnosis of cancer metastasis to breast is essential to prevent unnecessary mastectomy and proper oncologic treatment.

Keywords: Breast mass; Colon cancer; Metastasis to breast

Introduction

Breast cancer is one of the most common primary cancers in women. However, metastases of other cancers to breast tissue are not frequent and must be considered in differential diagnosis.

We aimed to analyze diagnosis, treatment and approach to the breast metastases of cancers in the light of literature.

Informed consent was obtained from the patient for being included in the study.

48 yrs-old female patient applied to outpatient clinic with a mass in left breast. Physical examination revealed a mass lesion of approximately 20x30 mm between tail of Spence and upper outer quadrant of the left breast, and aggregated lymph nodes in left axil-

lary and supraclavicular areas.

Ultrasound (USG) showed a 13x11.2 mm mass lesion at 2 o'clock position, which had an unclear, spiculated border, posterior acoustic shadowing and hyper-echoic areas around it. It was vertically located to the parenchyma. These findings were interpreted as Breast Imaging- Reporting Data System (BI-RADS 4A). Also, multiple Lymph AdenoPathies (LAPs) up to 39x28 mm size were seen in left axillary region (Figure 1, 2).

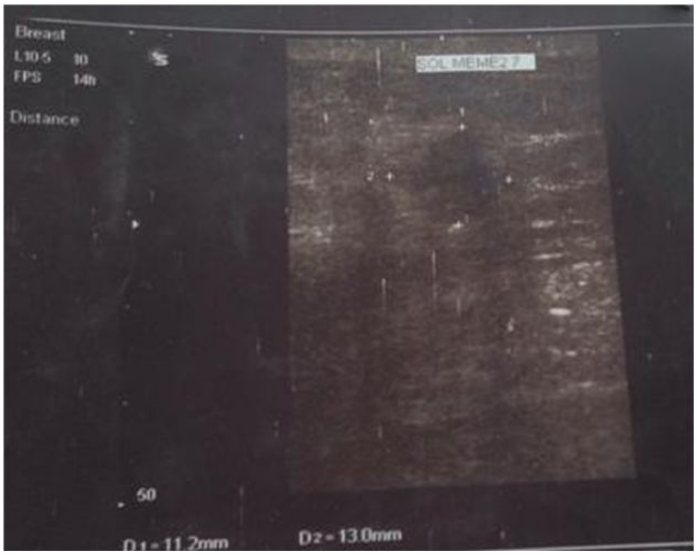

Figure1: Metastatic breast mass in left breast on USG

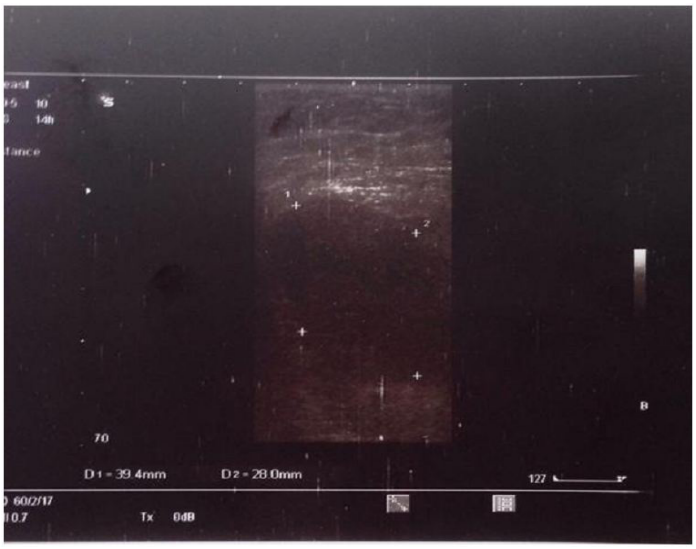

Figure 2: Lymp adenopathy in left axilla on USG

Mammography shown asymmetric parenchymal density in upper outer quadrant of the left breast on CC view (BI-RADS 0) (Figure 3).

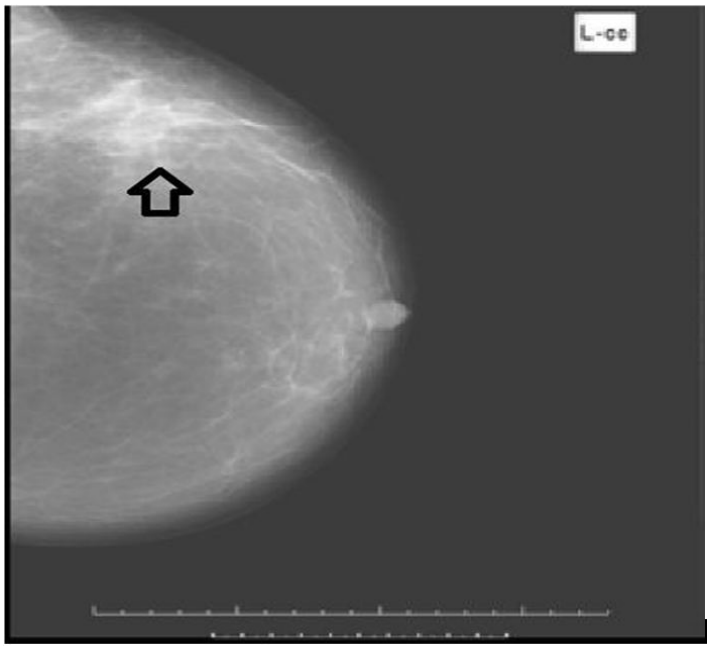

Figure 3: Mammagraphic view of the metastatic mass in breast tissue

Fine needle aspiration biopsies from the mass, left supraclavicular and axillary lymph nodes were taken, pathologic analysis revealed signet-ring cell cancer infiltration of the breast tissue and lymph node metastasis. Although signet-ring cell cancer is a subtype of breast cancers, both immune histo chemical results (GATA-3 immuno histochemical staining gave positive result in breast tissue but not in tumor) and clinical presentation led us to think it was a metastatic signet-cell carcinoma more than a primary one.

Whole GIS was searched; upper endoscopy yielded only chronic active superficial gastritis; colonoscopy yielded ulcero-vegetating tumor in cecum and the biopsy revealed poorly-differentiated adenocarcinoma with signet-ring cell component.

Thorax and abdomen CTs with contrast were taken for other possible metastases (Figure 4). Asymmetric wall thickening at cecum, multiple round lymphadenopathies, increased density in pericolonic area and conglomerate lymph nodes at paraaortic, aortocaval, celiac and retroperitoneal areas were found on abdominal CT.

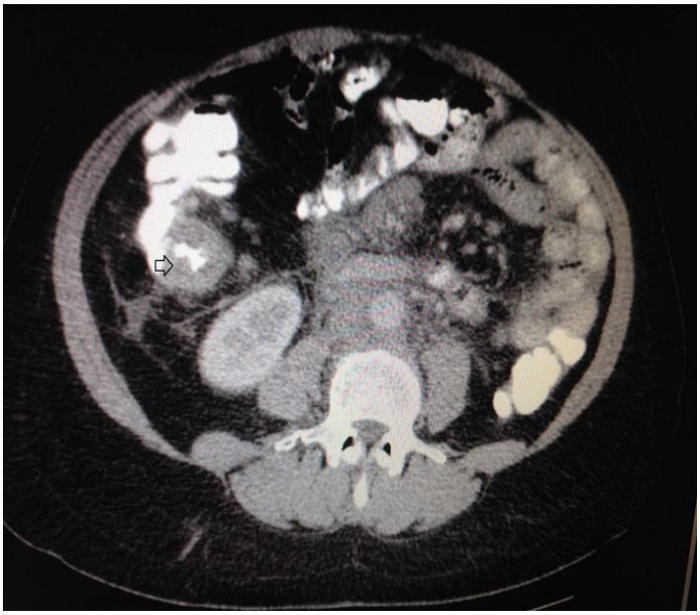

Figure 4: The primary tumor of the cecum which metastasized to the breast

Thorax CT revealed there were left supraclavicular and left axillary multiple LAPs up to 30x25 mm size and mediastinal and retrosternal multiple intra mammarian lymph nodes.

Whole-body PET/CT scan was taken and there were high metabolic activity in the walls of terminal ileum, cecum and ascending colon (SUD max 14.7), multiple wide-spread LAPs in bilateral supraclavicular fossa up to 20mm of size, in mediastinal pre-vascular area conglomerate LAPs of 17x35 mm, and multiple big LAPs at left axillary and peripancreatic, SMA and celiac regions were seen. Also, left breast skin thickening was seen due to interruption of lymphatic drainage.

Tumor marker levels were CEA: 78.44ng/ml (N<5ng/ml) and CA19-9: 971.46ng/ml (N<37ng/ml). Other biochemical parameters were normal.

Discussion

Metastasis to breast is rare and most frequent presentation is the cancer metastasis of one breast to the other one [1]. Non-breast cancer metastases to breast tissue constitute 0.2 to 1.3% of all breast tumors [2]. However, metastasis to breast must be considered in differential diagnosis in patients with breast mass. In spite of being rare, diagnosis of cancer metastasis to breast is important as its treatment differs from that of primary breast cancer.

The most frequently metastasized cancers to breast in adults are non-Hodgkin lymphoma, leukemia and malignant melanoma. To a lesser extent, lung, gastric, ovarian, colon, rectum, carcinoid tumor, hypernephroma, tonsillar, pancreas, cervix, endometrium and bladder cancers metastasis to breast [3-5]. Rhabdomyosarcoma is the most frequently metastasizing cancer to breast in children [6]. Sarcomas in adults rarely metastasize to breast [7].

Etiology of metastasis to breast is not clear but increased vascularity and stroma of breast tissue due to estrogen hormone might be playing a predisposing role [3,5].

Non-mammarian cancer metastasis ways to breast are hematogenous and lymphatic ones. Both breasts are affected equally and bilateral involvement is not frequent. Solitary lesions are seen 85% [2]. Metastatic lesions to breast present as rapidly growing painless masses. Contrary to primary cancers of breast, skin infiltration is not seen and lymphatic involvement is variable.

Compared to primary breast cancers, patients are younger and breast cancers seen during teenage and adolescence periods should bring metastatic cancer possibility to mind [8-10]. Metastasis to breast in younger age was explained with better blood flow in young [10].

Cancers metastases to breast have poor prognosis. Williams at al. reported average 10 months of survival after diagnosis. In spite of advancement in treatment, mean survival period is between 8-10 months [4,11-13]. We lost our patient within 2 months due to hepatic insufficiency following intraabdominal peritoneal, lymph node and liver metastases.

It is difficult to differentiate metastatic breast lesions from primary breast cancers. A careful history taking, high suspicion due to extraordinary onset, a good radiologic evaluation and cytopathologic examination are important in diagnosis. History of the patient gives clues about presence of primary tumor and history is the most important thing in diagnosis of metastatic cancers to breast. Our patient had been complained abdominal pain and problems in defecation for a long time. USG, Mammography and, if needed, Magnetic Resonance Imaging (MRI) are used to diagnose metastatic tumors to breast.

Cancer metastases to breast occur via both hematogenous and lymphatic ways. It shows some characteristic radiologic findings depending on the metastasis way, but these are not specific for metastasis.

Hemato genous metastases are usually seen on upper outer quadrant, may be single or multiple, round or oval in shape without spiculation or calcification and they settle in subcutaneous tissue as it is rich in vessels, just neighboring breast parenchyma [3,14]. Metastatic tumors grow up rapidly.

Lymphatic metastases show diffuse and heterogeneous increase in subcutaneous and glandular tissues, diffuse thickening of skin, lyph edema and lymph node growth on USG imaging. Axillary lymph node infiltration is seen less than that of primary breast

cancer. The cancers making lymphatic metastasis are controlateral breast cancer, gastric and ovarian cancers [3,4,15-18].

Clinical and radiologic findings are not diagnostic most of time. Frequently, Fine Needle Aspiration (FNA) or thick needle biopsy reveals the diagnosis. Infrequently atypical cytomorphological features of biopsy specimens should arouse suspicion of metastatic cancer to breast in mind of pathologist.

Conclusions

Correct diagnosis of cancer metastasis to breast is essential to prevent unnecessary mastectomy and proper oncologic treatment. Depending on spread of the disease, breast conserving surgery or mastectomy might be preferred. Surgical and oncologic treatment for primary cancer may be used. In MD Anderson Center, 76 patient underwent surgery; breast conserving surgery to 74, modified radical mastectomy to one and simple mastectomy to one out of 169 patients with metastatic tumors to breast. Multivariate data analysis showed non-surgically treated patients had 88% more mortality risk compared to that of surgical one. Patient-based local treatments were suggested as overall survivals of such patient were low [1]. We didn't consider surgery and gave our patient chemotherapy for colon cancer as there wasn't any obstruction but widespread metastases and there was no expectation of long-term survival. Unfortunately, the patient was lost within 1 month.

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