Unusual Presentation of Bone Metastasis from Hepatocellular Carcinoma Mimicking as Breast Lump

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ABSTRACT
A 55-year female presented with left breast lump. Her sonomammography was unremarkable. Core biopsy showed it to be metastatic hepatocellular carcinoma (HCC). Biphasic computerized tomography (CT) of liver confirmed presence of primary liver masses while CT chest showed involvement of left anterior chest wall, rather than primary breast mass. F18-Fluorodeoxyglucose (FDG) positron emission tomography CT (PET-CT) imaging confirmed primary liver tumor with bony metastases.

Key Words: Hepatocellular carcinoma. Metastasis. Breast lump.

INTRODUCTION
Hepatocellular carcinoma (HCC) is the third most common cause of cancer in the world. The most common sites of hematogenous metastatic spread include lung, intra-abdominal organs and bones. In a study, metastases from HCC have been observed in about 4 - 20% of patients with HCC.1 Initial presentation of HCC with bone metastasis is rare.2

The case presented is a unique case of bone metastasis from HCC in left chest wall, masquerading as breast mass.

CASE REPORT
A 55-year lady presented at Institute of Nuclear Medicine and Oncology (INMOL) with a lump in upper inner quadrant of left breast. She had no family history of breast cancer. She was diagnosed as a case of hepatitis C and treated with interferon therapy in 2011. Her follow-up was not as per guidelines due to poor compliance.

On presentation at INMOL, she had normal general physical examination. On examination of breasts, there was a 5 x 6 x 7 cm lump in upper inner quadrant of her left breast. It was firm to hard in consistency, tender and fixed to deeper structures with no skin and lymph node involvement. The right breast was normal. She was clinically diagnosed as a case of primary breast tumor. Hematologic profile and renal function tests were normal.

Bilateral sonomammography showed unremarkable left breast parenchyma (Figure 1), but an opacity at 9 - 12 o’clock position was seen on sonography. Core biopsy of the mass revealed metastatic HCC with Hep par-1 positive in tumor cells.

Computed tomography (CT) scan of chest (Figure 2) showed lytic lesion on lateral aspect of body of sternum, 88 x 51 mm in size, extending to retromammary space of left breast.

Biphasic CT scan of liver showed multiple focal lesions in liver with patchy enhancement on arterial phase and wash out in portal venous and delayed phases that was diagnostic of HCC.

F18-Fluorodeoxyglucose (FDG) positron emission tomography CT (PET-CT) showed multiple hypermetabolic hepatic lesions with FDG avid lesion in left presternal region extending into inner lower quadrant of left breast with widespread skeletal metastases.

Her serum bilirubin was normal while liver enzymes including alanine transaminase (ALT), aspartate transaminase (AST) and alkaline phosphatase were elevated. Serum alfa-fetoprotein (AFP) was > 30,000 IU/ml.
These investigations showed that our initial clinical diagnosis of primary breast tumor was not correct, rather it was metastasis from HCC.

**DISCUSSION**

HCC is an epithelial tumor that arises from the malignant transformation of the hepatocytes. Chronic hepatitis B or C infections or cirrhosis secondary to other chronic liver diseases are predisposing factors for HCC. HCC is responsible for about 1 million deaths annually worldwide. The association of HCC with cirrhosis limits both the treatment options and increases morbidity of any modality of treatment. HCC is usually asymptomatic at early stages and has a great propensity for intravascular invasion even when the tumor is small; hence, HCC is diagnosed at an advanced stage. HCC, being highly invasive, presents with distant metastases at the time of diagnosis. The most common site of HCC metastasis is the lung (49%), followed by lymph nodes (24%), bones (16%), and the adrenal glands. Chest wall is among rare sites of metastasis from HCC. In another study, tabulation of all extra hepatic metastatic sites of 403 patients showed the most common sites to be the lung in 81 (55%) patients, abdominal lymph nodes in 60 (41%) patients, and 41 (28%) patients had musculoskeletal metastases with lytic bone lesions. Only 7% of them showed rib involvement with soft tissue mass. Among all the metastatic sites, breast is an extremely rare site of metastasis from HCC. Only 6 cases of breast metastasis from HCC have been reported in the literature. Another similar study by Coban et al. has reported a case of 71-year man who presented with a mass on the left chest wall and axillary region. In the study by Horita et al., solitary bony metastasis to the sternum from HCC was demonstrated. Metastatic HCC has an aggressive course, with a poor outcome.

This reported case is unique in the sense that the primary manifestation of the disease was as a breast lump with no other symptoms. At the time of presentation, provisional diagnosis of breast primary was made. Core biopsy proved it to be metastasis involving sternum and adjacent ribs with soft tissue component extending into the retromammary space. Metastases to the chest wall have rarely been reported before. In literature survey, only one study was found where HCC metastasis to the chest wall presented as breast lump. HCC metastases may present in very unusual manner in bones, as in our patient. Therefore, while evaluating a breast lump, possibility of rare metastases from HCC must be kept in mind.

**REFERENCES**