

## **Case Report-IV**

# Below-Elbow and Below-Knee Metastases in Breast Cancer - A Case Report

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### **ABSTRACT**

Metastases below the knee and elbow from primary breast cancer is rare. A 34 year old female patient presented with history of pain in forearms and legs for about 3 months. In the past she had undergone a modified radical mastectomy for breast cancer and had received chemotherapy followed by radiotherapy and had been on hormone therapy. A whole body radionuclide bone scan revealed increased uptake in several bony regions, including the right radius and the left tibia. A CT-guided FNAC of the right radius confirmed metastatic carcinoma. This case is being reported on account of its rarity.

### **INTRODUCTION**

Bone metastasis from primary tumours is frequent. Most common primary tumours to metastasize to bone are cancers of the breast, prostate, lung, thyroid and kidney. Bone is the primary site of metastases in 40%-75% cases of breast cancer<sup>1</sup>, common sites are axial skeleton and the long bones. Bone metastases to below elbow and below knee is rare. We report one such case.

**CASE:** A 34 year old married woman presented to the radiotherapy department in December 2004 with a mass in the right breast for about 3 months. Clinical examination revealed 6cm×4cm mass in the upper outer quadrant of the right breast. There was no associated discharge, ulceration or fixity to the skin or chest wall. A single mobile lymph node of about 2cm diameter was palpable in the medial wall of

the right axilla. Contralateral breast, axilla and the other draining lymph node areas (supraclavicular, infraclavicular and internal mammary group of lymph nodes) were normal. There was no bony tenderness.

Complete hemogram, liver function test, chest X-ray and ultrasonography of whole abdomen were unremarkable. Fine needle aspiration cytology (FNAC) of the breast lump was suggestive of ductal carcinoma. The patient was staged as T<sub>3</sub>N<sub>1</sub>M<sub>x</sub> (Stage IIIA) and she underwent modified radical mastectomy in January 2005. Histopathology report confirmed infiltrating ductal carcinoma and her estrogen receptor (ER) status was -ve and progesterone receptor (PR) status was 40% +ve. Post operatively, she received 6 cycles of chemotherapy (consisting of 5-Fluorouracil, Doxorubicin and Cyclophosphamide) followed by external beam radiotherapy (50 Gy/25#/5wks). Hormone therapy in the form of Tamoxifen (20mg/d) was started but she was then lost to follow up.

The patient again presented in September 2006 with pain in the back, left leg and right forearm for about 3-4 months. She had been very irregular in her consumption of Tamoxifen. A thorough clinical examination revealed no evidence of disease in the loco-regional site but there was marked tenderness in the lower thoracic and upper lumbar vertebrae and also in the right forearm and upper part of left leg. No neurological deficit was found. A provisional diagnosis of bone metastases was made.

Investigations including complete blood count, liver function test, chest X-ray and ultrasonography of whole abdomen and were found to be normal. But X-ray of the spine showed osteolytic lesions in D6-D8 and L1-L2 vertebra. A whole body Radionuclide bone scan (with Tc-99 MDP) demonstrated areas of

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increased radiotracer uptake in (i) both shoulder joints and proximal 1/3 of both humeral shafts (ii) A prominent focus over proximal 1/3 of shaft of right radius (iii) Over D6-D8, D10, D12, L1 and L2 vertebrae and a suspicious focus over L4 (iv) Left iliac crest and both upper and lower margins of right acetabulum (v) medial tubercle of left tibia

CT guided FNAC performed from the focus present in the proximal 1/3 of the shaft of the right radius revealed metastatic carcinoma.

Patient was treated with local external field beam radiation therapy (30Gy/10#/2weeks). Later, she complained of severe pain below the left knee for which she also received local field radiation (20Gy/5#/1week). The symptoms decreased, allowing her to resume her daily routine. Tamoxifen was continued at 20mg/day. The other areas (including the forearm) were relatively asymptomatic.

## DISCUSSION

Metastatic bone disease is the most common form of bone cancer found in oncology practice. Its incidence varies from 6% to 85% in several studies, and bone is the third most common site of metastases after lung and liver<sup>2</sup>. The primary cancers most commonly associated with bone metastases are:- Lung, Breast, Prostate, Thyroid and Kidney<sup>3</sup>. The spine appears to be the most affected bony site followed by the pelvis, ribs, skull and the upper arm bones. Breast cancer and lung cancer (which is 20% in frequency) form the commonest causes of distal or below-elbow and below-knee metastases,<sup>4</sup> On literature review below-knee and below-elbow metastases have been found in only about 7% of cases. The tibia alone is affected in 4.4%<sup>4</sup> while the foot and the ankle are involved in 1% each.<sup>5</sup> Most of these cases of acral metastases have been found to arise from bronchogenic carcinoma followed by renal cell carcinoma and breast cancer. The cause of the rarity of acral metastases is the relative lack of active hematopoietic bone marrow in these sites.<sup>6</sup> There have been reports of lung and breast cancers spreading to the thumb, or presenting just as an isolated metastases in the talus, or even to the phalanx.<sup>7, 8,9,10</sup>

About 70% of cases with bony metastases are detected radiographically and 85% show lytic changes. For breast cancer bone scans is not done routinely and is recommended in stage II tumours >3 cm and high histologic grade, and in stage III and IV cancers.<sup>11</sup> Other stage II patients and stage I should be subjected to bone scans only when they have bone pains.

Hematogenous spread has been documented as the most common and important mechanism of bone involvement.<sup>12</sup> Metastases most often occur in red marrow, which are present in cancellous bone in vertebrae throughout adult life, hence the high frequency of spinal spread. The low blood flow (0.4ml/min/gm) in the red marrow coupled with the "osteotropic" property (propensity to metastasize to bones)<sup>13</sup> of certain tumours are other possible reasons.



Fig.1 Radionuclide bone scan showing increased uptake in right radius and medial tubercle of left tibia.

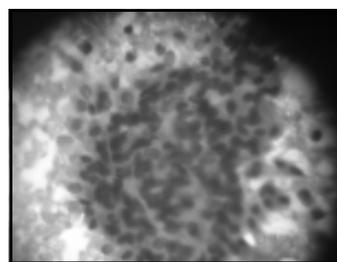


Fig. 2 Photomicrograph of lesion in right radius showing distorted cellular architecture, hyperchromatic nuclei, abnormal N:C ratio-consistent with metastatic carcinoma.(H&E stained 40x)

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