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Coexistence of carcinoma breast and Paget’s disease of bone

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ABSTRACT
We report a case of a patient with carcinoma breast who was incidentally diagnosed to be also suffering from Paget’s disease of bone on a routine radionuclide bone scan. CT-guided biopsy and histopathology later confirmed the diagnosis.

KEY WORDS: Bone biopsy, bone scan, breast cancer, Paget’s disease

Although rare, there are a few case reports describing the coexistence of Paget’s disease and metastatic carcinoma.[1-3] Bone scan is often helpful in the diagnosis because of the characteristic distribution patterns and the scintigraphic findings, for example, the increased skull uptake, bowing of the legs, Mickey Mouse vertebrae etc. These findings can guide the clinician in deciding the appropriate management. However, in the event of an associated malignancy, it may be difficult to distinguish Paget’s disease from a metastasis, and a bone biopsy may be necessary for the diagnosis.

CASE REPORT
A 52-year-old postmenopausal female was referred to the Department of Nuclear Medicine, SGPGIMS, Lucknow, for a bone scintigraphy in July 2001. Two weeks prior to her referral she had undergone lumpectomy for a suspicious mass lesion in her left breast of 3 months duration. The histopathology had revealed infiltrating duct carcinoma. She also had a history of a gait disorder in the form of a waddling gait since 4 years. She had undergone complete modified radical mastectomy. The resected specimen had revealed no evidence of malignancy in the breast, and the axillary nodes were free of metastasis.

Whole-body bone scintigraphy was performed 3 h after intravenous administration of Tc-99m MDP and the images revealed abnormally increased tracer concentration involving the right hemipelvis [Figure 1]. The rest of the skeleton was normal. This pattern is typical of Paget’s disease. Radiograph and CT scan of the pelvis revealed an extensive sclerotic lesion in the right hemipelvis, corresponding to the increased uptake on bone scan. Biochemically, serum alkaline phosphatase, calcium, and phosphorous levels were all within normal limits. However to rule out the possibility of it being a metastasis from her primary lesion, she underwent a CT-guided biopsy, which showed a mosaic pattern, confirming Paget’s disease [Figure 2].

DISCUSSION
Breast cancer is known to metastasize early. At the time of presentation, most patients have subclinical occult disease in the presence of a localized disease[1], which is regularly underestimated by currently available clinical and pathologic staging procedures.[4] Bone scintigraphy is highly sensitive (96%) but less specific (66%) and is generally used for screening primary cancer for staging purposes.[5] An osteoblastic lesion seen on bone scan can be either metastatic or benign. Of the skeletal lesions detected by bone scintigraphy in patients with cancer, 29–36% are found to be benign in nature.[6] If the lesion is metastatic, then it can be related or unrelated to the primary disease and this can be confirmed by radiological procedures or needle biopsy. Often the pattern of involvement or distribution may clinch the diagnosis. Paget’s disease of the bone is a common disorder in the elderly, with a reported incidence of approximately 3-4%.[8,9] In the majority of the patients, it is asymptomatic and only revealed by the discovery of elevated serum alkaline phosphatase levels or by its incidental finding on radiographic skeletal surveys or radionuclide bone scan. In Meunier’s large series, 69.4% cases of Paget’s disease were reported to be asymptomatic.[10] Usually metabolically active lesions cause symptoms and severe structural deformity. Paget’s disease may be associated with other diseases, such as malignancies. In this situation, it often poses a diagnostic dilemma to the
clinician since the firm diagnosis of Paget’s disease in patients with cancer, and the assurance that there is no metastasis, may save them from further unnecessary examination and aggressive therapy.[1] Of the many investigations that are done, bone biopsy is the only diagnostic procedure that can clarify the underlying abnormality and determine the management of the disease.[3]

The usual radiographic progression of untreated Paget’s disease is from the initial lytic phase, through a mixed lytic and sclerotic appearance, to a purely sclerotic form. In our patient, diffuse generalized hemipelvis involvement on bone scan was more in favor of Paget’s disease than metastasis. Radiography and biochemical parameters too were indicative of a benign process. Serum alkaline phosphatase level usually correlates with the extent and activity of the disease. Normal levels may be found in isolated involvement of a small bone such as a vertebral body or in the sclerotic phase with decrease in cellular activity; extensive involvement may be associated with unlimited increase.[2] The spent out stage of Paget’s disease could explain the normal alkaline phosphatase level in our patient. The small possibility of the patient harboring an osteosclerotic metastasis from the carcinoma breast led us to confirm the diagnosis by bone biopsy.

Most recent studies do not recommend bone scan as a routine diagnostic tool in the staging of early breast cancer patients, but there is always the possibility that such incidental findings may be missed in asymptomatic patients; this can occur in the Indian population also.

REFERENCES


Source of Support: Nil, Conflict of Interest: None declared.