

CASE REPORT

Co-existent Paget's disease of the bone, prostatic secondaries and fracture on skeletal scintigraphy - lessons to be learned

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Abstract

It is not infrequent for Paget's disease and osseous metastases to coexist in an elderly patient and this possibility has to be kept in mind in order to avoid mistaken diagnosis. We report a patient with multiple concurrent pathologies in the skeleton including bone metastases, traumatic rib fractures and Paget's disease causing diagnostic uncertainties.

Key words: *Paget's disease, prostate cancer, bone scintigraphy, fracture, metastases*

Introduction

Bone scintigraphy, despite being non-specific, is a very sensitive and simple investigation for patients with active Paget's disease of the bone. Skeletal metastases and Paget's disease may co-exist in the elderly patients as both conditions are commonly seen in this age group. Furthermore, elderly patients frequently have traumatic rib lesions. Here, clinical and radiological correlation may help

to improve the diagnostic specificity of a bone scintigram. We report a patient with multiple concurrent pathologies in the skeleton including bone metastases, traumatic rib fractures and Paget's disease causing diagnostic uncertainties.

Case report

A 68-year old man with raised (>250 ng/ml) Prostatic Specific Antigen (PSA) and biopsy-proven carcinoma of the prostate underwent hormonal treatment. A whole-body bone scintigram prior to therapy had shown multiple metastases in the vertebral column, ribs, left scapula, pelvis and left proximal femur (Figure 1). However, there was focal uptake in seen in the right 7th and 9th ribs posterolaterally. These focal active rib lesions were suggestive of metastases except for the fact that they corresponded to known rib fractures depicted on an earlier CT scan.

There was additionally faint diffuse uptake in the left hemi-pelvis but this was deemed insufficient for a definite diagnosis of active Paget's disease at the time. Local radiotherapy was given for back and right hip pain. Post-therapy PSA returned to normal (0.31ng/ml). A year later, the patient developed pain in the left hip, when a repeat bone scintigram (Figure 2) showed total disappearance of all the previously noted lesions with the

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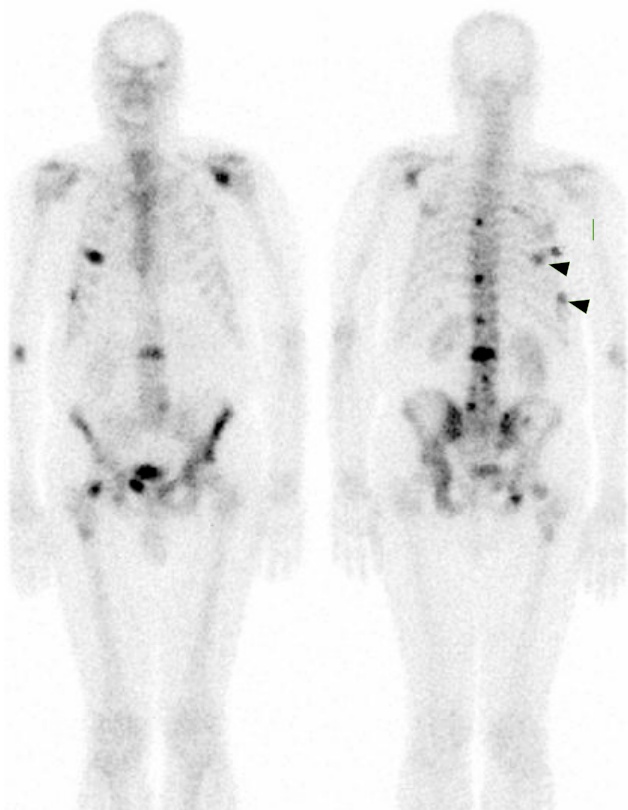


Figure 1 Whole-body bone scintigram demonstrates secondaries at multiple sites. Faint diffuse increased uptake is visible in the left hemi-pelvis. Arrowheads point to the known rib fractures, which cannot be differentiated from bone metastases

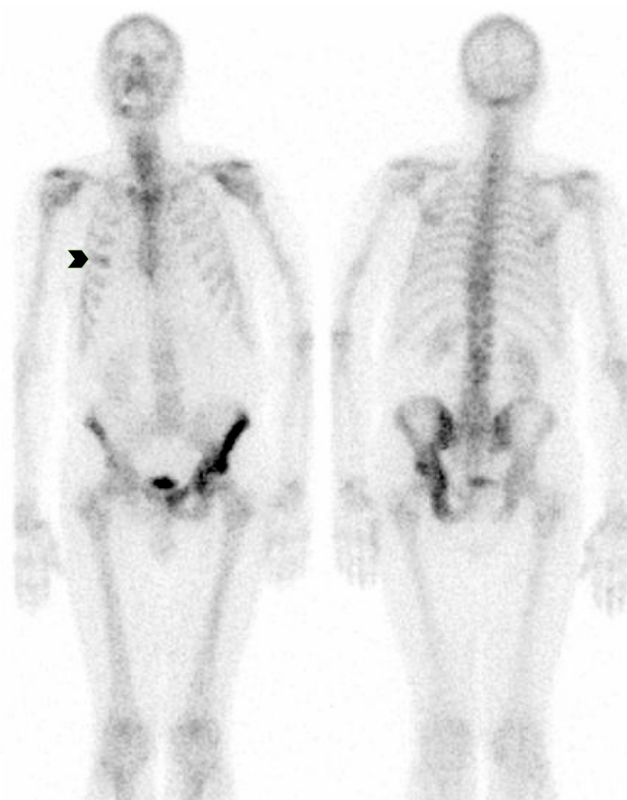


Figure 2 Whole-body bone scintigram shows diffuse low-grade tracer uptake in the left hemi-pelvis suggesting active Paget's disease. Faint focal uptake is present in the in right fourth rib (chevron). All other lesions have now disappeared



Figure 3 Radiograph of pelvis shows typical features of Paget's disease in the left hemi-pelvis

exception of persistent but faint focal uptake in right fourth rib anteriorly possibly representing persistent focal infiltrative bone lesion. Also, diffuse, low-grade uptake consistent with active Paget's disease was seen in the left hemi-pelvis. The latter diagnosis was confirmed by plain radiograph (Figure 3) and a raised serum alkaline phosphatase.

Discussion

It is not infrequent for Paget's disease and osseous metastases to coexist in an elderly patient and this possibility has to be kept in mind in order to avoid mistaken diagnosis. Further, management of the two conditions is different. In Paget's disease, the tracer uptake on scintigraphy is often intense, well

demarcated and evenly distributed in the affected skeleton. It tends to preserve and even enhance the normal anatomic configuration of the involved bones. In contrast, metastatic disease usually presents with random spotty lesions or patchy dense tracer uptake. It tends to obliterate rather than reinforce normal bone outlines. If it involves two areas of the same bone, the intervening bone usually appears normal on scintigraphy unlike the homogeneous tracer uptake seen in Paget's disease. There is usually no bony deformity or overgrowth. Plain radiography is extremely useful in this situation and frequently resolves the problem.

In our patient, it was only after the regression of bone metastases following hormonal treatment and local radiotherapy that Paget's disease in the left hemi-pelvis became apparent on skeletal scintigram. There have been case reports in the past of these two conditions occurring in the same patient [1-3]. In the case discussed here, it is possible that early Paget's disease was present in the left hemi-pelvis at the time of first bone scan when bone metastases were documented. The features were, however, not typical and it was not possible to diagnose the condition even with the benefit of hindsight. Only 65% of Pagetic bone shows abnormalities in both radiographs and bone scintigrams [4]. In the remaining 35%, two-thirds are recognized only on bone scan alone and these are associated with early disease. One-third of the remaining lesions are appreciated only on radiographs alone and these are either sclerotic or 'burned out' lesions. It has been reported that lesions detected by radiograph only were always asymptomatic whereas lesions seen on bone scintigram only were symptomatic in most patients [6]. This patient had painful left hip when the second bone scan and pelvic radiograph were obtained.

Multiple active bone lesions on bone scintigraphy may well be due to different coexisting causes including bone secondaries, traumatic and degenerative bone lesions, and benign pathology such as Paget's disease as

shown in this case and can give rise to diagnosis uncertainties despite careful correlation of clinical, laboratory, radiological and scintigraphic data.

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