

Acrometastasis to the foot: an unusual presentation of transitional cell carcinoma of the bladder

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Abstract

Metastases from bladder cancer to the bones of the hands or feet are rare and usually present after the diagnosis of the primary lesion has been made. This case report describes a 76-year-old man presenting with initial signs of infection of the right foot. Subsequent bone scan revealed multiple bony metastases and hydronephrosis raising the possibility of a primary bladder tumour that was later confirmed by urine cytology and fine needle aspiration of the foot.

Key words: acrometastasis, ^{99m}Tc-HDP bone scan, transitional cell carcinoma

Introduction

Metastatic bone disease involving the hands or feet (acrometastasis) is rare. Acrometastasis involving the foot has been described in patients with colorectal and renal carcinoma [1, 2]. We report a patient with no previous history of malignancy who presented with swelling and erythema of the right foot, which failed to improve with antibiotics. Serial plain radiographs demonstrated

rapidly progressive destruction of several bones of the foot. A whole body bone scan revealed several other focal areas of increased tracer uptake in the bony skeleton and obstruction of the left renal tract at the level of the left vesico-ureteric junction (VUJ). This was interpreted as a malignant bladder lesion at the left VUJ with bony involvement. Cytological examination of the urine confirmed the presence of transitional cell carcinoma (TCC) of the bladder.

Case report

A 76-year-old gentleman presented with a 6-week history of pain and swelling of the right foot. This had progressed despite a short course of antibiotics. There was no history of weight loss, haematuria or fever. Clinical examination was unremarkable apart from swelling and erythema of the dorso-medial aspect of the right foot. Laboratory investigations were also unremarkable with white cell count $7 \times 10^9/L$, haemoglobin 14.1 g/dL, C-reactive protein (CRP) 23 mg/L, urea 12 mmol/L, creatinine 105 $\mu\text{mol/L}$, calcium 2.39 mmol/L, alkaline phosphatase 139 U/L, prostate specific antigen (PSA) 11 ng/mL.

On admission, plain radiograph of the right foot demonstrated extensive destruction of the right first metatarsal, first proximal and distal phalanges, and overlying soft tissue swelling, which was considered to be in keeping with infection rather than metastases (Figure 1A). Repeat plain radiographs performed one and 2 months later showed further progressive destruction of the remaining metatarsal bones (Figures 1B, 1C).

A technetium-99m oxidronate (^{99m}Tc-HDP) whole body bone scan was then performed, which demonstrated intense tracer uptake in the right foot, and focal increased uptake in the right proximal and distal tibial diaphyses, the right mid femoral diaphysis, and left inferior pubic ramus. In addition, it revealed tracer retention in the left renal tract with a left sided hydronephrosis, in keeping with obstruction at the level of the left vesico-ureteric junction (VUJ) (Figure 2). The scintigraphic features were in keeping with metastatic bone disease, rather than infection. The presence of obstruction of the left renal tract suggested a bladder or ureteric primary at the left VUJ.

Subsequent urine cytology confirmed the presence of malignancy.

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Figure 1.A. Plain radiograph of the right foot at presentation showing extensive destruction of the right first metatarsal, first proximal and distal phalanges, and overlying soft tissue swelling, which was considered to be in keeping with infection rather than metastases. Repeat radiographs performed one (**B**) and two (**C**) months later showed further progressive destruction of the remaining metatarsal bones.

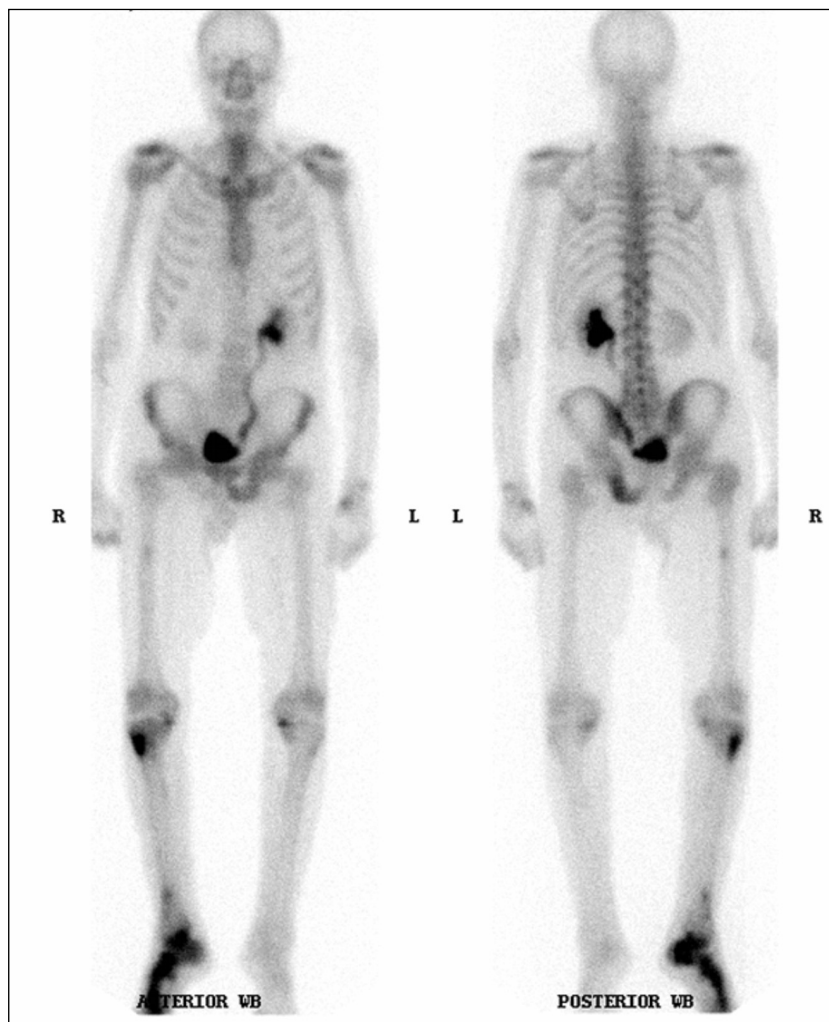


Figure 2. A whole body ^{99m}Tc-HDP bone scan demonstrating intense tracer uptake in the right foot, and focal increased uptake in the right proximal and distal tibial diaphyses, the right mid femoral diaphysis, and left inferior pubic ramus. Furthermore, there is tracer retention in the left renal tract with a left sided hydronephrosis, consistent with obstruction at the level of the left vesico-ureteric junction (VUJ).

nant cells of urothelial origin, consistent with transitional cell carcinoma. Furthermore, ultrasound guided fine needle aspiration (FNA) of the foot was performed. Cytological examination of the tissue samples also showed malignant cells, with immunochemistry in keeping with an undifferentiated adenocarcinoma or bladder transitional cell carcinoma. Repeat radiographs of the right foot, one and two months later, showed significant progression in the destruction of the first, second and third metatarsals (Figures 1B, 1C). The patient was treated with a course of radiotherapy to the foot.

Discussion

Metastatic bone disease involving the hands or feet is rare in routine clinical practice. In the few reported cases of acrometastasis, the hand involvement outnumbers the foot by 2:1, with metastases to the dominant hand twice as common as non-dominant hand [3]. The site of origin of the primary tumour appears to influence the likelihood of peripheral bone involvement, with bronchogenic carcinoma being the most common tumour to metastasize to the hand. Sub-diaphragmatic neoplasms such as gastrointestinal and renal malignancy metastasize more frequently to the foot. Tumours arising from superficial organs such as the breasts show no particular predilection to either the hand or the foot. A literature review by Libson et al found that lung, colorectal, and renal malignancies accounted for almost 50% of acrometastases to the foot, with 10% of cases due to metastases from the bladder [1]. Tarsal bones were involved in 50–73% of metastases to the foot, usually within the calcaneus [1, 4–6].

Carcinoma of the bladder is the most common neoplasm of

the urinary tract. More than 90% are TCC. Bone metastases from TCC may be lytic, sclerotic or mixed. Bladder metastases to the foot are almost ten times more common than to the hand [1]. Most cases of acrometastases present in patients with a known primary malignancy, but the interesting aspect of our case report is the fact that it was the first presentation of an occult tumour in a previously well patient. In addition, because of their rarity and location, they may be incorrectly diagnosed and treated, delaying further investigation and correct treatment. Acrometastases may be mistaken for soft tissue infection, osteomyelitis, septic arthritis or monoarticular rheumatoid arthritis. This is often compounded by the fact that signs of inflammation are also usually present. In the absence of inflammation, benign lesions such as enchondroma or epidermoid cyst should be considered.

In patients over the age of 45 with an atypical lesion in the hand or foot, metastasis should be considered. A whole body bone scan may confirm the presence of further metastases or even, as in this case, suggest the location of the primary malignancy.

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