

IMAGING GAMUT

Multiple osteomyelitis with septic arthritis on a 3-phase bone scan

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Key words: *Osteomyelitis, Septic arthritis, Bone scan*

Background An 8-year-old boy presented with 3 months history of left hip pain following blunt trauma to the pelvis and abdomen. Initial x-ray of the pelvis was reported to be normal. All inflammatory markers were elevated. Biochemistry revealed an ESR of 130 (normal 0-10 mm/hr), C-reactive protein of 60 (normal 0-5 mg/l). Skeletal scintigraphy was indicated to investigate possible musculoskeletal infection [1, 2].

Procedure A 3-phase bone scan of the pelvis and femora together with a delayed whole-body bone scan in the anterior and posterior projections were performed following injection of ^{99m}Tc -methylene diphosphonate.

Findings The 3-phase bone scan images revealed increased vascularity in the entire left femur and in the left hip with a large soft-tissue component (Figure 1). There was moderate to intense heterogeneous uptake of tracer throughout the left femur, the medial two-thirds of right clavicle and the entire left clavicle. Faint

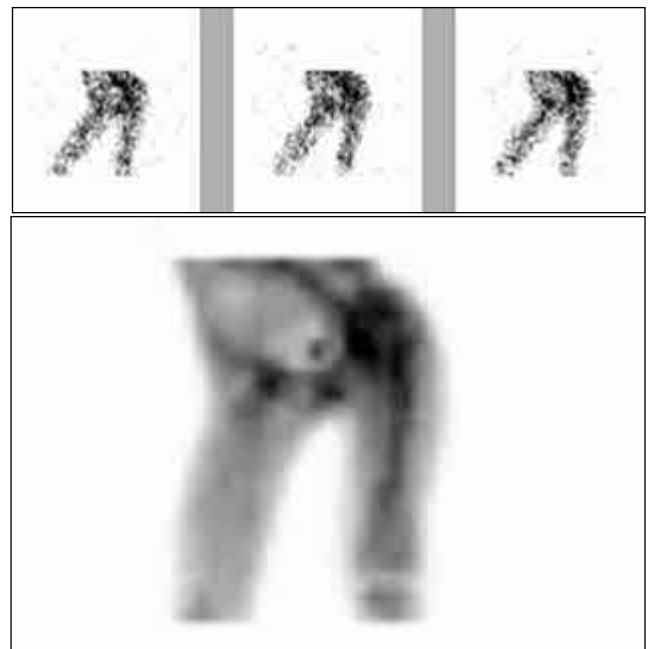


Figure 1 ^{99m}Tc -MDP blood flow (top) and blood pool (bottom) images showing increased vascularity in the femur, hip and pelvis of the left

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increased uptake was also seen in the proximal one-third of the left humerus as well as in the proximal one-third of the left tibia. (Figure 2). The left femoral head was completely displaced superiorly and laterally. The left femoral neck appeared less intense. An 'encapsulated' photopenic area in the left hip joint space was noted inferior to the left femoral neck (Figure 3).



Figure 2 ^{99m}Tc -MDP whole-body images in the anterior (left) and posterior (right) projections

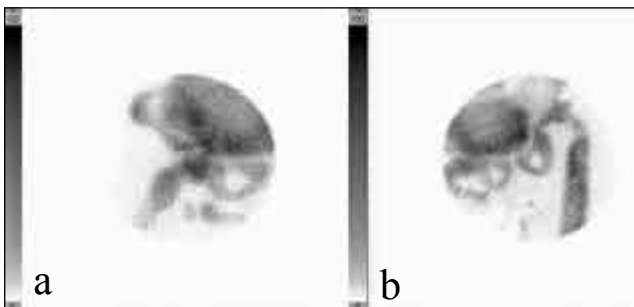


Figure 3 Pinhole images of the right (a) and the left (b) hip regions in the anterior projection

Conclusion The scan findings were consistent with multifocal osteomyelitis, septic arthritis of the left hip together with a suspected fracture in the proximal left femur. The photopenic mass seen in the region of the left hip joint raised the possibility of an encapsulated abscess. A subsequent CT scan showed multiple intra-

and extra-articular rim-enhanced lesions in left hip joint space, consistent with a network of abscesses with the largest measuring 3.5cm x 2.7cm x 2.5cm (HU=17). CT scan also confirmed an inter-trochanteric fracture. The patient was taken into theatre for incision, drainage and debridement. *Pseudomonas aeruginosa* was cultured from the biopsy sample and the patient was treated with a course of intravenous antibiotics.

Comment Radionuclide bone scintigraphy is particularly useful for the diagnosis of multifocal osteomyelitis and septic arthritis as demonstrated in this case. Also illustrated in this case is the use of complimentary anatomical imaging (CT scan) in confirming and further characterizing the left hip pathology. Imaging is essential for confirming the clinical diagnosis of osteomyelitis and also provides essential information on the site and extent of the infection, which helps the referring clinician in planning medical or surgical treatment [3].

References

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