



Thank you to Claudia Cowell from PRP Newcastle and Hunter for contributing this issue.

BONE SCANS FOR THE DETECTION OF BONE AND JOINT PATHOLOGY

Musculoskeletal pain is often a diagnostic challenge, particularly in regions of complex anatomy or when conventional radiological imaging (e.g. X-ray or CT) is unable to isolate the specific cause of the pain. Back pain is a common example with multiple potential causes. The functional information provided by a bone scan can often help to diagnose the cause of pain and guide therapy.

CASE STUDY 1: Multi-level facet joint osteoarthritis – localisation for CT-guided cortisone injection

CLINICAL HISTORY

A 67-year-old female presented with chronic lumbar spine pain, with increasing symptoms over the last 6 weeks and radiation down the right leg. No specific trauma was noted.

IMAGING FINDINGS

SPECT/CT demonstrated active facet joint inflammation at the level of S1 (see Figures 1 and 2). Using the SPECT/CT data, CT targeted facet joint cortisone injection was performed to alleviate symptoms.

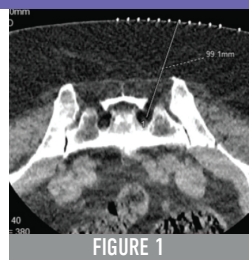


FIGURE 1

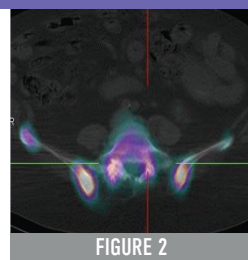


FIGURE 2

CASE STUDY 2: Stress Fracture

CLINICAL HISTORY

A 17-year-old male who is a keen runner presented with a 4-week history of anterior and medial tibial pain.

IMAGING FINDINGS

Plan X-ray revealed no bony abnormalities (Figure 3). A three-phase nuclear medicine bone scan showed bilateral tibial shin splints/periostitis, with superimposed acute stress fracture in the proximal left tibia (Figures 4 and 5).

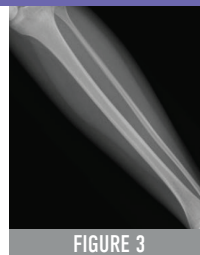


FIGURE 3

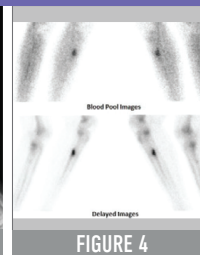


FIGURE 4

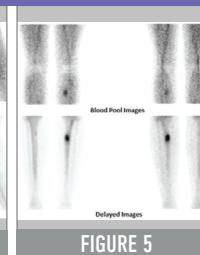


FIGURE 5

CASE STUDIES 3 & 4: Investigating increases in alkaline phosphatase (ALP) levels in elderly patients

CLINICAL HISTORY

An 83-year-old male patient with lower back pain and rising ALP levels. No known prior bony diseases and no prior trauma.

IMAGING FINDINGS

Whole body bone scanning demonstrated pagetoid bony changes with moderate disease activity left hemipelvis and left proximal femur (Figure 6).

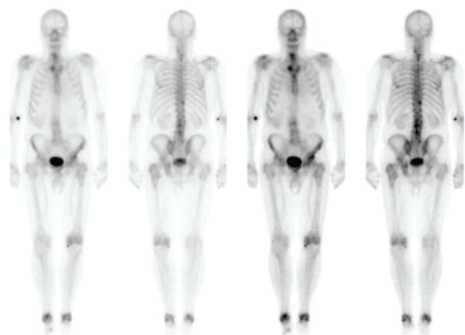


FIGURE 6

CLINICAL HISTORY

A 75-year-old male patient with persistently raised ALP levels on routine bloods.

IMAGING FINDINGS

Delayed whole-body bone scan demonstrated active Paget's disease involving the left scapula (Figure 7).



FIGURE 7

PRACTICE POINTS

- Bone scans at PRP are performed using state-of-the-art SPECT/CT techniques.
- SPECT provides a '3D' bone scan of the body which is superimposed upon a standard CT of the body.
- Combining these techniques provides the sensitivity of the bone scan for the detection of bone and joint pathology and the anatomical specificity of CT necessary to assist with diagnosis.
- This allows appropriate treatment, such as anti-inflammatory injections, to then be planned.