

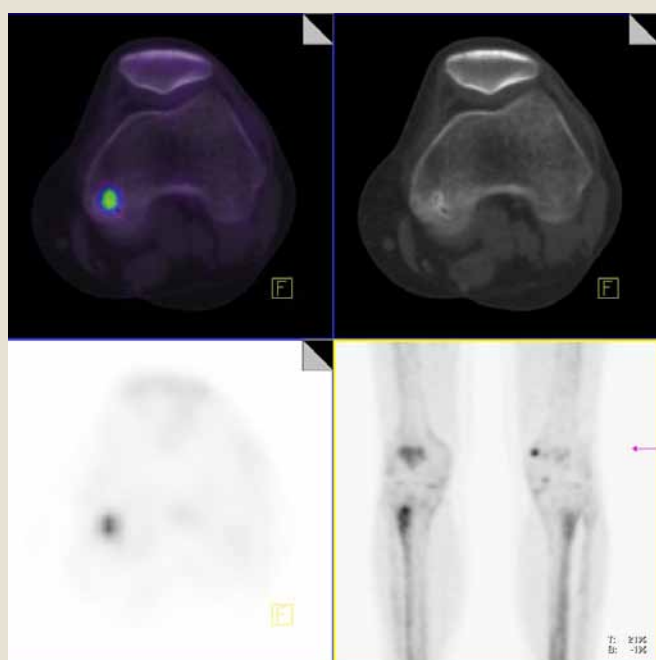
Inside Story HIGHLIGHTS

From the Pacific Radiology Referrer Newsletter



Pacific Radiology

Sodium Fluoride Bone Scans RE-INVENTING THE OLD



Pacific Radiology, in conjunction with Cyclotek Pharmaceuticals Pty of Melbourne, has just performed New Zealand's first NaF PET/CT bone scans. We were convinced of the utility of these scans which are just becoming available in the USA and Australia but were 'blown away' by their clarity. Three high performance athletes with disabling pain poorly understood despite extensive radiology including the current gold standard Tc HDP SPECT/CT bone scans, MRI, ultrasound and CTs, all had diagnostic scans that markedly helped.

This is a journey that started 30 years ago when sodium fluoride was used as a standard bone scan agent but the introduction of Tc^{99m} which could also be used for a myriad of



Trevor FitzJohn

NaF PET/CT bone scan of knee showing two degenerative subchondral cysts. Only one has uptake and is symptomatic.

other tests such as thyroid, liver, renal and brain scans soon made NaF obsolete and changed the way gamma cameras were tuned. Bone scans took their next big leap forward in the 1980s when SPECT (sliced up) bone scans became available, and again in 2003 when Pacific Radiology introduced to New Zealand SPECT/CT with the revolutionary GE Hawkeye which acquires SPECT and CT images on the same machine and fuses them together.

However, the reinvention of the old requires us to look at NaF bone scans in a different way, and that is with the PET/CT scanner we installed in 2007. The circle closed last month when Cyclotek shipped to us NaF BP (British Pharmacopoeia). Due to inherent improved resolution of PET/CT scanners and the avidity of NaF to bone, the images are markedly improved over anything possible before and each scan comes with an inbuilt high resolution CT scan! NaF bone scanning has a low radiation dose and is useful in sports medicine injuries and both lytic and sclerotic bone metastases in oncology. NaF will be produced regularly at our new Cyclotron facility at Wellington Airport.

For further reading I suggest 'Skeletal PET with 18F-Fluorine: Applying New Technology to an Old Tracer'. Frederick Grant et al, JNM, Vol 49 Number 1, Jan 2008, pp 68-78.

~ Trevor FitzJohn