

# Incidental Detection of Abdominal Aortic Aneurysm on Skeletal Scintigraphy

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## Citation

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## Abstract

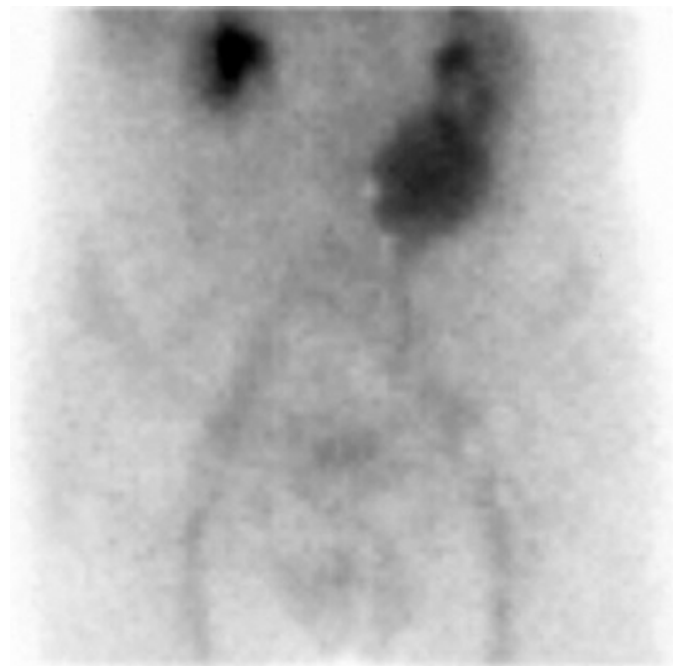
Extra osseous abnormalities detected incidentally on skeletal scintigraphy are not uncommon and include soft tissue tumors, infections, haematomas and calcification. Abnormal uptake may also indicate vascular pathology such as aneurysm. We describe two cases of incidental detection of abdominal aortic aneurysms in both the early and delayed phases of bone scans, and subsequent confirmation with radiological imaging.

## CASE 1

A 76-year-old man had a bone scan to investigate his right sided low back pain radiating into the leg. Degenerative arthritis in the lumbar spine on the right side at L3/4 level was demonstrated on bone scintigraphy. A large rounded hypervascular lesion was visible inferior to the left kidney on the early blood pool phase of the study. Subsequent abdominal ultrasound and computed tomographic (CT) imaging revealed a 8.7 x 8.1 cm saccular infrarenal abdominal aortic aneurysm.

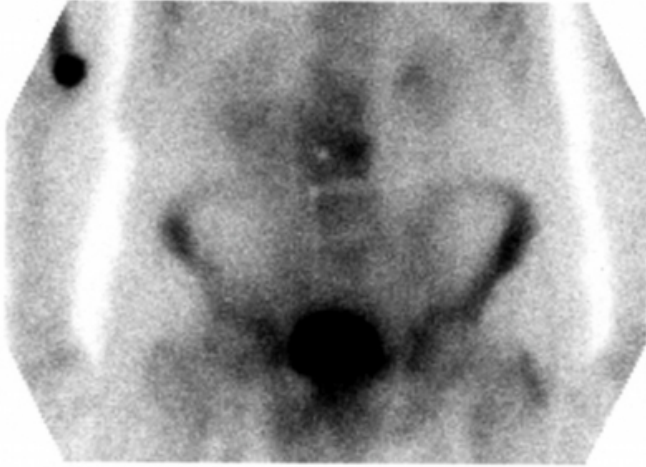
## Figure 1

Figure 1A: Tc99m HDP scintigraphy. Anterior blood pool image demonstrates a hypervascular rounded lesion inferior to the left kidney. Abdominal aortic aneurysms have been readily detected on the angiographic and blood pool phases of nuclear studies.,,,,,,,



**Figure 2**

Figure 1B: Tc99m HDP scintigraphy. 3 hour delayed posterior image demonstrates degenerative changes on the right side of the lumbar spine at L3/4 level but no definite lesion inferior to the left kidney.



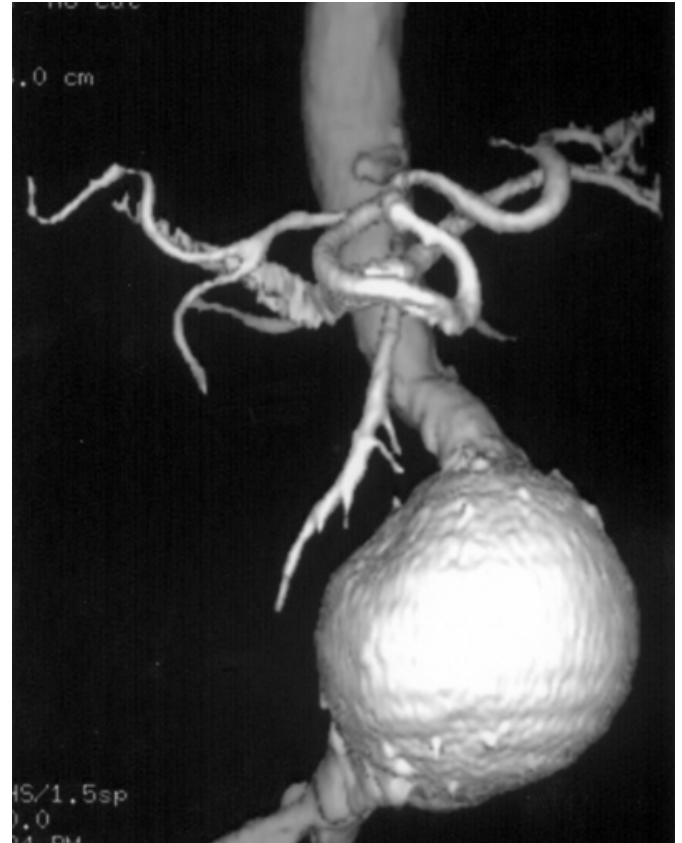
**Figure 3**

Figure 2a: Axial CT demonstrating contrast enhancement of the aneurysm



**Figure 4**

Figure 2b : Three-dimensional helical CT angiographic image of the aneurysm with its tortuous course to the left side of the abdomen, arising well below the renal arteries and terminating just before the bifurcation into the common iliac arteries.



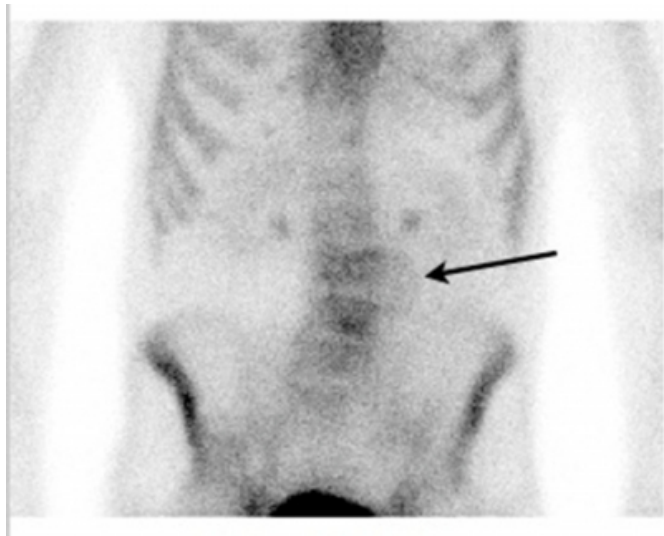
**CASE 2**

A 88 year old man was referred for a bone scan to investigate low back pain. Delayed images demonstrated a poorly outlined area of extra-osseous uptake in the lumbar region. SPECT localized this abnormality to a previously undiagnosed abdominal aneurysm anterior to the lumbar spine and confirmed on subsequent ultrasound examination.

Delayed static images demonstrate a poorly defined area of mildly increased uptake over the lumbar spine.

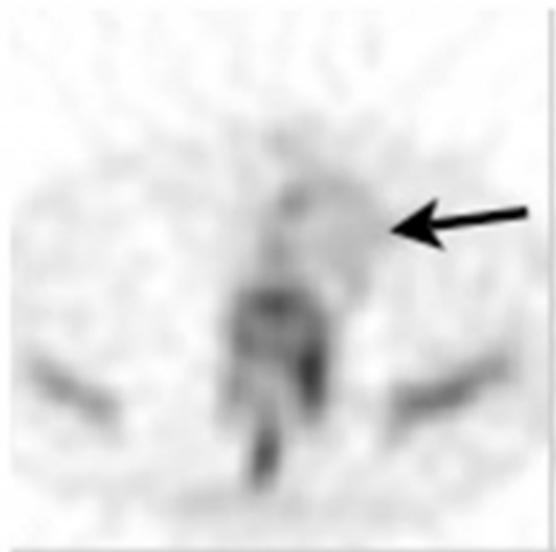
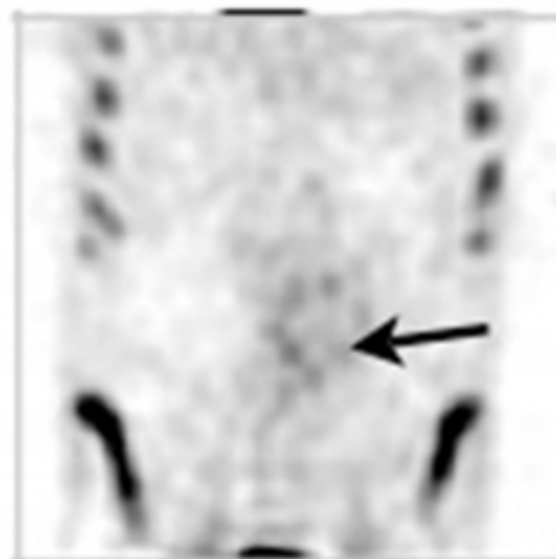
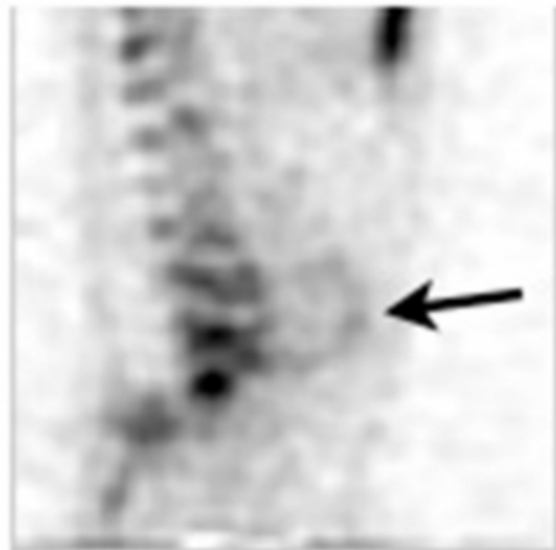
**Figure 5**

Figure 3: Tc99m HDP scintigraphy.



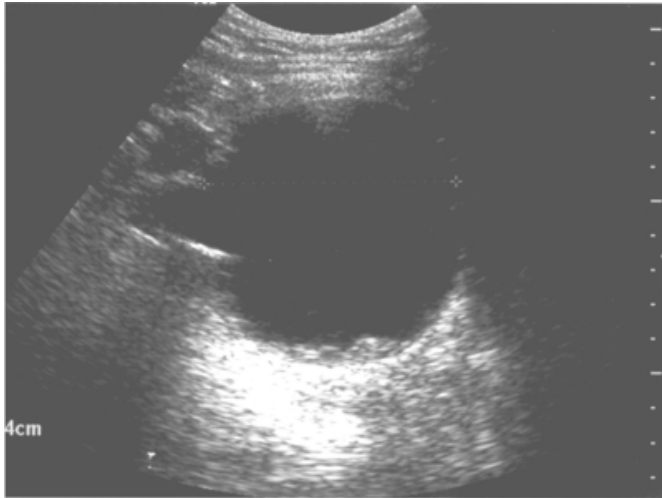
**Figure 6**

Figure 4: Lumbar SPECT localized the abnormal uptake to an extra-osseous focus anterior and slightly to the left of the lumbar spine corresponding to the site of an abdominal aortic aneurysm.



**Figure 7**

Figure 5: Subsequent ultrasound demonstrates the round hypoechoic aneurysm.



**DISCUSSION**

The incidental detection of aortic aneurysms in nuclear medicine imaging has been previously reported (3,5,6,8). The two patients described illustrate the varied appearances of aortic aneurysms seen with skeletal scintigraphy.

The early images in a three phase bone scan best highlight the vascularity of a lesion. As depicted in the first case, aortic aneurysms may be well delineated in this early phase.

In the delayed images, calcification within an aortic aneurysm can occasionally be demonstrated as mild irregularity in tracer uptake. SPECT can be used to correctly localize the abnormality within a aortic aneurysm, as shown in the second case.

Knowledge of the different manifestations of aortic aneurysms assists in correctly interpreting the scan findings. This in turn optimizes further investigations such as

contrast-enhanced CT scans or Doppler ultrasound and assists overall patient management.

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