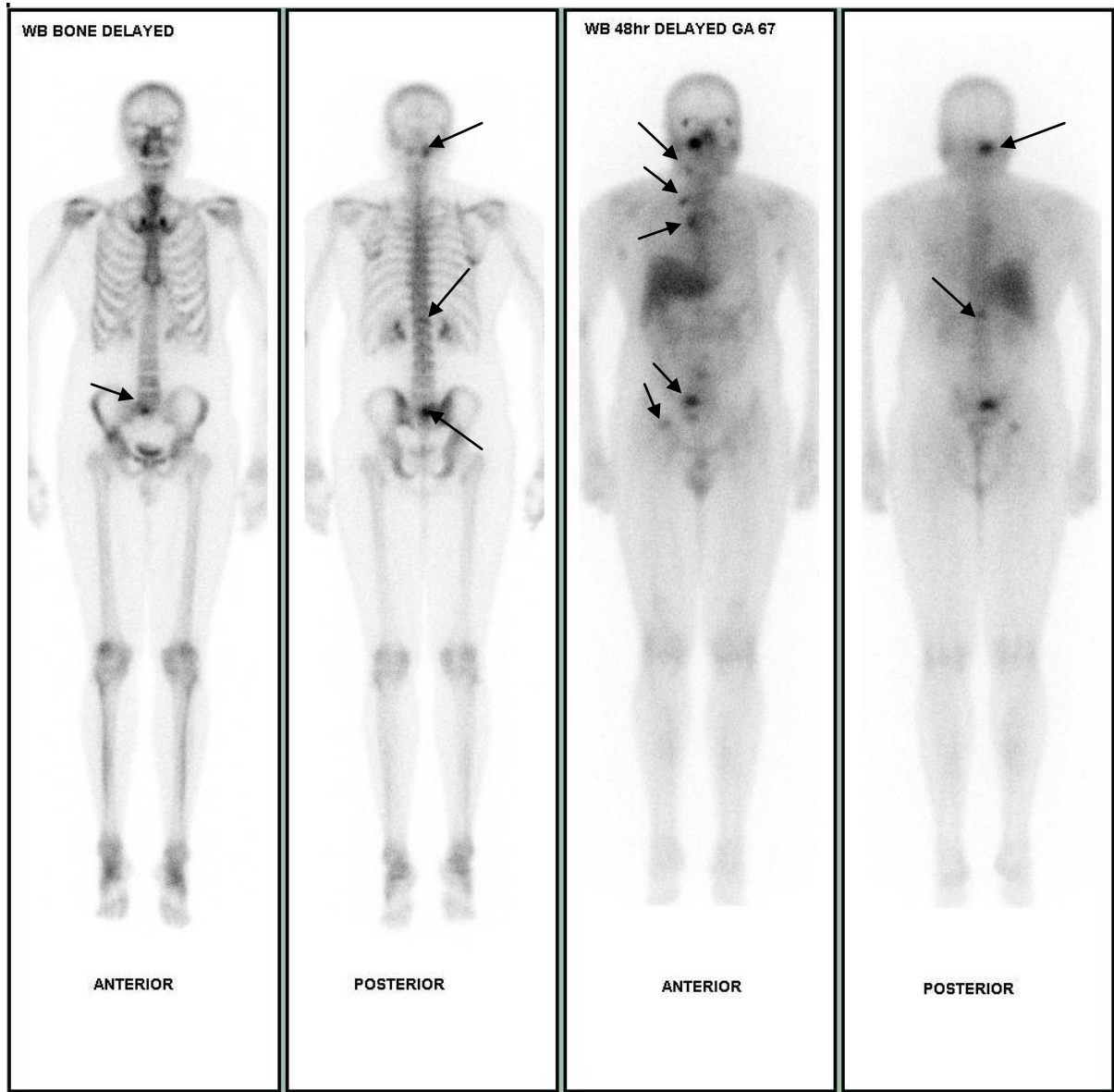
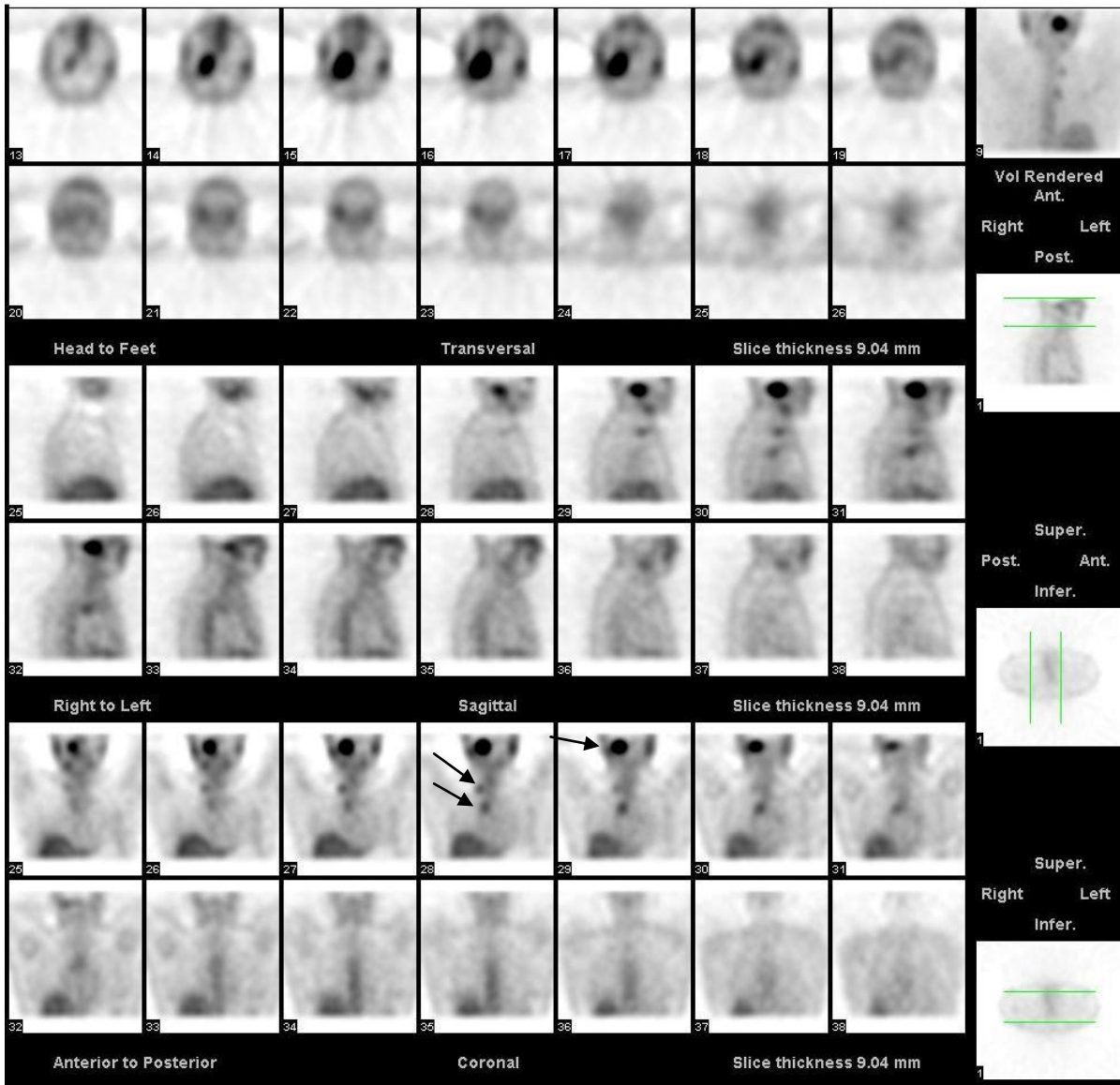


Extra Pulmonary Tuberculosis – 2 cases

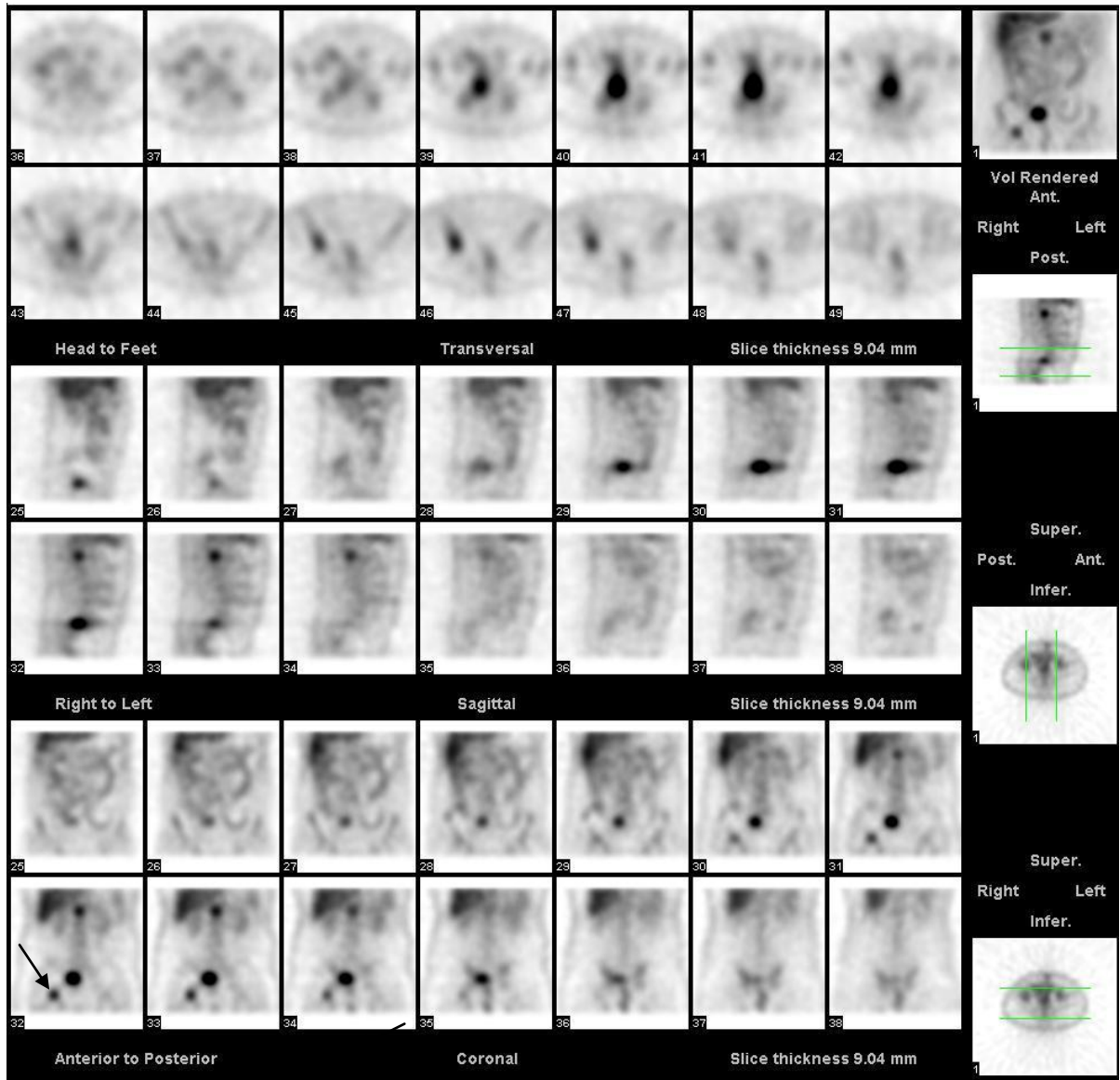
Case Study 1



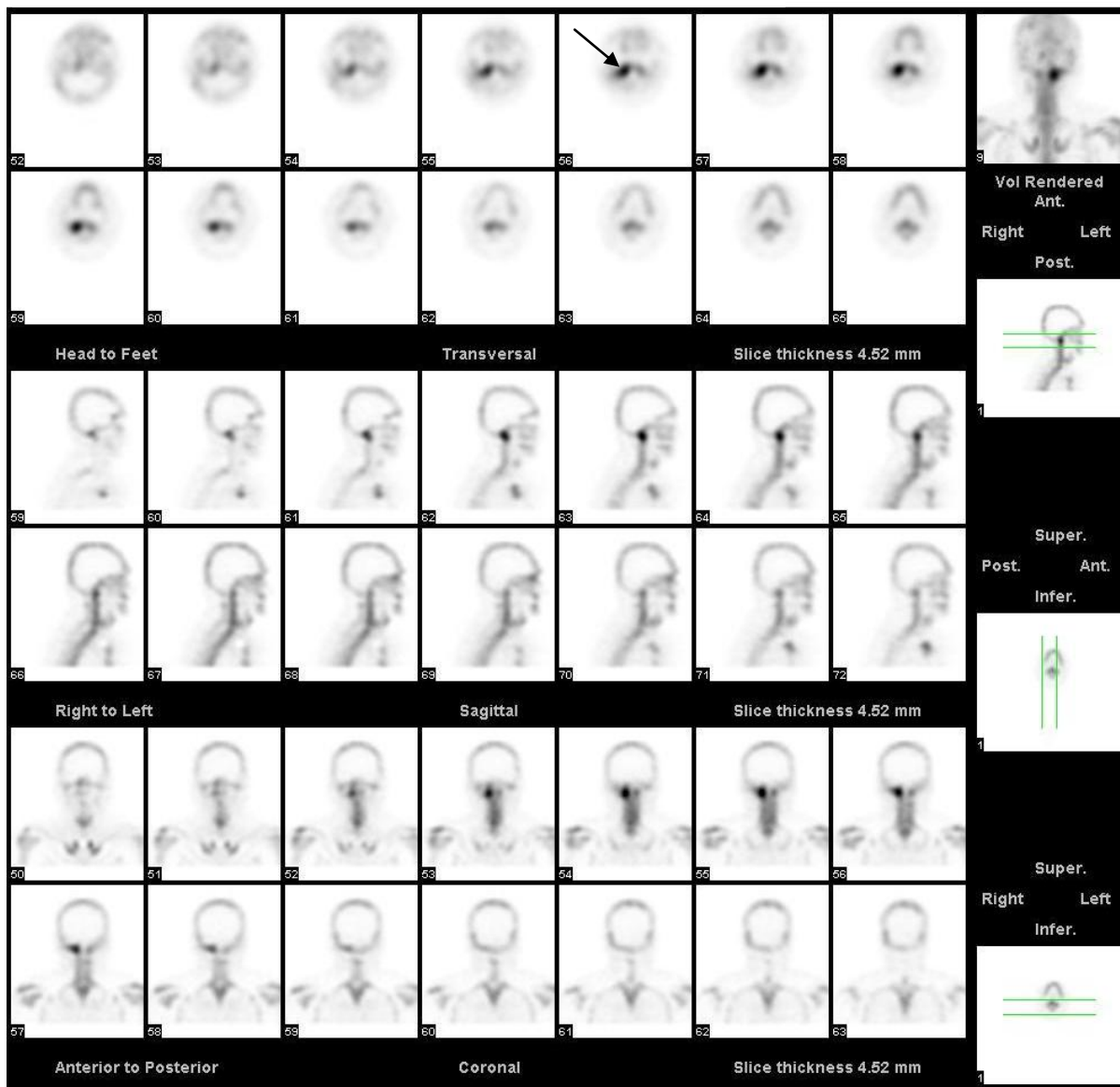
GA 67 THORAX SPECT – 24hrs



GA 67 ABDOMEN SPECT – 24hrs



CERVICAL BONE SPECT – 2hrs



HISTORY :

37 yo male, of Indian origin, presented to his GP with a 3 week history of high neck pain and stiffness which was worse when he turned his head to the right and with sleeping. A CT scan revealed erosion of the occipital condyle and C1 facet joint with a soft tissue mass. Patient denied any fevers, sweats, malaise or weight loss. No previous history of TB. He recently moved to Australia from India 2 years ago. He has spent some time in Kenya 10 years prior to moving to Australia. Previously had BCG. On examination he was afebrile and observations stable. There was mild right C1-3, R occipital and mastoid tenderness on palpation. Normal range of movement of neck with some stiffness. Chest and abdomen NAD. No palpable lymph nodes. Neurologically intact.

A recent CT performed showed patchy osteolytic lesions involving the right occipital condyle as well as the right half of the posterior arch of C1 with associated soft tissue mass.

FINDINGS :

Bone Scan

In the blood pool images, there was moderate diffuse hyperaemia involving the right occipito-cervical region.

A tomographic study of the cervical spine was performed. There was intense focal abnormal uptake by the right occipital condyle as well as the right half of the posterior arch of C1 corresponding to the site of the CT abnormality. There was also marked abnormal uptake by the right upper sacrum just lateral to the mid-line. There was also very mild abnormal uptake by the T12 and pelvis, superior to the acetabulum.

The diagnostic possibilities were infection / inflammation or malignancy. A gallium scan was arranged.

Gallium Scan

Abnormal gallium was seen at the following sites :-

- A large focus within the right occipital condyle and C1 on the right
- A small focus within the soft tissue of the right paratracheal region (lymph node)
- A large focus in the right hilar region
- Body of T12 (not too obvious on the bone scan)
- Right upper sacrum and anterior to it, soft tissue uptake
- Right pelvis superior to the acetabulum

Conclusion :- Gallium avid disease at multiple sites, involving several bones as well as thorax (paratracheal and hilar lymph nodes). The differential diagnosis include malignancy (most likely

non – Hodgkin’s lymphoma or other such as lung Ca.), infection such as TB or granulomatous conditions such as sarcoidosis.

FOLLOW UP:

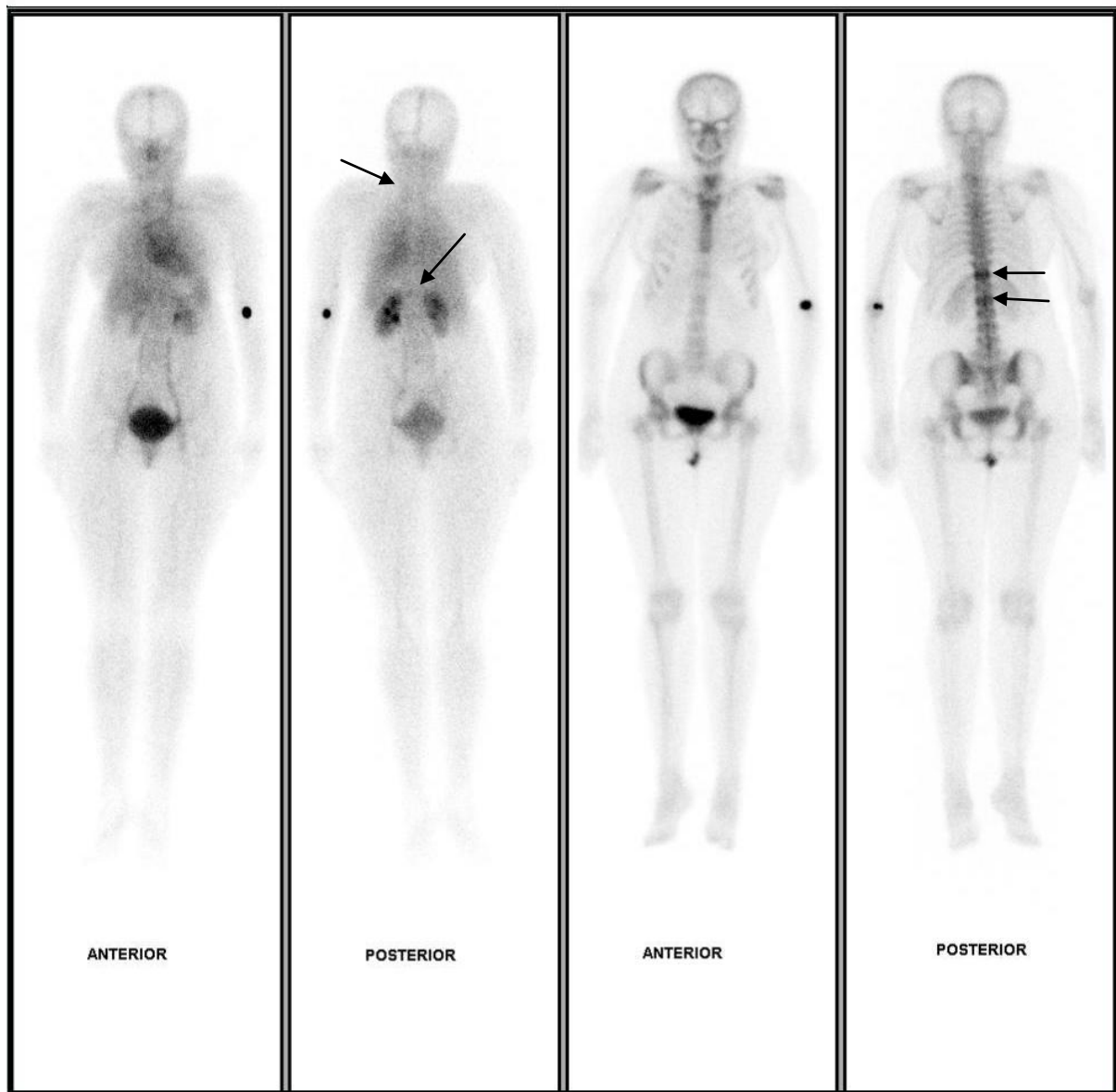
A repeat CT revealed a heterogenous tissue mass at right C1 measuring 4 x 3.4 cm with extension to epidural space causing destruction of associated C1 vertebrae and right occipital condyle. Multiple cervical lymphadenopathy seen. There was also an abnormal soft tissue mass at right anterior S1 vertebral body with destruction anterolaterally. MRI revealed destructive soft tissue process with necrotic centre centred upon right atlanto – occipital joint with likely encasement of R vertebral artery.

Patient was reviewed by the neurosurgical team who felt his neck was stable and no surgery or collar was required at this stage. An FNA of the right occipital lesion was performed. TB PCR was negative. Cytology showed necrotising granulomatous inflammation, suspicious for mycobacterial infection. Culture subsequently confirmed AFB.

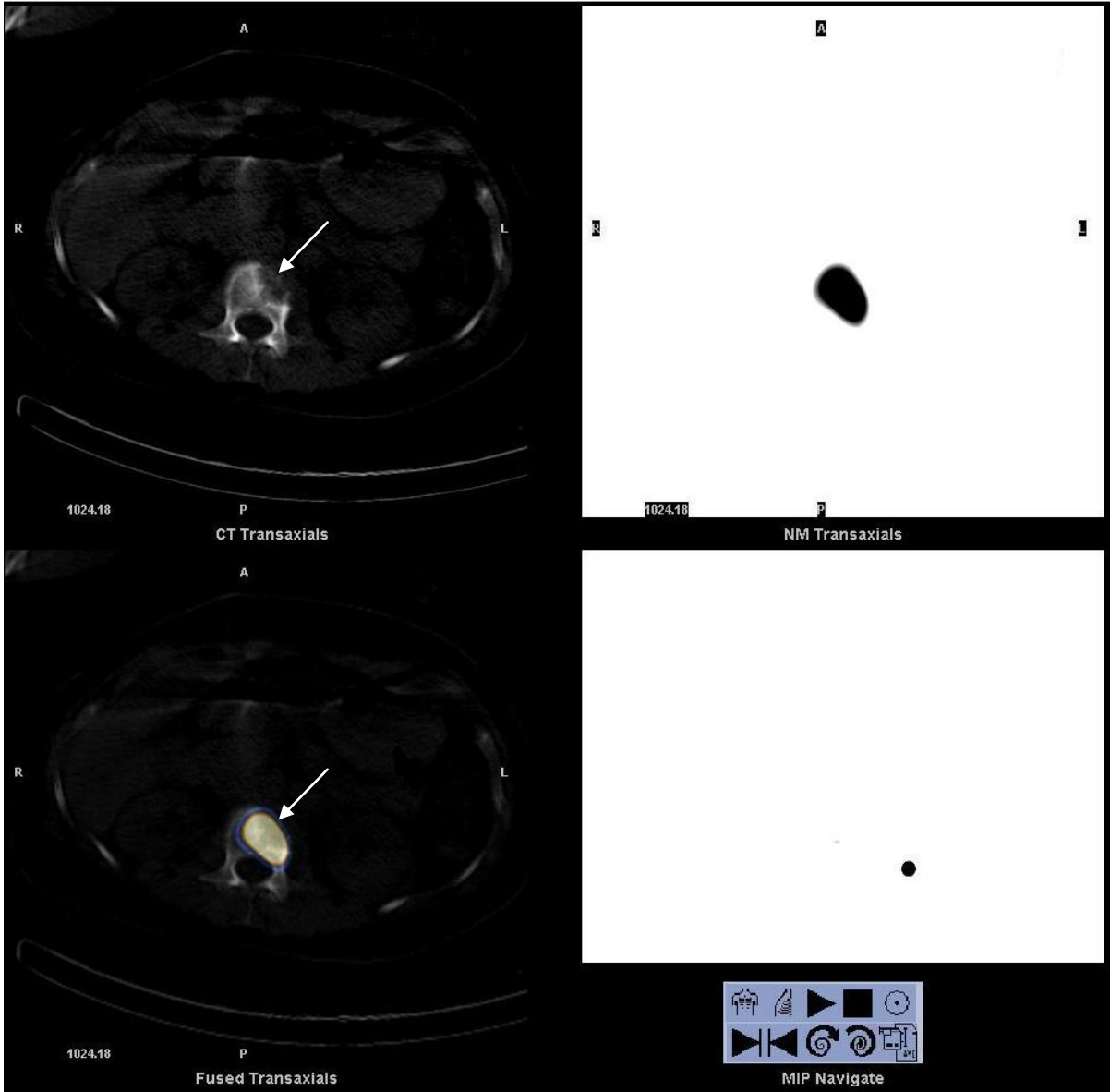
It was felt the most likely diagnosis was TB and the patient was commenced on a course of anti-TB medications and his neck pains are diminishing.

Case Study 2

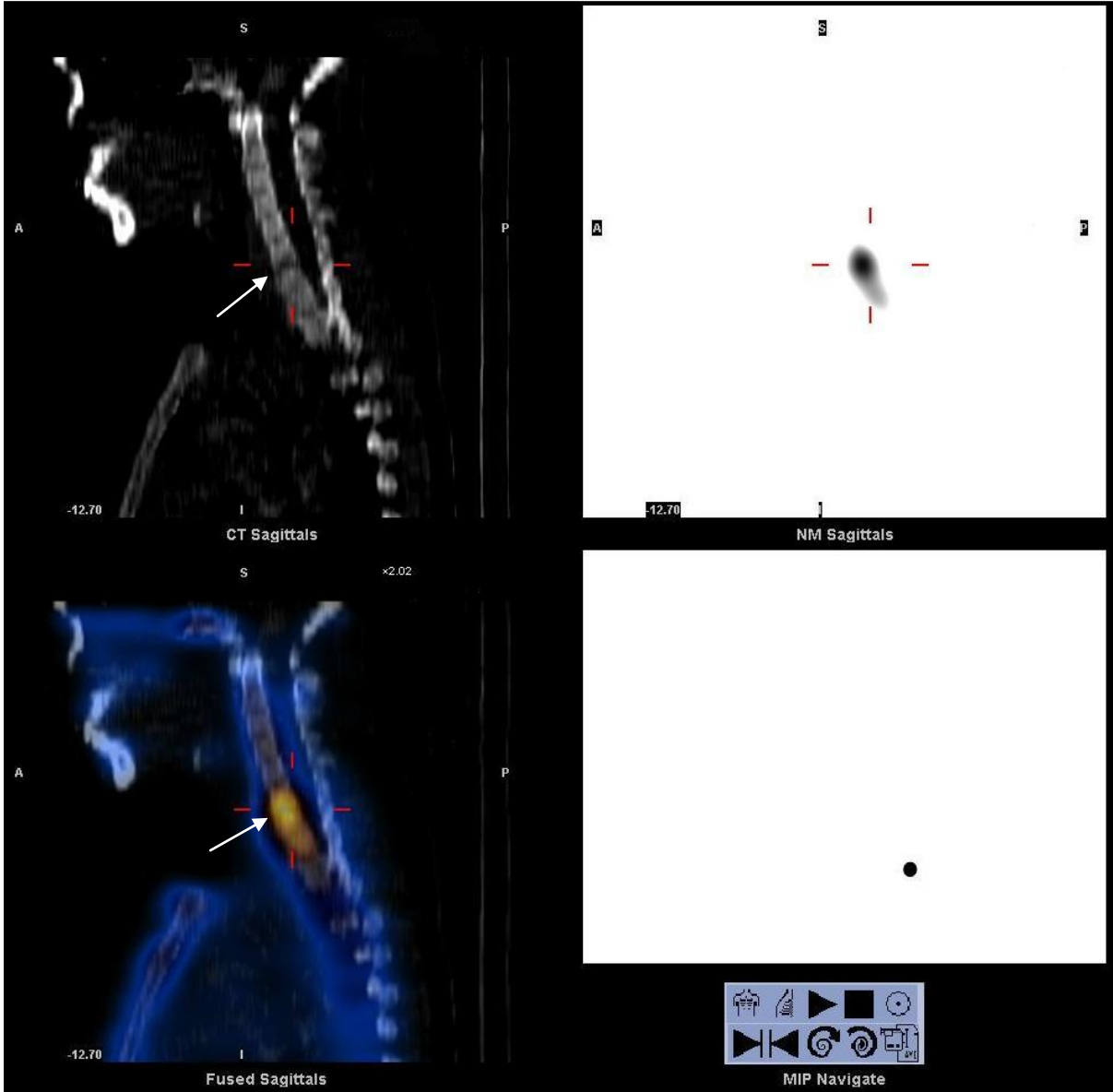
Whole Body Blood Pool and Delayed Images
Bone Scan



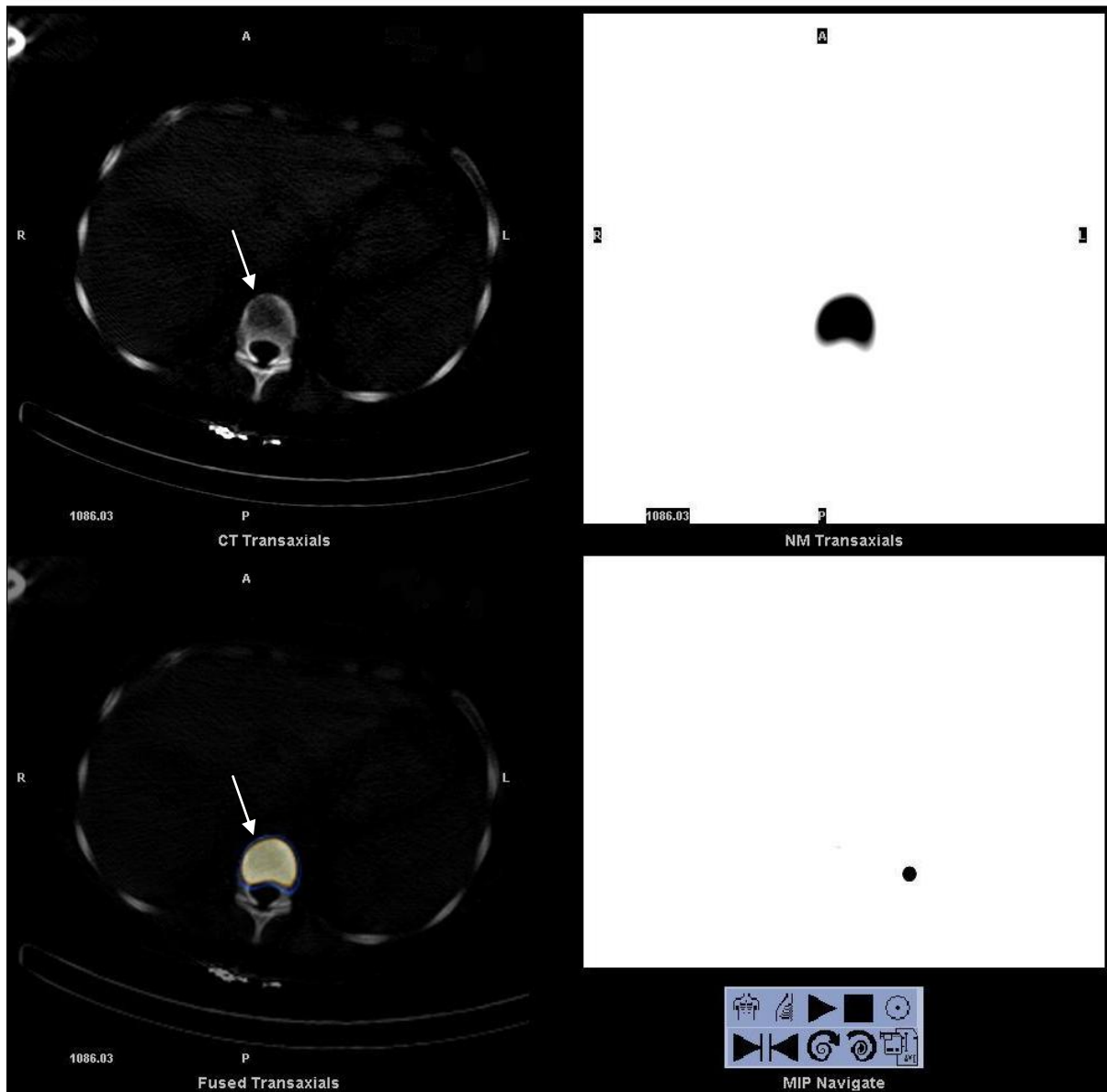
2hr Delayed SPECT/CT
Bone Scan



2hr Delayed Sagittal SPECT/CT
Bone scan



2hr Delayed SPECT/CT
Bone Scan



Presentation

31yo F, of Indian origin, was referred to with a referral to investigate the left sided C7 erosive lesion seen on CT to rule out polyostotic disease. She had been experiencing pain in her neck radiating bilaterally to her arms, she also experienced some pain in the lumbar spine.

CT of the cervical spine showed a destructive mass in the left C7 vertebral body with involvement of the superior end plate and anterior extra-osseous extension into the spinal canal. There was no osteolytic or destructive lesion seen in the thoracic or lumbar spine on CT.

Findings

A whole body blood pool was performed. There was mild hyperaemia on the left side of the lower cervical spine. There was also mild hyperaemia in the region of T11 vertebra but not in the region of L1 vertebra (see arrows). The hyperaemia was suggestive of an inflammatory cause.

In the delayed views there was abnormal tracer uptake on the left sided C7 vertebra, all of T11 vertebral body and the left side of L1 (see arrows). There were no other osseous lesions.

A SPECT/ low dose CT scan of the cervical, thoracic and upper lumbar spine was performed. The erosive lesion involving the superior plate of C7 and the C6-C7 disc on the left was noted. The T11 vertebral body abnormality consisted of several low density lesions, best seen on CT transaxial slice. The lesion in L1 has completely eroded the left side of the vertebral body.

The patient was in early pregnancy.

Conclusion

There was polyostotic disease involving C7, T11 and L1 vertebrae. The differential diagnosis of this includes extra pulmonary tuberculosis or lymphoma.

A gallium scan was recommended but not performed.

The most likely diagnosis of her multi-level osteomyelitis and discitis as well as psoas abscess (diagnosed in hospital) was tuberculosis and subsequently aspiration of the abscess was positive for tuberculosis. She commenced therapy (after termination) and wore a hard collar for the next few months.