

Diagnostic Imaging in Pott's Disease of the Spine

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Tuberculosis of the spine is one of the oldest diseases known to humans exemplifying an integral host-pathogen co-existence. The molecular characterisation of this association dates back to almost 9000 years as detected from a neolithic settlement in the eastern Mediterranean region.^[1] The eponym "Pott's disease of the spine" originated from Sir Percivall Pott's treatise on the *paraplegia causally associated with curvature of the spine* published in 1779;^[2] the entity is also referred to as "Pott's spine" or "spinal tuberculosis".

Spinal tuberculosis accounts for approximately 1-2% cases of tuberculosis and is potentially the most dangerous type of skeletal tuberculosis leading to permanent deformities and various neurological sequelae. It is therefore, imperative that this disease be investigated for early diagnosis and management.

Certain anatomical and pathophysiological aspects involved in producing a typical tuberculous lesion serve as a guide-wire in dissecting the various etiologies which mimic spinal tuberculosis. Tuberculous involvement of the spine in the adults is usually secondary to a focus, contiguous or non-contiguous, elsewhere; thus, evaluation of other pulmonary and extra-pulmonary sites may be contributory to pin down the diagnosis. The thoracic region, especially the lower levels, is the most commonly affected part of the spinal column followed by lumbar and then by the cervical region. Paradiscal lesions of the vertebrae are the most common type of lesions, with typical anterior segment (body)

involvement, arising from the spread along the segmental arterial plexus. The intervertebral disc in these cases may or may not be involved depending upon its vascularity, being more affected in the young where it is high. The lack of proteases in the *Mycobacterium* facilitates the subligamentous spread of the infection along the contiguous fascial planes at the respective levels of affliction. In a nutshell, a paradiscal lesion with contiguous vertebral involvement, and a paraspinal abscess containing osseous debris, with or without a spinal deformity, are highly suggestive of a tuberculous etiology.^[3,4] In comparison, HIV-positive patients demonstrate less vertebral destruction and a greater volume of cold abscess.^[5]

Pyogenic and malignant lesions pose the maximum dilemma in the diagnosis of Pott's spine. Atypical tuberculous lesions involve only the vertebral body or the neural arch, are purely craniovertebral-junction or sacral in location, have skip lesions, manifest reactive sclerosis, spare the end plates, or are not associated with a cold abscess. Various imaging modalities ranging from conventional radiography to radionuclide imaging can be utilized either to complement the diagnosis of spinal tuberculosis or rule out the tuberculous mimics. Magnetic resonance imaging with gadolinium contrast and a short tau inversion recovery sequence is the diagnostic modality of choice in a patient being evaluated for a spinal lesion as well as for those in follow-up. Whereas excellent osseous details can be had with a multidetector computed tomography, sensitivity to detect soft-tissue changes is compromised; it is therefore, less suited for subsequent studies also. Radionuclide studies are sparse and may help in determining the healing of lesions.^[3,4]

It goes without saying that the diagnostic imaging can suggest a differential diagnosis, but demonstration of *Mycobacterium tuberculosis* in the histopathology specimen remains the ultimate gold standard. When

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in doubt, a careful clinical follow-up complemented with serial imaging studies is required to seek the diagnosis.

Ansari *et al.*,^[6] present an excellent précis of the diagnostic imaging modalities and technology advancements in the Pott's spine, covering all the domains ranging from epidemiology and natural course, to differential-diagnosis and diagnostic concerns.

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