



ROLE OF MRI IN POTT'S SPINE

Radio Diagnosis

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ABSTRACT

Aims And Objectives: Case study of POTT SPINE with MRI.

Methods And Materials: Retrospective review of imaging of 31 patients diagnosed as pott's spine with MRI.

Results: Three most useful MR imaging features with high sensitivity and specificity (> 80%) were endplate disruption (31/31,100%), paravertebral soft tissue (30/31,96.8%), and high signal intensity of intervertebral disc on T2W (25/31,80.6%). High sensitivity but low specificity signs in MRI included bone marrow edema (28/31,90.3%), bone marrow enhancement (31/31,100%), posterior element involvement (29/31,93.5%), canal stenosis (27/31,87.1%), and spinal cord or nerve root compression (25/31,80.6%). Low sensitivity but high specificity features in MRI were intervertebral disc enhancement (20/31,64.5%), vertebral collapse (18/31,58.1%), and kyphosis deformity (21/31,67.7%). Overall, the sensitivity and specificity of MRI for spinal tuberculosis was 100%.

KEYWORDS

INTRODUCTION

- Tuberculosis is increasing in the developing countries and re-emerging in the developed ones.(1)
- Tuberculosis of spine is an infection by mycobacterium tuberculosis involving one or more components of the spine, namely the vertebra, intervertebral discs, paraspinal soft tissues and the epidural space.(1,2)
- Spinal TB is the most clinically important form of extrapulmonary tuberculosis, as it may produce serious neurological sequelae due to compression of spinal cord as a result of the disease itself, as well as the resultant deformity.(1)(3)(4)
- Early recognition and prompt treatment are therefore necessary to minimize residual spinal deformity and/or permanent neurological deficit.(1)(2)(3)
- This retrospective study highlights and correlates the image morphology of spinal TB with MRI.

AIMS AND OBJECTIVES

Case study of POTT SPINE with MRI.

MATERIALS & METHODS

Retrospective review of imaging of 31 patients diagnosed as pott's spine with MRI(1.5T).

RESULTS

Three most useful mr imaging features with high sensitivity and specificity (> 80%) were endplate disruption (31/31,100%), paravertebral soft tissue (30/31,96.8%), and high signal intensity of intervertebral disc on t2w (25/31,80.6%). High sensitivity but low specificity signs in mri included bone marrow edema (28/31,90.3%), bone marrow enhancement (31/31,100%), posterior element involvement (29/31,93.5%), canal stenosis (27/31,87.1%), and spinal cord or nerve root compression (25/31,80.6%). Low sensitivity but high specificity features in mri were intervertebral disc enhancement (20/31,64.5%), vertebral collapse (18/31,58.1%), and kyphosis deformity (21/31,67.7%). Overall, the sensitivity and specificity of mri for spinal tuberculosis was 100%.

DISCUSSION

- The spread of infection is typically described as 'sub-ligamentous' : beneath the anterior longitudinal ligament, usually sparing the posterior elements and often involving multiple levels.
- A reduction in vertebral height is often seen with irregularity of the antero-superior end plate. Due to the subligamentous extension there may be some irregularity of the anterior vertebral margin. This is a classical appearance with TB spondylitis.
- Ivory vertebrae can result with re-ossification. Other associated features include a gibbus deformity and vertebra plana.

- As with other extrapulmonary TB, the chest film may be unrevealing (no pulmonary lesions seen in up to 50% of cases), with the source being a primary lung lesion that is clinically silent.

Types Of Pott's Spine(1)

Paradiscal(commonest):

In this, the contiguous areas of two adjacent vertebrae along with the intervening disc are affected.

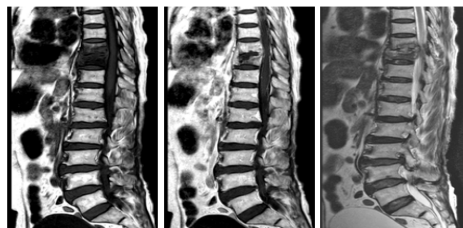
Central: The body of a single vertebrae is affected. this leads to early collapse of the weakened vertebrae.

Anterior: Infection is localised to anterior part of vertebral body.

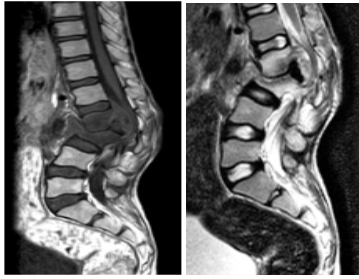
Posterior: the posterior complex of vertebrae like pedicle, lamina, spinous process & transverse process are affected.



Case 1: Images of a 44y old male showing hypointense at the level of L3 vertebral body on T1WI sag and coronal sections, same lesion appears hyperintense on T2WI. No Evidence of pre or paravertebral abscess.



Case 2: Images of a 75yrs old female patient showing hypointense lesions involving D9 and D10 vertebrae on T1WI and hyperintense on T2WI. Post contrast T1 shows enhancing margins of bony erosion with enhancing granulation tissue.



Case 3: Images of a 11 years female patient showing kyphoscoliotic deformity involving L1 and L2 vertebrae.

- Hypointense areas in L1 and L2 vertebral bodies on T1WI same lesions appear hyperintense on T2WI.

Prevertebral and paravertebral abscess.

CONCLUSION

- MRI offers excellent visualization of the bone and soft tissue components of spinal tuberculosis and helps to identify disease at distant asymptomatic sites.
- MR imaging clearly demonstrated the extent of soft tissue disease and its effect on the theca/cord and foramen
- It helps in early diagnosis and therefore management.

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