Case Report:

Tuberculosis spinal epidural abscess without osseous involvement: a report of two cases

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ABSTRACT

Spinal epidural abscess (SEA) is a rare but potentially devastating condition. Tuberculosis (TB) as the aetiology of epidural abscess especially without bony the involvement of vertebrae is uncommon. We present here, our experience with two cases where patient had TB SEA without bony involvement. Magnetic resonance imaging (MRI) provided imaging localization. Diagnosis was confirmed by mycobacterial culture and line probe assay. Both patients were managed by decompression and anti-TB treatment.

Key words: *Tuberculosis, Epidural abscess, No osseous involvement*

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INTRODUCTION

Spinal epidural abscess (SEA) represents a severe, usually pyogenic, infection of the epidural space which may compress neural elements and require urgent surgical intervention to avoid permanent neurological deficit. Incidence of such abscesses is about 0.2 - 2 per 10,000 hospital admissions.[1,2] Majority of these cases are pyogenic in nature and present with haematogenous spread from a distant infective foci. Tuberculosis (TB) as the causative organism is rare, especially so with no osseous involvement. However, its incidence is increasing in developing nations.

Magnetic resonance imaging (MRI) remains the gold standard for the diagnosis. Management includes administration of anti-TB drugs and surgical decompression. Early diagnosis, institution of specific anti-TB treatment and early decompression remain the two important predictors of successful neurological outcome.

We present here two cases of spinal epidural abscess of TB aetiology involving the thoracic-lumbar-sacral region of the spine without osseous lesions.

CASE REPORTS

Case 1

A 60-year-old male known to have type 2 diabetes since 5 years, presented with complaints of low back ache and radicular pain in both lower limbs since 3 months. He had no neurological symptoms like weakness or claudication. He did not have any constitutional symptoms or fever or recent infective episode. On physical examination, there was midline tenderness at lower lumbar region. There were no neurological deficits. Laboratory evaluation showed elevated erythrocyte sedimentation

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(ESR) rate (90 mm at the end of first hour, Westergren method). Complete blood picture showed haemoglobin 9.7 g/dL; Lymphocytes were within normal range. Liver and renal function tests were normal. Anteroposterior and lateral radiographs of lumbar spine showed no significant changes. MRI showed collection posterior to the dura at L5 body level pushing the thecal sac. No involvement of other osseous structures was evident (Figures 1A, 1B and 1C).

Patient underwent L4 laminectomy and frank pus was drained from the epidural space. Culture and line probe assay conducted at Dr Iravatham Labs, Hyderabad, (Genotype MTBR plus ver 2.0 Hain life sciences) confirmed *Mycobacterium tuberculosis* sensitive to both isoniazid and rifampicin. He was started on daily anti-TB treatment with isoniazid, rifampicin, pyrazinamide and ethambutol for the first two months followed by isoniazid and rifampicin for the next 7 months. Post-operatively, he was symptomatically better and was doing well until latest follow-up at 18 months.

Case 2

A 35-year-old male complained of low back ache for the preceding 20 days that had, increased in intensity since 4 days (visual analogue scale 8 suggestive of severe pain). Pain was radiating to both lower limbs. He had no neurological symptoms and no bladder or bowel abnormalities. There was no history of trauma, fever or any constitutional symptoms. On examination there was tenderness over mid-dorsal to upper lumbar region. Neurological examination was normal. Plain radiograph of lumbosacral spine showed lysis of pars at L5-S1 and no other significant changes. MRI confirmed epidural collection from D9 to L1 region. The bony structures were not involved (Figures 2A, 2 B).

The patient underwent laminectomy from D10 - D12 (Figure 3) and the pus was sent for culture and line probe assay (Dr Iravatham Labs, Hyderabad) which showed *Mycobacterium tuberculosis* complex sensitive to rifampicin and isoniazid. Patient was started on anti-TB with isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months followed by isoniazid and rifampicin for next 7 months. Until last follow-up at 15 months after discharge patient was walking comfortably without pain, his activity of daily living was normal and no constitutional symptoms.

Figure 1: MRI T1-weighted sagittal **(A),** T2- weighted sagittal **(B)** and T2-weighted axial **(C)** images showing collection posterior to the dura at L5 body level pushing the thecal sac
MRI = magnetic resonance imaging

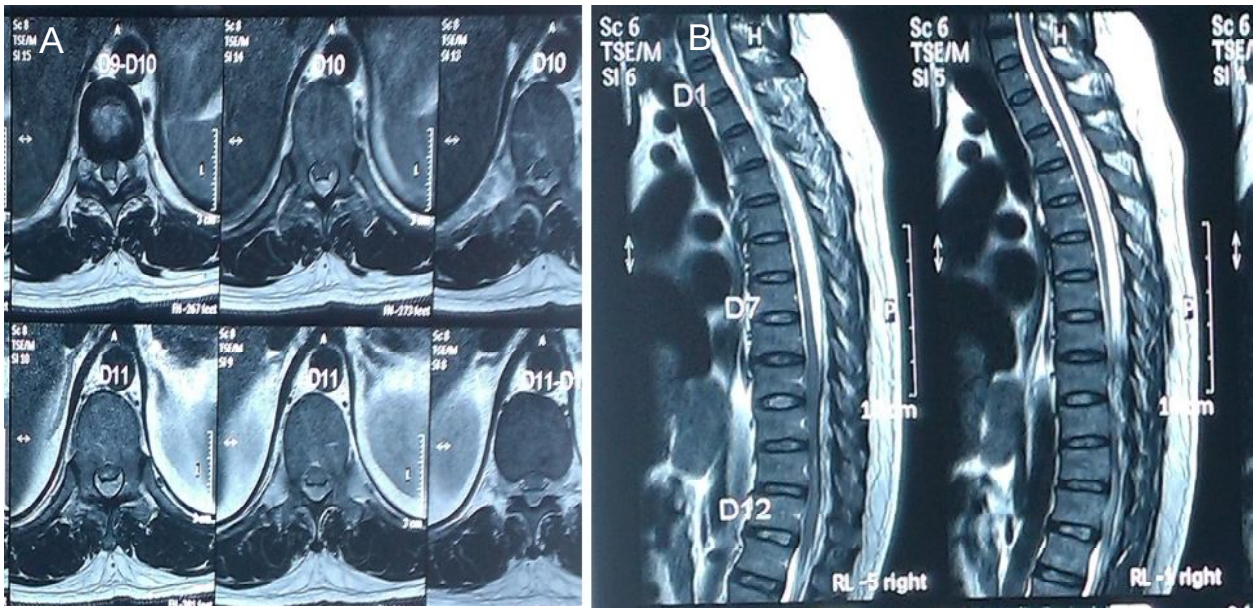

Figure 2: MRI T2- weighted axial **(A)** and T2-weighted sagittal **(B)** images showing epidural collection from D9 to L1 region
MRI = magnetic resonance imaging

DISCUSSION

Most spinal infections in developed regions are the result of pyogenic organisms. TB is an uncommon cause of SEA. TB most commonly involves anterior elements, generally starting at peri-discal site and then may spread to the canal.[2,5] Primary involvement of the epidural space is very rare. Epidural abscess involving the thoracic-lumbar-sacral spine without osseous lesion may be considered an extremely rare manifestation of tuberculosis.

Atypical presentation in this form may pose a diagnostic and therapeutic dilemma for treating clinicians.[6,7] The delayed/missed diagnosis can lead or progress to neurological complications like even cauda equina sydrome as has been reported once.[3,4]

MRI appears to be the investigation of choice as it helps in localizing the pathology and the site. Though TB can have a varied presentation, generally there are irregular hyperintense lesions on T2-weighted images with erosion of the vertebral body and abscess collection around the body either anteriorly or posteriorly or both.[8,9] T1-weighted images of the spine typically show decreased signal within the affected vertebral bodies, loss of disk height, and paraspinal soft-tissue. The presence of a thick rim of enhancement around paraspinal and intraosseous abscesses is reported to be

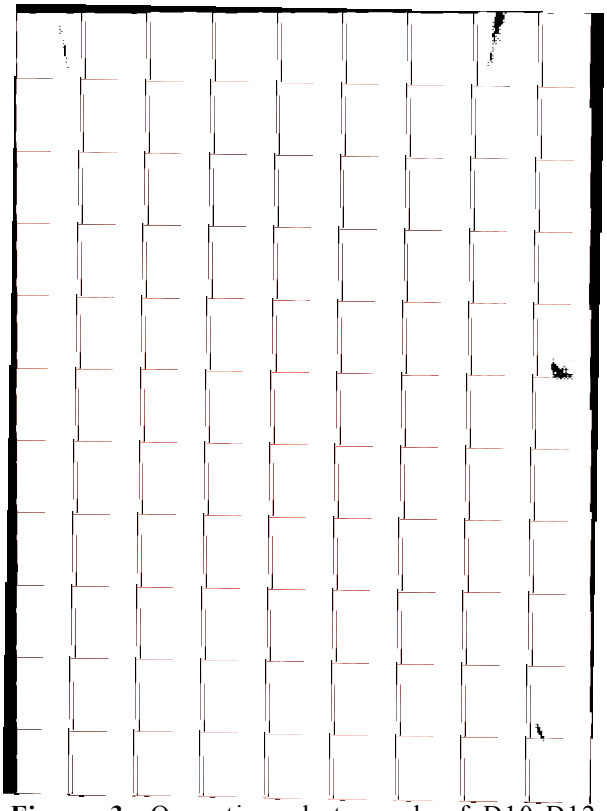

Figure 3: Operative photograph of D10-D12 laminectomy surgery

diagnostic of TB spondylitis.[11] In both the cases reported in this study, there was no involvement of osseous structures.

Decompression surgery is advised for diagnostic and therapeutic purposes especially in areas where the access for needle biopsy is difficult or risky.[2,10] Indications for surgical intervention include the presence of pressure symptoms, failure of medical management to control the disease process, cases with spinal instability, and the need to obtain diagnostic tissue in doubtful cases.[2,6,10] In general, the goals of treatment in such cases include disease eradication, pain relief, preservation of neurological function, and spinal stability. In our cases decompression was done for tissue diagnosis, pain relief and to prevent any neurological complications.

Anti-TB treatment remains the mainstay of treatment. The patients have been followed up for a period of 10 months each now, and they are clinically improving. This case report highlights the necessity of early diagnosis and early treatment of tubercular SEA for successful outcome. A high index of suspicion is essential for making the correct diagnosis in such cases especially when the risk of neurological complication is high.

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