MEDICAL SCIENCE

Tuberculosis of spine: A rare presentation case report and treatment protocol

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ABSTRACT

Tuberculosis is endemic to India, still spinal tuberculosis accounts for less than 1% of total TB cases and less than 10% of extrapulmonary TB. This disease is rare and therefore can be easily misdiagnosed. The clinical presentation of Pott's spine is dependant of the stage of the disease. It is usually non-specific, insidious in onset and gradually progressive. Spinal tuberculosis treatment depends on the neuro-charting status of the patient. Presence of significant neurological deficit is an indication for surgery or else conservative treatment can be opted for. In this case report we present the case of a middle-aged man with symptoms mimicking prolapsed lumbar intervertebral disc with neurological deficit. Due to progressive neurology, the patient was managed with emergency surgery.

Keywords: Tuberculosis, spine, lumbar, tb, potts

1. INTRODUCTION

Sir Percival Potts in 1779 was 1st to describe spinal tuberculosis or Pott's disease without having a brief idea of the actual pathophysiology or etiology. Many years later the basis of ST i.e Mycobacterium tuberculosis was found. Among all the cases of TB; Spinal tuberculosis accounts for less than 1% and 10% among extrapulmonary TB (Weng et al., 2010). Commonly it is after reaching an advanced stage that the diagnosis of Spinal Tuberculosis can be made which can sometimes result in complications like compression of the spinal cord and deformity. Therefore, ruling out TB in any spinal lesion case should be considered. Reporting a case of Pott's disease from rural parts of central India.

2. CASE REPORT

Police constable by profession, this 47-year-old male patient visited the outpatient department of our tertiary health care center, with complaints of chronic lower back ache of 1-year duration. The patient was a police constable by profession from a tribal region of central India. The backache was associated with radiation of pain to the left lower limb from the posterior

aspect extending to the medial border of the foot. The back pain and leg pain were progressively worsening, increasing from a rating of 3/10 to a rating of 10/10. The patient gave a history of difficulty in walking, with a claudication distance of 10 meters and need of support while walking for the past 1 month. The patient also had a history of weight loss in the past 3 months, with an evening rise in temperature.

On examination, SLRT (straight leg raising test) was positive over the left side, along with the Lasigue test. The finding of the neurological examination is mentioned in table 1.

Table 1 Neurological Examination Findings

Myotome	Left	Right
L2	V	V
L3	IV	V
L4	III	V
L5	IV	V
S1	V	V
S2	V	V
S2, S3 (Bowel & Bladder Control)	Intact	Intact
Deep Tendon Reflexes	No Response	Normal
Sensory	Hyposthesia below L4	Normal

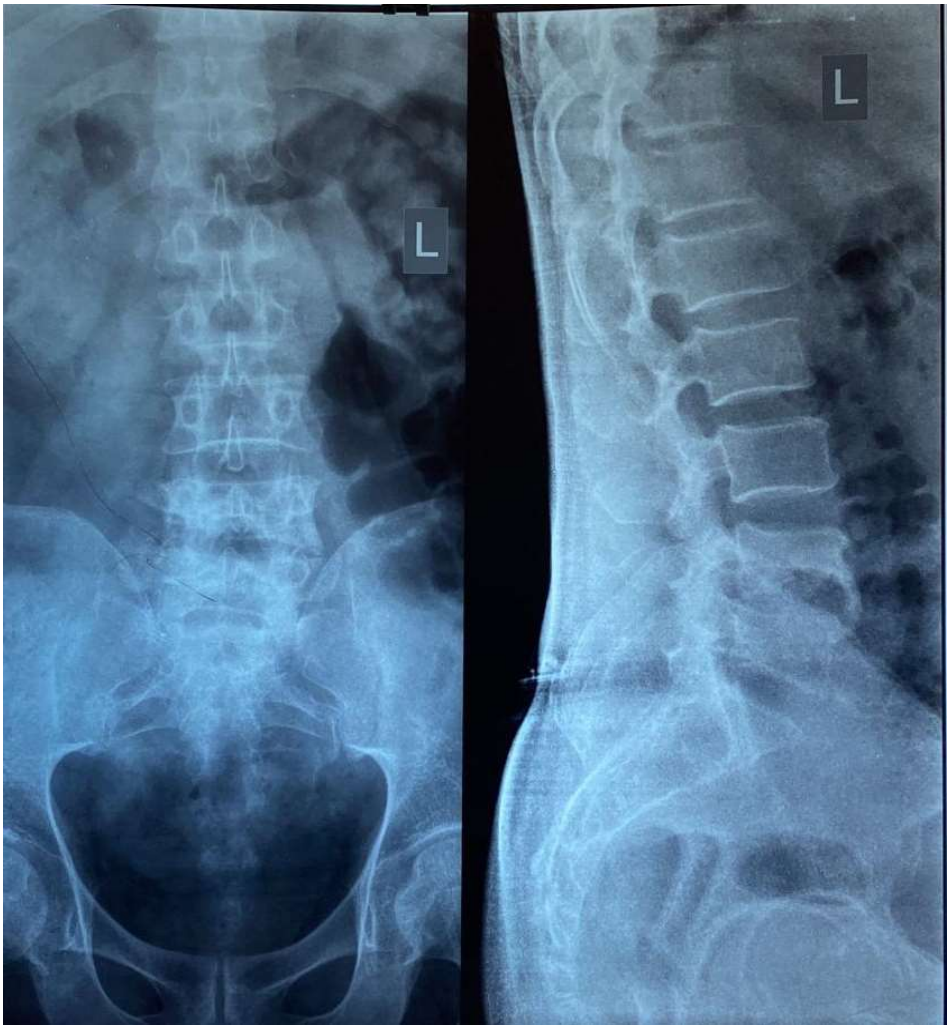

Image 1 Plain radiograph of the lumbo-sacral spine–antero-posterior& lateral views

The radiological findings of the patient are given as: The plain radiograph (Image 1) showed rarefaction of the L4-L5 vertebral end plates with lytic destruction of the lower end plate of L4 at the anterior and central part. The MRI study (Image 2, 3) reveals evidence of altered marrow signal intensity involving L4 and L5 vertebral bodies with the erosion of apposing endplates, destruction of the inferior endplate of the L4 vertebra & Involvement of intervening L4-L5 intervertebral discs. TIW images showing peripheral postcontrast enhancement with adjacent moderate marrow edema. Heterogeneously enhancing soft tissue thickening is seen in the pre- and para-vertebral region within walled lumbar vertebrae with few small loculated phlegmonous collections at paravertebral space. There was also evidence of lumbar dura, thecal sac and nerve root severe compression. The described findings are suggestive of disco-vertebral osteomyelitis. Based on the clinic-radiological findings the diagnosis of tuberculosis of the spine was made.

Image 2 Saggital sections of MRI Lumbo-sacral spine

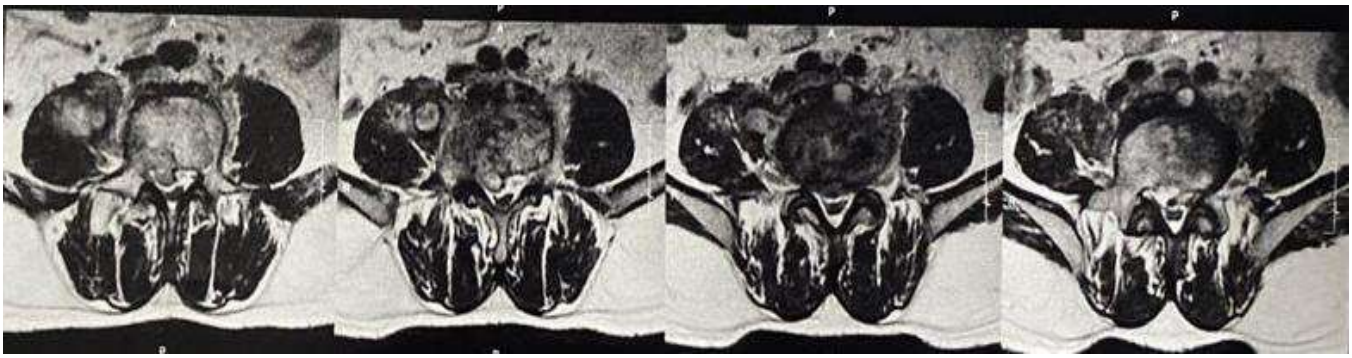

Image 3 Axial sections of MRI Lumbo-sacral spine

Due to the progressive neurological deficit, it was decided to take the patient for emergency surgery. Under general anesthesia, the patient was managed with posterior decompression and a spinal fusion procedure. In the procedure, L3, L4 and L5 levels were fixed with polyaxial titanium pedicle screws. Trans-pedicular biopsy from L4 and disc material biopsy from L4-L5 disc level were obtained. Disc space was debrided. Nerve roots and cord was decompressed adequately. Postero-lateral fusion was done with a locally harvested bone graft.

We got an Xpert MTB-RIF test and smear microscopy that came out to be negative. Although the QuantiFERON-TB Gold test was positive. Biopsy showed a chronic inflammatory granulomatous process along with wide areas of necrosis which suggests TB. The patient was started on anti-TB drugs as per WHO protocol: 2HRZE + 7HR (Image 4).

Drugs	Daily doses (mg/kg)	Route
Isoniazid (H)	5 (4-6)	Oral
Rifampin (R)	10 (8-12)	Oral
Ethambutol (E)	15 (15-20)	Oral
Pyrazinamide (Z)	25 (25-30)	Oral

Image 4 Anti-tubercular drugs as per WHO protocol and their dosage

The post-surgery patient was relieved of back pain and leg pain. With rehabilitation, the patient's neurology started improving within the first week. Suture removal was done on post-op day 11 and the patient was discharged. The patient continued with rehabilitation and physical therapy on an OPD basis. On 1 monthly follow-up, the patient showed complete recovery in neurology with no neurological pain. There was minimal backache but in control with medications.

3. DISCUSSION

Tuberculosis is endemic to India, still, spinal TB can only be seen in 1% of all TB cases (Weng et al., 2010). This disease is rare and therefore can be easily misdiagnosed. Pulmonary focus or other extrapulmonary foci gives rise to a primary infection site that can be active or latent. The clinical presentation is very non-specific and insidious in onset and solely depends on how advanced the disease is. Weight loss, fever, backache, night sweats and fatigue are the commonest symptoms and fatigue. In the present patient, he had symptoms similar to the prolapsed intervertebral disc, for which was being treated with medications elsewhere, but without much relief. Careful imaging findings and clinical suspicion give rise to a definitive diagnosis of ST. Even though MRI is an important diagnostic tool it is unable to comprehend infection from malignancy (Rasouli et al., 2012). Similarly in our patient, the diagnosis was initially misled by MRI as it showed invasive neoplasia. They were the bony fragments that were seen during the biopsy that made us suspicious of ST. And it was due to the biopsy that we were able to diagnose the pathology otherwise there would have been a delay in the specific tests done for the disease. Thus, it is important to keep a wide spectrum of differential diagnoses and to perform various tests which are non-overlapping to cover numerous etiologies. This will avoid wrong diagnoses and poor prognoses.

Several tests are recommended for indicative spinal TB or Pott's disease. When smear microscopy comes out to be negative, Xpert MTB-RTF becomes one of the most useful tools to diagnose ST (Rajasekaran et al., 2018). Based on the presence or absence of neuro deficit, spinal TB can be treated conservatively, surgically or as a combined approach. Treatment of ST can be conservative, surgical or both. Its management can be classified as either with or without neurological deficit. In the scenario of no neuro deficit, medical management along with bracing, use of orthoses and physical rehabilitation should be the mainstay of treatment. Some of these cases might eventually require surgery. The presence of neuro deficit is an indication of acute surgical management, which has to be combined with medical therapy and rehab (Jain, 2010).

4. CONCLUSION

Since Spinal tuberculosis has a close resemblance to neoplasia and also Back pain is one of the commonest and sometimes the only symptom, misdiagnosis is quite possible. Therefore, one should think of a wide spectrum of differential diagnoses and especially in cases such as Spinal tuberculosis. This will help us to come to a conclusion and make a diagnosis at a very early stage and treat the disease at a safe time, leading to improved health outcomes and avoidance of any potential complications.

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Author Contributions

Dr Gunjan Pandey & Dr Ashna Mohanan gathered the data and framed the manuscript. Dr Sohael M Khan, Dr Venkatesh Dasari, Dr Ratnakar Ambade and Dr Rameez Bukhari were involved in the surgery & clinical care of the patient.

Informed consent

Written & Oral informed consent was obtained from participant included in the study.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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