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Case Report

Orthopaedics Section

# A Rare Case of Tuberculosis in the Lumbar Facet Joint

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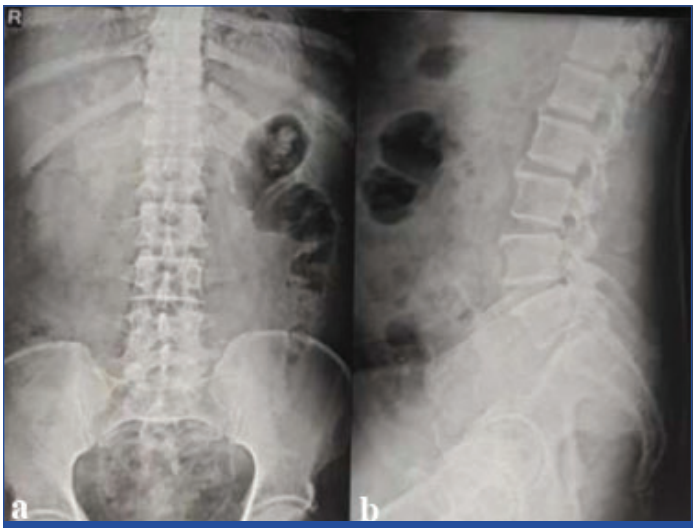
## ABSTRACT

Tuberculosis of the posterior elements is a rare and destructive form characterised by the destruction of the lamina, pedicle, or facet joints. Delay in clinical diagnosis and presentation is common because of poor visualisation of facet joints in X-rays. A 55-year-old male presented with back and left leg pain lasting for six months, accompanied by weakness in dorsiflexion of the left foot and ankle. Magnetic Resonance Imaging (MRI) revealed features suggestive of L4-L5 facetal arthritis on the left side, including marrow oedema, bone erosions, a posterior paraspinal abscess, and nerve root compression. The patient underwent posterior decompression and stabilisation, along with abscess drainage. The specimen was sent for histopathological examination, confirming the diagnosis of facetal joint tuberculosis. Antituberculous treatment was given for 12 months, that showed improved neurological status. This case is presented due to its rarity, highlighting the importance of considering facetal joint tuberculosis as a potential cause in cases of progressively increasing lower back pain, even in the absence of constitutional symptoms.

**Keywords:** Antitubercular treatment, Facetal arthritis, Paraspinal abscess, Posterior element tuberculosis

## CASE REPORT

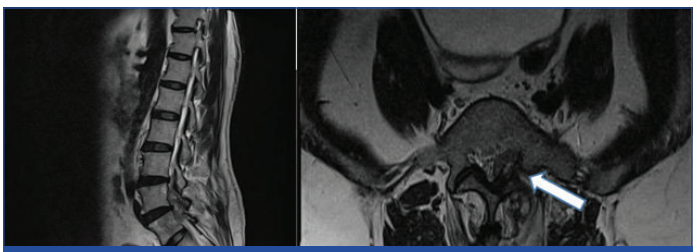
A 55-year-old male patient presented to the orthopaedics Outpatient Department (OPD) with a complaint of lower back and left lower leg pain persisting for six months. He also reported weakness and numbness in the left foot and ankle for the past two months. The pain radiated from the back to the left lower limb. There was no history of constitutional symptoms or other medical conditions. Physical examination revealed warmth and tenderness in the lower lumbar paraspinal region on the left side. No deformity was noted, but lumbar spinal movements were limited due to pain. Dorsiflexion of the ankle and foot was one-fifth on the left side, with no muscle wasting or fasciculations. Sensory and motor examinations showed decreased function in the L4, L5, and S1 dermatomes on the left side, while it was normal on the right side. The anal wink reflex was normal, indicating no involvement of the sacral nerve roots. The Visual Analog Score (VAS) was 9, and the Oswestry Disability Index (ODI) score was 44. X-rays of the lumbar vertebrae [Table/Fig-1] revealed lumbosacral transitional vertebrae with partial sacralisation of L5. Laboratory parameters like Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP) were elevated, while blood counts were within the normal range.




**[Table/Fig-1]:** Anteroposterior (a) and lateral (b); X-ray view of lumbosacral spine showing spondylotic changes.

MRI findings suggested an infectious aetiology, indicating facetal arthritis extending to the pedicle with the formation of an abscess at the L4-L5 level [Table/Fig-2]. Contrast-enhanced MRI demonstrated left L4-L5 facetal arthritis with bone erosion, marrow oedema, a left posterior paraspinal abscess, and enhancing inflammatory soft tissue thickening with extensions and neural compression.

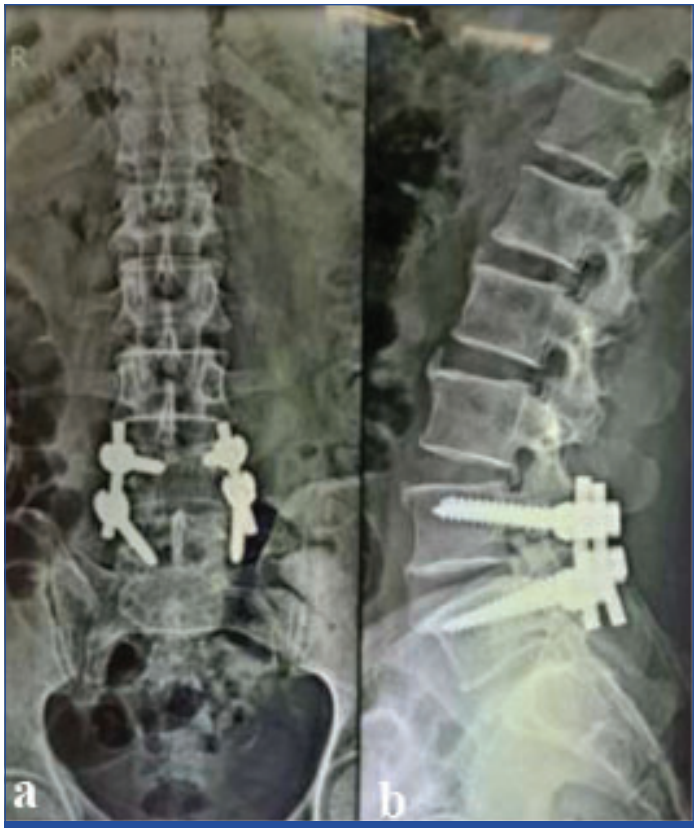
CT-guided aspiration of the abscess did not reveal any organisms on acid-fast stain, Gram's stain, or culture. Therefore, posterior decompression and stabilisation of L4-L5 with pedicle screws were performed using a posterior midline approach. The pedicle screws had good purchase in both levels [Table/Fig-3]. A specimen was taken from the facet joint capsule at the L4-L5 level during the operation and sent for histopathological examination, which showed areas of necrosis and granulomatous inflammation consisting of epithelioid cells, multinucleated giant cells, and surrounded by macrophages, suggesting a tubercular aetiology [Table/Fig-4]. The Cartridge-Based Nucleic Acid Amplification Test (CBNAAT) also tested positive for *Mycobacterium tuberculosis*, hence a final diagnosis of facetal joint tuberculosis. The patient was placed on an antitubercular regimen for 12 months, after which there was improvement in pain and neurological symptoms. A final follow-up was conducted after two years, which showed complete resolution of neurological symptoms with an ODI score of 90.



**[Table/Fig-2]:** MRI Lumbosacral spine showing facetal arthritis with abscess formation on L4-L5 (white arrow).

## DISCUSSION

Tuberculosis involving the vertebral body is more common, whereas posterior element TB is uncommon and is characterised

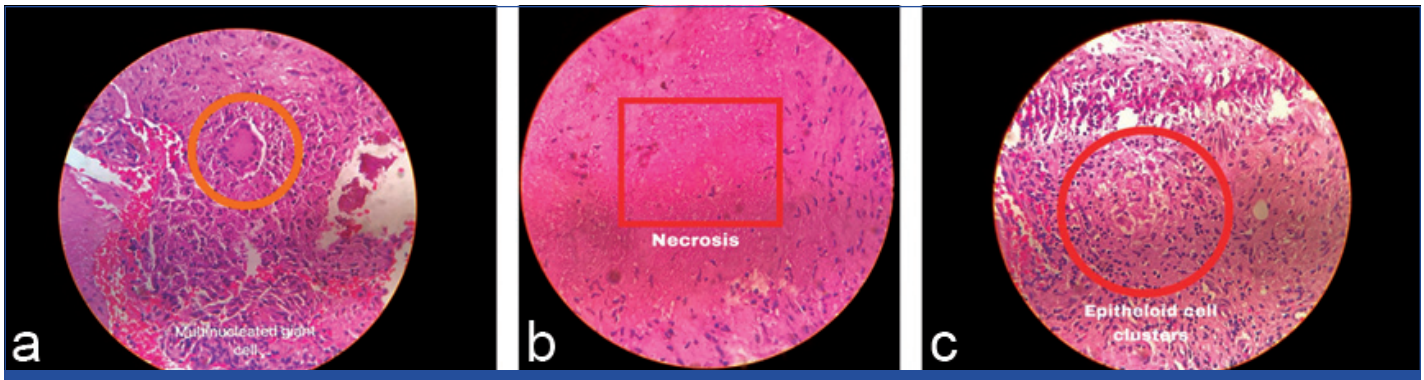



**[Table/Fig-3]:** Postoperative anteroposterior (a) and lateral (b); X-ray of lumbosacral spine showing pedicle screw fixation at L4-L5 level.

and tumours often contribute to clinical misdiagnosis. MRI serves as an effective diagnostic tool in terms of the sensitivity and specificity of spinal tuberculosis.

In a study of isolated posterior spinal tuberculosis, Boruah DK et al., reported pedicle involvement in 63.2% of patients, lamina involvement in 58% of patients, and spinous process and facet joint involvement in 31.6% of patients each. Out of these, four patients with rapid onset neurological findings were treated with surgical decompression along with antitubercular drugs, while the remaining were treated with antituberculous chemotherapy alone for 12 months [5]. Antituberculous medication remains the gold standard treatment for spinal tuberculosis. Instrumentation with intertransverse fusion was performed as a secondary procedure by Avadhani A et al., in a 14-year-old boy, where there was progression of coronal decompensation of the spine despite two months of antitubercular treatment for facet tuberculosis [6]. Pedro KM et al., reported that it is important to recognise the unusual pattern of posterior spinal element destruction in cases of spinal tuberculosis to avoid late diagnosis and treatment. Surgery along with antitubercular medications is a safe treatment option in such cases [7]. In addition to haematological, microbiological, serological, and immunological tools, the clinical history and thorough radiological evaluation of the spine are important for better diagnosis of such cases. Correct and timely diagnosis, followed by antitubercular medication [8,9], and surgery when required, remain the gold standard treatment for spinal tuberculosis.

The case presented here initially showed motor weakness and back pain, with no constitutional symptoms of tuberculosis. MRI revealed




**[Table/Fig-4]:** Histopathological image showing (a) multinucleated giant cells; (b) necrosis; (c) epithelioid cell clusters; suggestive of tuberculosis (H&E, 40X).

by the destruction of the lamina, pedicle, or facet joints. Spinal tuberculosis accounts for approximately half of all cases of musculoskeletal tuberculosis and is prevalent in children and young adults. Posterior spinal TB accounts for 3% of all spinal TB [1]. In a study by Narlawar RS et al., patients with isolated posterior element tuberculosis were examined. The thoracic vertebra (48.5%) was commonly involved compared to the lumbar and cervical regions. The lamina (72%) was more commonly involved than the pedicles, articular processes, spinous processes, and transverse processes. Involvement of the posterior elements was seen in 25% of the patients [2].

Extradural granuloma causing secondary stenosis of the spinal canal is commonly seen in posterior spinal TB and is known to cause early spinal cord compression effects [3]. Surgery may be required in selected cases depending on the severity of the disease, followed by antituberculous medication. Generally, when a posterior structure is involved in spinal TB, lesions of the vertebral body and disc often accompany it. However, there are few reports of facet TB alone without involving the anterior column of the spine [4,5]. Traditional diagnostic methods like X-ray have limitations in terms of inadequate visualisation, hence, limiting the early disease identification. Delay in diagnosis and difficulty in distinguishing spinal posterior element TB from other types of spinal infections facetal involvement, and histopathological examination confirmed a tuberculous aetiology. Symptoms dramatically resolved following surgery and antitubercular medication.

## CONCLUSION(S)

Isolated facet joint tuberculosis is an uncommon condition that can lead to coronal decompensation of the spine. Prompt diagnosis using MRI imaging, administration of antitubercular drugs, and posterior instrumented fusion are warranted in patients with posterior spinal tuberculosis and neurological deficits.

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