

## Case Study

### A CASE SERIES ON VARIOUS PRESENTATIONS OF POTT'S DISEASE

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#### ABSTRACT:

**Background:** Pott's Disease {Spinal tuberculosis} is a destructive form of tuberculosis. Common operative procedures include anterolateral decompression with interbody bone grafting or costo-transversectomy with decompression. The clinical presentation of spinal tuberculosis is variable. The manifestations depend upon the duration of illness, severity of the disease, site of the lesion, and presence of associated complications including deformity and neurological deficit. In uncomplicated disease, the patient typically presents with back pain; while the presentation associated with complicated tubercular spine disease involves deformity, instability, and neuro deficit. Hence; we have presented case series comprising of four cases of Pott's disease.

**Key words:** Pott's disease, Tuberculosis, Spinal

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#### INTRODUCTION

Pott's Disease {Spinal tuberculosis} is a destructive form of tuberculosis. It accounts for approximately half of all cases of musculoskeletal tuberculosis. Spinal TB, once a disease of children and adolescents, is now often seen in the adults. Constitutional symptoms, such as weakness, loss of appetite and weight, evening rise of temperature and night sweats are associated with back pain, spinal tenderness, paraplegia, and spinal deformities. The primary mode of transmission occurs haematogenously from an extraspinal site of infection.<sup>1</sup> Lower thoracic and lumbar vertebrae are the most common sites for spinal TB. Characteristically, there is destruction of the intervertebral disk space and the adjacent vertebral bodies, collapse of the spinal elements, and anterior wedging leading to kyphosis and gibbus formation. Formation of a 'cold' abscess around the lesion is another characteristic feature.<sup>2</sup>

The clinical presentation of spinal tuberculosis is variable. The manifestations depend upon the duration of illness, severity of the disease, site of the lesion, and presence of associated complications including

deformity and neurological deficit. In uncomplicated disease, the patient typically presents with back pain; while the presentation associated with complicated tubercular spine disease involves deformity, instability, and neuro deficit. For the diagnosis of spinal tuberculosis magnetic resonance imaging is more sensitive imaging technique than x-ray and more specific than computed tomography. Neuroimaging-guided needle biopsy from the affected site in the centre of the vertebral body is the gold standard technique for early histopathological diagnosis. Antituberculosis treatment according to DOTS remains the cornerstone of treatment. Surgery may be required in selected cases, e.g. large abscess formation, severe kyphosis, an evolving neurological deficit, or lack of response to medical treatment. Common operative procedures include anterolateral decompression with interbody bone grafting or costo-transversectomy with decompression.<sup>2-4</sup> Hence; we have presented case series comprising of four cases of Pott's disease.

**CASE 1**

47years old female presented with complaints of low grade fever with evening rise of temperature and lower back pain since 1 month, swelling in lumbar region since 15 days. On examination of spine swelling of approximately 4cm radius present at the level of L4-L5 with local rise of temperature and tenderness. Straight leg test was positive. Neurological examination was normal. Chest X-ray was suggestive of mediastinal widening and hilar lymphadenopathy. USG guided fluid aspiration was done and AFB, Gene Xpert was positive for Mycobacterium Tuberculosis. Patient was started on AKT according to DOTS. ESR was 113, MRI whole spine was suggestive of L4-L5 collapse and bilateral iliopsoas abscess (Figure 1, Figure 2).



**Figure 1: Chest Radiograph**

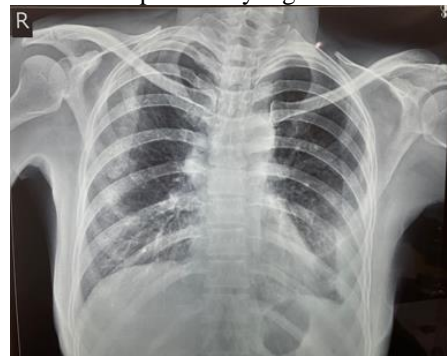


**Figure 2: MRI spine**

**CASE 2**

A 42years old female, known case of Tuberculous chronic pleural effusion on AKT (since 2 months) presented with complaints of back pain since 1 month, cough with expectoration since 4 days, loss of weight. Pleural fluid was positive for AFB and Gene Xpert were negative. Mantoux test was positive. AKT according to DOTS started empirically. On examination: Movement of chest was reduced on left side. Tactile vocal fremitus reduced in left infra axillary, infra mammary, interscapular and infrascapular region. Dull note in left infra axillary, infra mammary, interscapular and infrascapular

region. On auscultation breath sounds reduced in left side. On examination of spine, tenderness present in D6-D7. MRI Whole Spine Screening: Findings are suggestive of infective spondylodiscitis, collapse of the D6 vertebral body, prevertebral and bilateral paravertebral soft tissue/collections and spinal cord compression with cord oedema at D6 vertebral body level as described above. Findings are suggestive of Pott's spine. Patient was continued AKT according to DOTS under extrapulmonary regimen.



**Figure 3: Chest X-ray is suggestive of left sided pleural effusion with fibrotic changes**



**Figure 4: MRI of spine**

**CASE 3**

A 20years old, female presented to with complaints of: Swelling in back since 1 month, Pain in bilateral lower limbs since 15 days, Examination of spine from back: swelling of approximately 3cm radius present at the level of D9-D11. On palpation, tenderness present at the lumbar level, tenderness at the swelling. Straight leg raise test and contralateral straight leg raise was positive and caused pain in the lower back and bilateral lower extremities. However complete physical examination couldn't be done due to severe pain. Neurological examination, including motor examination, deep tendon reflexes and sensation was normal. MRI whole spine screening suggestive of collection in right psoas muscle from L1-L3 vertebral body levels. Findings are most likely suggestive of infective aetiology likely Koch's. Degenerative changes are seen in the visualised spine. USG guided

aspiration of swelling was done and pus was sent for AFB and Gene Xpert – Mycobacterium Tuberculosis detected and Rifampicin resistance detected. AKT started according to MDR-TB/RR-TB regimen. X-ray suggestive of vertebral collapse, reduced disk space. Kyphoscoliotic deformity noted.



**Figure 5: X-ray suggestive of vertebral collapse, reduced disk space. Kyphoscoliotic deformity noted.**

#### CASE 4

A 60years male came to OPD with complaints of:Sever lower back pain since 6 months, radiating to gluteal region, increased on walking.Inability to walk since 1 month.On examination of the spine: no visible swelling,tenderness present in dorsolumbar region.Motor system- Power reduced in lower limbs(proximal 4/5, distal3/5). MRI Lumbosacral spine suggestive of Compression fracture of L2 L3 L4 with Bilateral psoas abscess likely suggestive of infective etiology.Kochs.USG guided aspiration of psoas abscess was sent for AFB and Gene Xpert which was negative.ESR was raised- 75. Patient was started on AKT according to DOTS along with antimicrobial therapy according to culture sensitivity report to which the patient responded and psoas abscess resolved gradually.



**Figure 6: MRI spine**

#### DISCUSSION

Percival Pott was the first person to present the classic description of spinal tuberculosis (TB) in 1779; hence, spinal TB was called 'Pott's Disease'. TB of the spine is one of the oldest demonstrated diseases of mankind and is the common extrapulmonary form of TB. The morbidity and mortality rate due to spinal TB is higher than other infections in developing countries with dense population. Since the advent of antituberculous drugs and improved public health measures, spinal TB has become uncommon in industrialized countries, although it is still a significant cause of disease in developing countries. Spinal tuberculosis is a frequently encountered extrapulmonary form of the disease. In developed nations, most cases of spinal tuberculosis are seen primarily in immigrants from endemic countries. Because the epidemic of human immunodeficiency virus (HIV) infection caused resurgence in all forms of tuberculosis, increased awareness about spinal tuberculosis is necessary. Despite its common occurrence and the high frequency of long-term morbidity, there are no straightforward guidelines for the diagnosis and treatment of spinal tuberculosis. Early diagnosis and prompt treatment is necessary to prevent permanent neurological disability and to minimize spinal deformity.<sup>5- 9</sup> Hence; we have presented case series comprising of four cases of Pott's disease.

In the first case, 47years old female presented with complaints of low grade fever with evening rise of temperature and lower back pain since 1 month, swelling in lumbar region since 15 days.ESR was 113, MRI whole spine was suggestive of L4-L5 collapse and bilateral iliopsoas abscess. Reinoso J reported a case of a 17-year-old male with a history of pleural effusion that presented with severe back pain. Several imaging studies reported an aggressive paravertebral neoplasia at the thoracic levels. A surgical biopsy was performed, and the procedure revealed bone fragmentation, which prompted the need to rule out Pott's disease per current recommendations. Biopsy and subsequent positive QuantiFERON-TB Gold test confirmed spinal tuberculosis.<sup>10</sup>

In the second case, a 42years old female, known case of Tuberculous chronic pleural effusion on AKT (since 2 months) presented with complaints of back pain since 1month, cough with expectoration since 4 days, loss of weight. MRI Whole Spine Screening: Findings are suggestive of infective spondylodiscitis, collapse of the D6 vertebral body, prevertebral and bilateral paravertebral soft tissue/collections and spinal cord compression with cord oedema at D6 vertebral body level as described above. Findings are suggestive of Pott's spine. In another previous meta-analysis conducted by Fuentes Ferrer M et al, authors characterised the methodological issues, as well as clinical, diagnosis, microbiological and treatment characteristics of patients with spinal tuberculosis. The most common symptom reported was back pain,

and thoracic spine was the most frequent segment involved. Spinal plain radiography was done in 35 studies (94.6%), magnetic resonance imaging (MRI) in 26 (70.2%), computed tomography scan (CT-scan) in 13 (35%) and microbiological diagnosis in 29 (78.3%). Surgical treatment was reported in 28 articles 75.7%; finally, 24 articles reported follow-up, and in 15 of them at least 80% of patients improved.<sup>11</sup> In the third case, a 20years old, female presented to with complaints of:Swelling in back since 1 month. MRI whole spine screening suggestive of collection in right psoas muscle from L1-L3 vertebral body levels. Findings are most likely suggestive of infective aetiology likely Koch's. Degenerative changes are seen in the visualised spine. USG guided aspiration of swelling was done and pus was sent for AFB and Gene Xpert – Mycobacterium Tuberculosis detected and Rifampicin resistance detected. AKT started according to MDR-TB/RR-TB regimen. X-ray suggestive of vertebral collapse, reduced disk space. Kyphoscoliotic deformity noted. Osmanagic A et al, in another case reported described case of a 78-year-old woman who presented to the emergency department with a complaint of nausea, vomiting, weight loss, and severe back pain. On admission she was febrile and had leukocytosis and increased C-reactive protein. Initial spinal x-ray was performed and revealed osteolytic changes in the vertebral body of T11 and T12. Magnetic resonance imaging (MRI) of the spine illustrated spondylitis of T10, T11, and T12, with multiple paravertebral and epidural abscesses, which was suggestive of PD. Polymerase chain reaction (PCR) of the patient's gastric fluid was positive for Mycobacterium tuberculosis (MT). Due to the instability of the spine and severe and continuous pain, spine-stabilizing surgery was performed. Her TB was cured after nine months of treatment.<sup>12</sup> In the fourth case, a 60years male came to OPD with complaints of:Sever lower back pain since 6 months, radiating to gluteal region, increased on walking.Inability to walk since 1 month.On examination of the spine: no visible swelling,tenderness present in dorsolumbar region. In general, spinal tuberculosis is distinct from bacterial osteomyelitis, and the pathogenesis is thought to involve paravertebral venous spread as opposed to arterial hematogenous seeding of bone. Treatment is challenging due to the need for bone penetration with antimicrobials coupled by the paucibacillary nature of spinal tuberculosis, as opposed to the multibacillary form in highly oxygenated lung parenchyma. Furthermore, most high-quality studies have traditionally focused on pulmonary tuberculosis. For spinal tuberculosis, Infectious Diseases Society of America (IDSA) guidelines recommend 6–9 months of therapy for drug-susceptible MTB, with experts recommending 12-month courses for patients with spinal hardware. Treatment of MDR tuberculosis is more complex, and current IDSA guidelines are largely informed by a recent meta-analysis showing

mortality benefits with linezolid, fluoroquinolones, and bedaquiline.<sup>13-16</sup>

## CONCLUSION

Pott disease is a challenging, heterogeneous condition. Active tuberculosis continues to impact millions, and attention to the individual patient is vital in the treatment of extrapulmonary manifestations.

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