

MedPeer Publisher

Abbreviated Key Title: MedPeer

ISSN : 3066-2737

homepage: <https://www.medpeerpublishers.com>

An Unusual Extent of Retroperitoneal Abscess Formation in Spinal Tuberculosis : An Illustrative Case Report

DOI: 10.70780/medpeer.000QGR1

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ABSTRACT

Pott disease, or spinal tuberculosis, is the most frequent form of osteoarticular tuberculosis and can manifest with diverse radiological patterns and potentially serious complications. Cold abscesses are a hallmark feature but may remain clinically silent until late in the disease course. We report the case of a patient with thoracolumbar Pott disease complicated by large bilateral retroperitoneal muscular abscesses, initially undetected on physical examination. Cross-sectional imaging, including CT and MRI, was pivotal in delineating the extent of spinal involvement and associated soft tissue collections, guiding timely surgical and medical management. This case highlights the importance of maintaining a high index of suspicion for atypical presentations of spinal tuberculosis and demonstrates the critical role of imaging in early diagnosis, assessment of disease severity, and planning of appropriate interventions to prevent further morbidity.

KEYWORDS

Spinal Tuberculosis, Pott Disease, psoas abscess, Retroperitoneal abscess, Mycobacterium Tuberculosis, Spondylodiscitis, Case Report.

MAIN ARTICLE

INTRODUCTION

Tuberculous spondylodiscitis (Pott disease) accounts for **1.3–17% of extrapulmonary tuberculosis cases**, ranking after pulmonary, lymphatic, and gastrointestinal involvement [1,2, 3]. The lower dorsal and upper lumbar spine are the most frequently affected levels [1,2]. Risk factors include poor socioeconomic conditions, malnutrition, and smoking [3].

Complications include fistulization toward adjacent organs and formation of anterior cold abscesses, which may be incidentally discovered or revealed by progressive inflammatory back pain. Neurological deficits can occur in advanced disease [1,3]. Imaging—especially CT and MRI—plays a central role in diagnosis, extent assessment, and therapeutic guidance. We present a case of thoracolumbar Pott disease revealed by inflammatory dorsolumbar pain and complicated by extensive bilateral psoas and retroperitoneal abscesses.

PATIENT AND OBSERVATION

Patient Information

The patient is a **42-year-old male**, chronic smoker, with a **low socioeconomic background** and no known past medical history of tuberculosis. He reported no family history of TB or chronic infectious disease. He presented to the Emergency Department for **progressive dorsolumbar pain** evolving over two months. The pain was inflammatory, associated with nocturnal worsening, morning stiffness, marked asthenia, **7-kg weight loss**, and intermittent low-grade fever. On examination, the patient appeared fatigued and underweight. Localized pain and tenderness were noted over the **T12–L2** region, with limited spinal mobility due to discomfort. No spinal deformity was observed. Neurological examination was normal, with preserved motor strength, normal reflexes, and no sensory deficits in the lower limbs. Abdominal examination was unremarkable, and there was no palpable mass or swelling suggestive of a psoas collection.

Imaging Studies

CT Scan Findings (Figures 1-4) :

- **Bilateral, well-defined soft-tissue density collections involving the psoas muscles**, appearing enlarged and rounded.
- The collections look relatively **homogeneous with possible peripheral rim**, which is characteristic of **psoas abscesses**.
- Imaging of the spine demonstrates irregular osteolytic destruction of the vertebrae endplates. There is marked narrowing and near-complete loss of the intervening intervertebral disc space, consistent with spondylodiscitis.
- Findings are **consistent with active tuberculosis**.

Given the large size of the bilateral abscesses, **ultrasound-guided percutaneous drainage** was performed on both sides. Drainage catheters remained in place until daily output decreased significantly.

No surgical stabilization or decompression was required due to the absence of neurological compromise and spinal instability.

DISCUSSION

Spinal tuberculosis (Pott disease) remains a significant public health concern, particularly in low-resource settings and among populations with socioeconomic vulnerability, malnutrition, or limited access to healthcare. The disease often evolves insidiously, with nonspecific symptoms such as chronic back pain, weight loss, and low-grade fever. These features contribute to delayed diagnosis and allow the disease to progress to an advanced stage before detection. Cold abscesses—whether paravertebral, psoas, or retroperitoneal—constitute classic complications of spinal TB, resulting from the slow spread of caseous necrosis along natural anatomical planes [1,2]. Because these abscesses can grow extensively while remaining clinically silent, imaging plays a crucial role in their identification.

Role of Imaging and Diagnostic Approach

CT and MRI remain the two cornerstone imaging modalities for evaluating suspected Pott disease.

- **CT** provides excellent visualization of cortical bone destruction, vertebral collapse, and calcifications inside abscesses. It is also indispensable for **image-guided percutaneous drainage**—an intervention that simultaneously relieves symptoms and facilitates bacteriological confirmation.
- **MRI**, however, is the **most sensitive modality** for early detection of spondylodiscitis, as it identifies marrow edema, disc involvement, soft-tissue extension, and potential epidural spread before structural damage becomes visible on CT [1].

Microbiological confirmation—via PCR, direct microscopy for acid-fast bacilli, or culture—remains essential for definitive diagnosis. Aspiration of the psoas abscess enabled rapid detection of *Mycobacterium tuberculosis*, thereby confirming the diagnosis and guiding appropriate therapy.

Management Considerations

The primary treatment of spinal tuberculosis is **prolonged antituberculous chemotherapy**, typically 12 months depending on national guidelines. Medical therapy alone is sufficient in most cases, provided that there is no spinal instability, severe deformity, or neurological deficit.

In this patient, **percutaneous drainage** served multiple roles:

1. **Reduction of abscess volume**, which alleviated pain and prevented further spread
2. **Microbiological confirmation**, enabling targeted therapy
3. **Avoidance of surgical intervention**, reducing morbidity in a stable, neurologically intact patient

Surgery is reserved for more severe presentations, such as progressive neurological deficits, spinal instability, large epidural abscesses, or failure of medical therapy [2,3].

Potential Complications

If left untreated, cold abscesses—particularly in the dorsal region—may lead to serious and irreversible complications, including paraplegia due to spinal cord compression [3]. Other potential complications include vertebral collapse, kyphotic deformity, chronic sinus tract formation, and multilevel involvement. Early recognition and appropriate imaging are therefore critical to prevent long-term morbidity.

CONCLUSION

This case underscores the need to consider spinal tuberculosis in patients with chronic inflammatory back pain accompanied by systemic symptoms, particularly those from high-risk settings. Because cold abscesses can evolve silently and reach substantial size, early use of CT and MRI is essential for detecting vertebral destruction and assessing soft-tissue extension. Timely initiation of antituberculous therapy, supported by image-guided drainage when large collections are present, can achieve rapid improvement and prevent the need for surgical stabilization. Overall, this case emphasizes that persistent back pain with constitutional signs should prompt investigation for spinal tuberculosis, that cold abscesses require vigilant imaging assessment, and that coordinated, early multidisciplinary management is crucial to avoid irreversible neurological or structural complications.

FIGURES:



*Figure 1 : Axial contrast-enhanced CT image of the abdomen at the level of the lumbar spine showing **bilateral psoas muscle enlargement with well-defined hypodense collections** and minimal surrounding inflammatory changes, consistent with **chronic tuberculous (cold) psoas abscesses**, representing **post-disease sequelae of spinal tuberculosis**.*



Figure 2 : Coronal contrast-enhanced CT image of the abdomen at the level of the lumbar spine showing bilateral psoas muscle enlargement with well-defined hypodense collections.



Figure 3 : Sagittal contrast-enhanced CT image of the abdomen at the level of the lumbar spine showing bilateral psoas muscle enlargement with well-defined hypodense collections.



Figure 4 : Axial CT image of the pelvis showing symmetrical fusiform enlargement of the iliopsoas muscles with low-attenuation intramuscular collections, lacking significant perifocal inflammatory reaction, findings suggestive of chronic post-tuberculous psoas involvement (cold abscess formation).

ACKNOWLEDGEMENTS

The authors sincerely thank the patient for his cooperation and consent to share his case for scientific and educational purposes. We also acknowledge the contributions of the multidisciplinary team—radiologists, pathologists and other specialists—whose efforts made this report possible.

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