

“Lumbar swelling: And up into the lungs...” A radiology case report of spinal tuberculosis

Asnath Manithodika¹, Jyoshna Vejalla¹, Akhil R Nambiar¹, S Deepa²

From ¹Resident, ²Assistant Professor, Department of Radiodiagnosis, Government Medical College, Thrissur, Kerala, India

ABSTRACT

Spinal tuberculosis is one form of extra-pulmonary tuberculosis which usually has delayed presentation with spinal deformities in most cases. The para-spinal soft-tissue involvement can lead to a cold abscess which can present as swellings, mainly in the neck and lumbar regions. Here, a case of a young man is being presented, who had lumbar swelling which on computed tomography evaluation showed para-spinal collection, vertebral lytic foci, and lung parenchymal lesions suggestive of infection.

Key words: Cold abscess, Extrapulmonary spinal tuberculosis, Lumbar collection

Tuberculosis is still one of the major causes of morbidity in South-east Asia. Although primary lesions usually occur in the lungs, secondary tuberculosis can affect almost any organ mainly the lymph nodes, intestine, or vertebrae. Vertebral tuberculosis can cause para-vertebral collection which can track along the muscles forming a “cold abscess” [1].

Here, a case of para-vertebral lumbar cold abscess is being presented with special reference to computed tomography (CT) findings.

CASE REPORT

A 22-year-old man presented with swelling back on the right side lumbar region. There was no history of pain or fever. He denied a history of cough, weight loss, or night sweats.

On examination, he was adequately built and nourished. The patient did not have pallor, icterus, cyanosis, clubbing, or edema. Vitals were stable with a respiratory rate of 18/min. System examination including respiratory system was within normal limits. Local examination showed a tense swelling on the right lumbar region without any signs of active inflammation.

His blood investigations (blood counts, hemoglobin, renal, and liver function tests) were normal, except for a raised erythrocyte sedimentation rate of 80. Ultrasonography examination showed hypoechoic collection deep to the muscle plane and in the right psoas muscle. He underwent a CT abdomen and thorax. A peripherally enhancing hypodense collection of


size 12×8×16 cm was noted in the superficial muscle plane of the back of the abdomen right side. A psoas abscess was also noted on the right side measuring 7×8×4 cm (Fig. 1). Further moving up, a paraspinous collection was noted along the thoracic and lumbar spine. Lysis with soft-tissue density was noted involving T8, and lytic lesions of the T6 vertebrae were also noted (Fig. 2). CT of the thorax showed few foci of ground glass with centrilobular nodules in the right upper lobe, some with a “tree in bud” appearance, suggesting an infective etiology, possibly tuberculosis (Fig. 3).

His sputum was tested for cartridge-based nucleic acid amplification test and was found positive for *Mycobacterium tuberculosis*. He was started on anti-tuberculous drugs (four drug daily regimens including isoniazid, rifampicin, ethambutol, and pyrazinamide) and referred back to a local hospital.

DISCUSSION

Spinal tuberculosis (ST) is one of the oldest diseases known to mankind [1]. The most common presenting complaint of spinal TB is back pain. Spinal TB has a rather insidious course which often leads to greater diagnostic delay. Constitutional symptoms are not present in most cases but can include general malaise, weight loss, night sweats, and fatigue [2]. The vertebral involvement is mostly due to hematogenous spread with the infection involving the paradiscal space in the anterior part of the vertebral body in the subchondral plaque, which is nourished by rich subchondral arterial plexus derived by anterior and posterior vertebral arteries [3].

Four patterns of bone destruction were noted, namely, fragmentary, osteolytic, subperiosteal, and well-defined lytic

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Correspondence to: Dr. Akhil R Nambiar, Resident, Department of Radiodiagnosis, Government Medical College, Thrissur-680596, Kerala, India. E-mail: drakhil_nbr@yahoo.co.in

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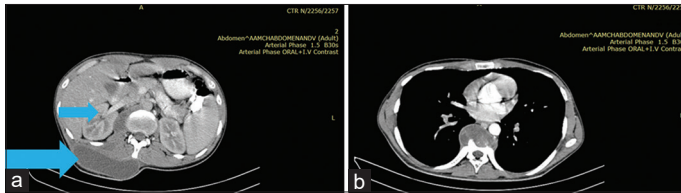


Figure 1: (a) Contrast-enhanced computed tomography abdomen, axial image showing hypodense collection in the muscle and subcutaneous tissue right lumbar region (large arrow), psoas collection (small arrow) and (b) right para spinal collection at T9 level with lysis of T9 vertebral body

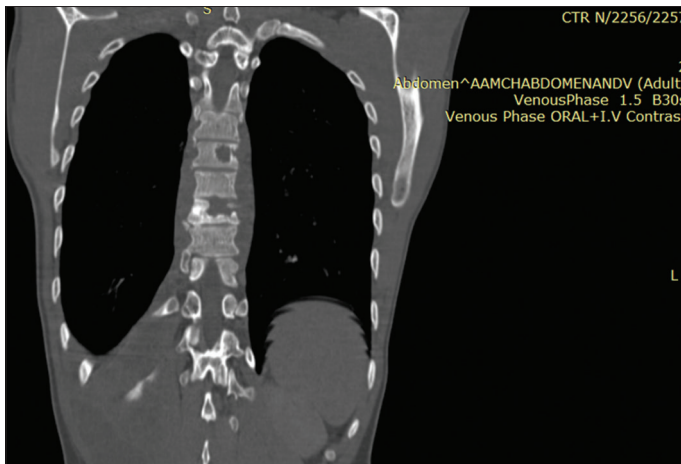


Figure 2: Contrast-enhanced computed tomography abdomen thorax, coronal image, bone window showing para-vertebral hypodense collection from T4 to lumbar vertebrae

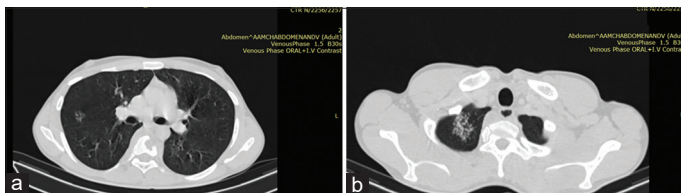


Figure 3: Contrast-enhanced computed tomography abdomen thorax lung window, axial sections showing ground glass opacities with a tree in bud pattern, in the right upper lobe

with sclerotic margins [4]. A classification system, Gulhane Askeri Tip Akademisi, divides spinal TB into three main types (Types IA/IB, II, and III) based on seven clinical and radiological features [5].

A cold abscess develops when the infection spreads to adjacent ligaments and soft tissue. It lacks inflammatory features and initially forms in the infective focus [3]. Later, it takes the path of least resistance along the natural fascial and neurovascular planes. The lumbar cold abscess usually presents as a swelling in Petit's triangle or in the groin and can be tracked down along the psoas [6].

Surgical intervention may be needed in spinal TB cases, particularly if there are deformities and collections. The treatment of spinal TB depends on the presence or absence of neurological involvement [7]. The systemic treatment with medications before and after the surgical debridement, the careful debridement of the entire focus of infection, and the successful

method for reconstructing the spinal stability are the key aspects in the treatment of ST [8]. The Index-TB guidelines for the treatment of extrapulmonary TB in India state that bone and joint TB should be treated with extended courses of ATT with a 2-month intensive phase consisting of four drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol), followed by a continuation phase lasting 10–16 months, depending on the site of disease and the patient's clinical course. Garg and Goyal in their review suggest that the duration of antitubercular therapy needs to be individualized and the decision to terminate therapy should be multifactorial (clinical, radiological, and pathological/microbiological where possible) rather than being enmeshed within any particular guideline [9].

Patel *et al.* in 2016, described the case of a 39-year-old Nigerian woman with sickle cell disease who presented in New Jersey, USA, with para-spinal collection, diagnosed in the magnetic resonance imaging (MRI) as osteomyelitis, which was later confirmed as *M. tuberculosis* by culture [2]. Another case report from China in 2020 describes huge para-spinal swelling but unlike our case, the patient had para-plegia. The bacilli was found to be multi-drug resistant tuberculosis [10]. Yet another case of tuberculous cold abscess has been reported from Indonesia which was a 20-year-old female with abdominal mass and difficulty in walking in whom bilateral psoas collections were seen in CT and MRI [11].

CONCLUSION

This case is presented because tuberculosis is still common in our country and it should be considered a differential in any case in day-to-day practice. Furthermore, the findings in CT which started from the patient swelling and “moving up” revealing the lung lesion with a tree-in-bud pattern were quite interesting.

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