# A Case of Spinal Tuberculosis Which Caused Gibbosity and Accompanied by Epidural Abscess

# Epidural Absenin Eşlik Ettiği ve Gibboziteye Neden olan Spinal Tüberküloz Olgusu

Spinal Tuberculosis Which Caused Gibbosity and Epidural Abscess

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**Öz**

Spinal Tüberküloz (STB), akciğer TB' ye göre çok daha nadir görülmektedir. Vertebra infiltrasyonu nedeniyle nörolojik defisit ve ortopedik problemlere neden olabilmektedir. Vakamız, 27 yaşında erkek hasta, öksürük ve bel ağrısıyla hastanemize başvurdu. PA grafisinde özellik yoktu. Akciğer bilgisayarlı tomografisinde, bilateral apikal infiltrasyon, torakal vertebrada multipl litik lezyon, gibbus deformitesi ve spinal kord basısı izlendi. Bronş lavaj sıvısında yayma ARB ve TB kültürü negatif geldi. Torako lumber MR' da epidural abse görünümü olması nedenli cerrahi abse drenajı yapıldı. Vertebrada litik lezyon nedenli kemik biopsisi yapıldı. Kemik biopsisi yayma ARB pozitif bulundu ve kültüründe M. Tuberculosis üredi. Biyopsi sitolojisinde nekrotizan granülomatöz inflamasyon görüldü. Tüberküloz tedavisi ve cerrahi stabilizasyon ile sırt ağrısı geriledi. Spinal TB, özellikle TB' nin endemik olduğu bölgelerde, bel ağrısıyla başvuran hastalarda ayırıcı tanıda düşünülmesi gereken önemli bir hastalıktır.

**Anahtar Kelimeler**

Spinal Tüberkülozis; Epidural Abse; Litik Lezyon

**Abstract**

Spinal Tuberculosis (STB) is much rarer than pulmonary tuberculosis. It can cause neurological and orthopedic problems due to infiltration of vertebrae. Here we report a 27-year-old male patient who applied with cough and low back pain. The chest Xray was unremarkable. In thorax computer tomography there were consolidations at the left and right upper lobes, multiple lytic lesions in the spine, spinal cord compression and gibbous deformity in the thoracic vertebrae. The acid resistant bacteria (ARB) smear and Mycobacterium tuberculosis (MT) culture of bronchial lavage fluid were found to be negative. Due to appearing to be an epidural abscess in thoraco-lumbar magnetic resonance imaging (MRI), surgical drainage was performed. For lytic lesions on the spine, bone biopsy was performed. ARB smear of bone biopsies was positive and MT isolated in the Lowenstein-Jensen culture. The cytology of the biopsy showed necrotizing granulomatous inflammation. Back pain decreased with anti tuberculosis treatment and surgical stabilization. We emphasize that, STB, in MT endemic and other developing areas, is an important consideration the differential diagnosis of patients presenting with low back pain.

**Keywords**

Spinal Tuberculosis; Epidural Abscess; Lytic Lesion

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## Introduction

Spinal tuberculosis (STB) is a form of bone TB that is caused by infiltration of a vertebral arch [1]. In endemic and other developing countries, in case that present symptoms such as loss of appetite, weight loss and low back pain, STB should be considered in the differential diagnosis. The initial stages of STB are insidious; radiological findings develop slowly and there are no specific symptoms. Therefore diagnosis of STB may be delayed. Here, we present a case of STB that caused gibbosity and was accompanied by epidural abscess.

## Case Report

A 27-year-old man was admitted to the hospital with a complaint of non-productive cough and low back pain occuring for the previous month. The low back pain was constant and had no relationship with physical effort. There were no other related features in the patient's medical history. The patient had tenderness on his back, but no other related features upon physical examination.

The erythrocyte sedimentation rate (ESR) was 38 / h and the sputum smear was negative for any bacteria. The chest X-ray of the patient was non-diagnostic (Figure 1). Non-specific antibiotherapy (amoxicillin-clavulanic acid) was initiated. The thorax computed tomography (CT) showed tree-in-bud infiltration at the right and left upper lobes of the lung and in the cavity in the right upper lobe (Figure 2).

Also, lytic lesions in the anterior and lateral spine, causing gibbous deformity and compression to the spinal cord were seen. The thoraco-lumbar magnetic resonance imaging (MRI) showed severe kyphotic deformation, epidural abscess and spinal cord compression on the T8-T10 levels. Also there was spondylodiscitis at the T3-T6 levels (Figure 3-4). The three acid resistant bacteria (ARB) smears were negative in induced sputum smear for Mycobacterium tuberculosis (MT). Due to bilateral apical infiltration of the cavity in the CT, fiberoptic bronchoscopy was performed. Bronchial lavage fluid that had been taken from bilateral upper lobes was positive for ARB.

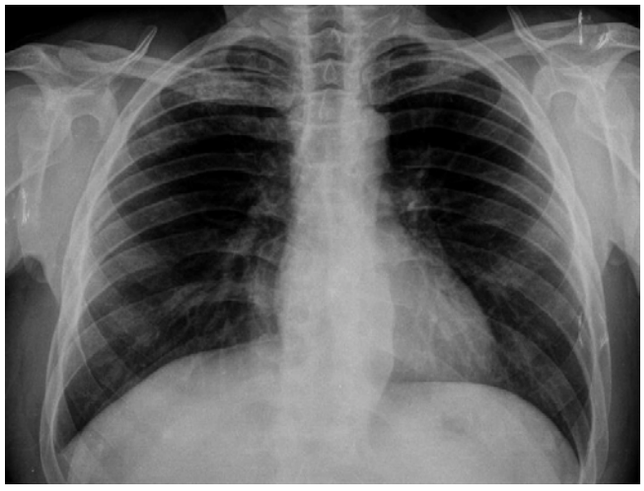

Figure 1. Initial PA Graphy

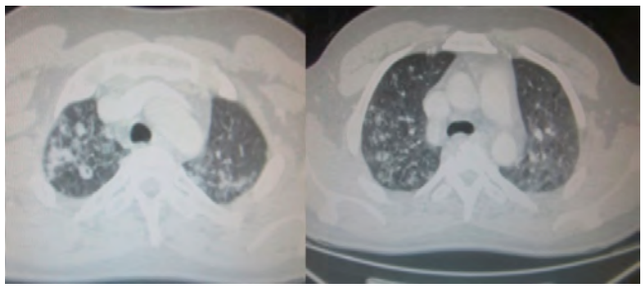

Figure 2. Thorax CT – Tree-in-bud infiltration at the right and left upper lobes of the lung and cavity in the right upper lobe.

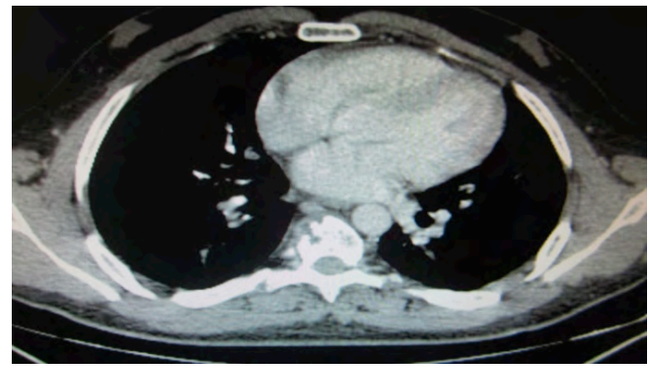

Figure 3. Thorax CT- Vertebrae lytic lesion

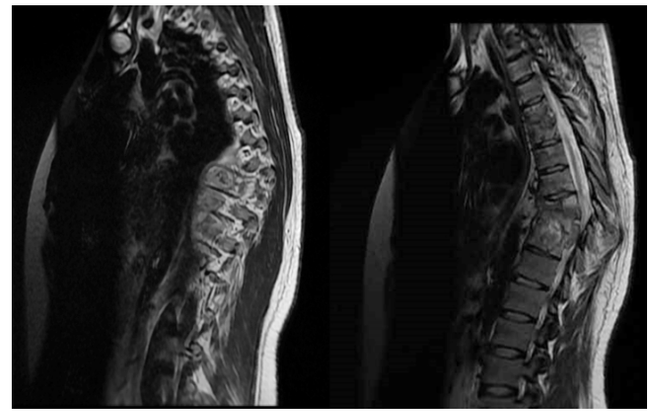

Figure 4. Thoraco-lumbar MRI - Severe kyphotic deformation, epidural abscess and spinal cord compression on the T8-T10 levels.

Spinal epidural abscess drainage and vertebral bone biopsy were performed from the thoraco-lumbar regions. Histopathology of the T3-T4 and T8-T10 vertebral bone biopsies detected necrotizing granulomatous infiltration. ARB smear of bone biopsies was positive and MT isolated in the Lowenstein-Jensen culture also. Anti-TB treatment was initiated as isoniazid 300 mg / day, rifampicin 600 mg / day, pyrazinamide 1.5 g / day, and ethambutol 1.5 g / day. Additionally, anterior surgical stabilization was implemented because of the infiltration of T8-T10. In the follow-up, the patient's symptoms had decreased.

## Discussion

STB was first described in 1782 by Sir Percival Pott, so is also called Pott's disease [1]. STB is much rarer than pulmonary tuberculosis. It constitute 1-1.5% of all TB cases, and 15% of all extrapulmonary tuberculosis [2-3]. STB is especially seen in developing countries where it is endemic, such as Pakistan and India. But it is also seen in developed countries. Furthermore, STB cases have been increasing in recent years due to increased immundeficiency in cases of HIV infection, diabetes mellitus, cancer, etc. [4].

Patient complaints, radiological findings, microbiologic diagnosis of MT and necrotizing granulomatous inflammation in histopathology are crucial in the diagnosis of STB. Due to clinical and radiological similarities in differential diagnosis, it can often be confused with vertebral tumor and metastatic lesions. However, STB usually has anterior vertebrae involvement,

whereas tumors have more posterior vertebrae involvement [5]. In this case, anterior vertebrae involvement was observed.

STB may cause neurological deficits and spinal deformity. The most serious complications are paraplegia and tetraplegia. Although neurological deficits were not seen in this case, the possibility of neurological deficits was high because of spinal cord compression, epidural abscess and destruction of vertebrae. Therefore, early diagnosis and appropriate treatment of these cases is important.

Spinal epidural abscess (SEA) is quite rarely observed. It is mostly seen in the lumbar region with multiple vertebral articulation involvement. In this case, the involvement of three consecutive joints of the thoracal vertebrae was observed in the thoraco-lumbar MRI. Although SEA is predominantly due to predisposing factors such as HIV infection, diabetes and trauma, no other disease or predisposing factor was found in the case. SEA often appears to be secondary to pre-existing infection in another organ. In our case, epidural abscess was thought to have developed secondary to pulmonary tuberculosis.

The risk of kyphosis is quite high in STB. As the number of infiltrated vertebrae segments increases, the risk of kyphosis development increases accordingly. In another study, the kyphosis rate was found to be 38% in STB [6]. Due to consecutive three segment involvement, kyphosis was also observed in this case.

In the pharmacological treatment of spinal TB, antituberculous therapy (HRZE) consisting of isoniazid, rifampicin, pyrazinamide and ethambutol is recommended for at least nine months. In the intensive phase, two months HRZE treatment, and then 7-10 months HR treatment during the continuation phase is recommended [7]. Surgical treatment varies according to the degree of bone involvement. It has been shown that aggressive surgical treatment improves the efficacy of drug treatment and prevents neurological deficits [8]. Surgical anterior stabilization is required for long segment involvement of vertebrae. Posterior stabilization is applied to maintain an upper and a lower healthy segment. In addition to pharmacological treatment, surgical anterior stabilization was performed on our patient because of the long segment involvement of the vertebrae.

We emphasize that, in TB endemic countries and in developing countries, STB should be considered in the differential diagnosis in patients with back pain and destructive lesions of the vertebrae. Furthermore, surgery and/or anti-tuberculosis therapy should be given promptly after STB diagnosis.

### *Competing interests*

The authors declare that they have no competing interests.

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