

Pott's Disease: The Clinical Features And Treatment Outcomes Of Eight Patients Of Spinal Tuberculosis

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Abstract

We report eight cases of spinal tuberculosis seen at the Cerrahpaºa Medical School of Istanbul University. In two of the cases the preliminary diagnosis was myeloproliferative disorder with vertebral metastasis. In two cases spinal involvement was accompanied by pulmonary tuberculosis. In four cases Pott's abscess was diagnosed. In all cases lytic and destructive changes in various vertebrae were noted. In two cases spinal cord compression was present. The diagnoses were confirmed by microbiologic examination of the biopsy or aspiration material obtained from intervertebral disc space or collection under CT guidance or by detection and culture of bacilli in the sputum. All patients responded well to the medical treatment and excellent results were obtained.

INTRODUCTION

Since a long time tuberculosis (TB) has been around, but for the past decade its prevalence has increased markedly. Tuberculosis (TB) is still associated with significant morbidity and mortality, especially in developing countries. In recent years we are faced with increasing numbers of spinal TB cases and we therefore want to report such a series of our patients. TB starts in the lung but can travel to any organ or structure of the body. The spinal column is often the most affected extrapulmonary site. Skeletal tuberculosis, which occurs in approximately 1 percent of patients with tuberculosis, is a challenge to the physician particularly when the spine is involved. Firstly, patients with spinal tuberculosis have nonspecific symptoms that can result in delay in the diagnosis if a high index of suspicion is not maintained. Secondly, neural involvement may occur up to 50 percent of patients and can cause irreversible damage if not promptly and adequately treated (_{1,2,3}). We present eight cases of tuberculosis recently treated in our clinic.

CASE REPORTS

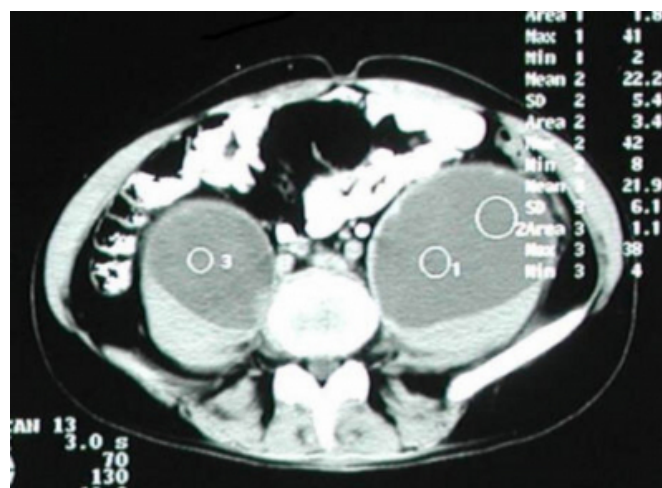
CASE 1

A 23 year-old male was admitted with low back pain. Pain was present for 3 months and was getting worse. Physical examination was normal except some loss of lumbar lordosis. Tuberculin test was 15 mm. Erythrocyte sedimentation rate was 100 mm/h. Chest X-ray was normal. X-ray of the spine showed an L3-L4 discitis with a

substantial destruction of the body of L4. CT scan of the lumbar spine revealed a bilateral paraspinal mass (Bilateral abscesses of psoas muscle)(Figure 1). Culture of the CT guided aspiration was positive for mycobacterium tuberculosis.

Figure 1

Figure 1: Bilateral abscesses in the psoas muscle.



CASE 2

A 61 year-old man presented with back pain, weakness and fever. Physical examination was normal. Tuberculin test was 12 mm. Erythrocyte sedimentation rate was 45 mm/h. Leucocytosis and thrombocytosis were present. Chest X-ray was normal. X-ray of the spine showed disc space narrowing

and vertebral body destruction at L5. CT scan revealed a paraspinal collection at the L5 level. CT guided aspiration of the specimen was positive for AFB.

CASE 3

A 42 year old man was admitted for back pain, weakness and difficulty in walking. Physical examination was normal. Erythrocyte sedimentation rate was 54 mm/h. Tuberculin test was 14 mm. Chest X-ray was normal. X-ray of the spine revealed intervertebral disc narrowing. CT scan showed a collection at the L4-L5 level. CT guided aspiration specimen was positive for acid-fast bacilli.

CASE 4

A 34 year-old man presented with back pain, lower extremity weakness, discomfort on motion and numbness. Physical examination was normal. Tuberculin test was 18 mm. Chest X-ray showed an alveolar infiltration at the posterior segment of the right upper lobe. CT revealed a right psoas abscess. Culture of the sputum and the aspiration specimen of the psoas muscle was positive for mycobacterium tuberculosis.

CASE 5

A 28 year-old man was admitted for back pain, fever and numbness at the lower extremities. Physical examination was normal. Tuberculin test was 16 mm. Chest X-ray showed an infiltration in the apico-posterior segment of the left upper lobe. CT scan revealed a paraspinal abscess at the L4 level. Culture of the sputum and the aspiration specimen of the abscess was positive mycobacterium tuberculosis.

CASE 6

A 42 year-old-woman complained of back pain. Tuberculin test was 17 mm. Her chest x-ray was normal. On lumbar CT an abscess between 4th and 5th lumbar vertebrae was seen. The culture of the material from this abscess was positive for Mycobacterium tuberculosis.

CASE 7

A 43 year-old-woman presented with back pain and malaise. Due to the lesions seen on the lumbar CT the patient was suspected for tuberculosis. The erythrocyte sedimentation rate was 72 mm/hr. the Tuberculin test was 12 mm. Her chest x-ray was normal. After the treatment on her control lumbar CT all lesions disappeared.

CASE 8

A 51 year-old-female patient presented with low back pain.

On her lumbar CT a compression fracture of fifth lumbar vertebra was seen. Additionally destruction of the body of L5, S1 and S2 and lytic lesions and soft tissue bulging into the medullary canal were detected. Thus primary tumor or metastasis or osteomyelitis were suspected. Further investigation with magnetic resonance imaging revealed loss of height, sclerotic changes and fracture lines on L4 and L5 vertebrae. A soft tissue component extending from L4 to S1 and obliterating the spinal canal and expanding into the neural foramina at these levels was seen. Upon these findings the differential diagnosis of brucella, tuberculosis or neoplasm was suggested. The pathologic diagnosis of the biopsy material taken from the epidural area was necrotizing granulomatous inflammation. Her Tuberculin test was 22 mm.

All the patients received antituberculous treatment for 18 months. One patient was immobilised during the first three months and received concomitant rehabilitation therapy. All patients improved without any neurological deficits.

DISCUSSION

Pott's disease results from an infection of the bone by the Mycobacterium Tuberculosis bacteria via a combination of hematogenous root and lymphatic drainage. The organism may stay dormant in the skeletal system for an extended period of time before the disease can be detected (2).

The incidence of spinal infection varies from 1 in 125000 to 1 in 250000 cases of which two thirds being pyogenic and only one third having tuberculosis (14,15). Spinal TB is the most common form of skeletal system TB, comprising 50% of all cases (4,7). In spinal TB, the anterior portions of two or more contiguous vertebrae are involved owing to hematogenous spread through one intervertebral artery feeding two adjacent vertebrae (4,10). Wherever the primary site of TB infection is, it travels by subligamentous spread in the spine, as well as into the paravertebral spaces and adjacent soft tissues (4).

Spinal tuberculosis is a chronic and slowly progressive disease with prolonged symptomatology. The history and presenting condition of the patients is important but not always reliable for an immediate diagnosis. Pain is the most common presenting symptom. It usually has an insidious onset and may be mechanical in nature during the initial stages of the disease. Systemic symptoms arise as the disease progresses. Persistent spinal pain and local tenderness, limitation of spinal mobility, febrile state, and neurologic complications including paralysis present as the destruction

continues. Other symptoms are reflective of chronic illness including malaise, weight loss, and fatigue.

Diagnosis is frequently not suspected in patients with no evidence of extraspinal tuberculosis. The clinical presentation together with the radiologic appearance of the spine and a positive tuberculin test may suggest spinal tuberculosis. The diagnosis must be confirmed by evidence of acid-fast bacilli from the bone or body fluids. Tuberculosis of the spine is an uncommon form of tuberculosis occurring in fewer than 1 percent of patients with tuberculosis.

In Pott's disease, the spinal cord may become involved in a compression by bony elements and/or expanding abscess or by direct involvement of cord and leptomeninges by granulation tissue. Neurological deficits are usually more symmetrical and of more gradual onset than those resulting from other pathologies (4).

It should always be kept in mind since prompt diagnosis and early treatment is very important to prevent neurologic deficit and irreversible damage.

As other investigators we have observed in our cases that positive tuberculin test was an important diagnostic clue. X-ray of the spine showed nonspecific degenerative changes.

Typical radiographic changes indicative of Pott's disease include vertebral destruction and narrowing of the intervertebral space seen on plain radiographs (9). Similar findings may be seen with metastatic diseases and fungal infections or metastases, whereas involvement of the disc suggests TB and pyogenic infections. Correlative CT and MRI have made diagnosis of spinal TB substantially earlier (4,5,10). Major advantage of these studies may be the ability to show lytic lesions and adjacent abscess formation. CT scan was the most useful radiologic tool both for the diagnosis and determining the extent of the disease. In our patients CT scan revealed positive findings such as anterior vertebral body destruction, psoas or paraspinal abscess. Using different pulse sequences MRI can better differentiate soft tissue abscess from psoas muscle but we have not used MRI as a diagnostic tool (4,5).

The golden standard of the diagnosis in our patients was CT guided needle aspiration biopsy. The samples obtained were assessed with stains for acid fast bacilli, culture and histologic examination.

In the prechemotherapy era, many patients were treated with

bed rest alone, with radiological healing (13). It is noteworthy that in TB bones do not fuse spontaneously (4). At present, the treatment of Pott's disease remains controversial. Some advocate conservative treatment with late spinal fusion and others early spinal fusion followed by conservative treatment (6,7,8,11,12). Surgical treatment should include anti-TB medication, abscess decompression. The anterior surgical approach is chosen for cervical and lumbar regions. Anterior spinal fusions is currently thought to be the best surgical adjunct to after at least 18 months of anti-TB chemotherapy (4,8,9).

Chemotherapy remained the cornerstone in our patients. All the patients improved with antituberculous chemotherapy without any neurologic deficit or damage.

In the era of modern imaging modalities and effective anti-TB medication, TB appears to be a disease too frequently forgotten by clinicians and underemphasized by academicians (13). Misdiagnosis and delay are common. A high degree of suspicion is necessary to avoid delays that may result in irreversible damage and in a high mortality rate. In any patient who presents with a destructive lesion of the spine, CT or MRI of the spine may allow early diagnosis and evaluation of Pott's disease, and paravertebral and/or intraspinal extension of the disease, while biopsy is essential to confirm the diagnosis of TB bacteriologically and histologically. Moreover, prolonged follow-up will be essential in all cases of Pott's disease, as in the presented cases. Eradication of TB in the future will depend on social intervention as well as bringing new technology to bear on this old problem.

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