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# CLINICAL SPECTRUM OF TUBERCULOSIS IN SPINE

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**ABSTRACT:**

**Objective:** To evaluate the clinical spectrum in the patients suffering from spinal tuberculosis.
**Design:** Case series observational
**Place & Duration of study:**Liaquat University of medical & health sciences Jamshorosindh Pakistan from January 2008 to December 2010.
**Patients & Methods:** Patients were assessed at the outpatient clinics as well as patients admitted in Liaquat University Hospital Jamshoro& Hyderabad. All such cases of spinal tuberculosis were diagnosed from their history, clinical examination & investigations. Tuberculosis of the spine usually presents in this study series with complain fever, generalized weight loos, pain in the back of neck, upper dorsal & lumbar regions that increased with movements of neck & during walking, local tenderness of spine was found in most of the patients. We also found the khyposis with gibbus formation clinically and on radiologicallyperivertebral abscesses, erosions with vertebral collapse and cord compression were reported on plain X-rays and MRI of spine.
**Results:** Total numbers of patients were 66. There were 39 males and 27 females. Male and female ratio was (1.5:1). Twenty-three (34.84%) patients were from urban and 43 (65.15%) were from rural areas. Age ranged from 20 to 75 years, mean age was 37 years, median 32 years and mode was also 32 years.
Clinical spectrum of patients was low backache radiculopathy with psoas abscess in 17 (25.75%), spastic paraplegia with bladder involvement 09 (13.63%), spastic parapresis with diabetes and tuberculosis spine 21 (31.81%) and cervical myelopathy 19 (28.78%).
**Conclusion:** We conclude that in tuberculosis of the spine involvement of nerve root compression with vertebral collapse is the common problem, early diagnosis and management of TB spine can prevent the disability.

**Key words:**Tuberculosis, Clinical Spectrum, Spine.

## INTRODUCTION:

Mycobacterium tuberculosis infection generally spreads to the spine by the hematogenous route, or by paraspinal extension. Spinal lesions are more commonly found in the lower thoracic region but any level of the can be affected.In developed countries, an increased prevalence of tuberculosis has been observed since 1990. Increased poverty, immigration, drug abuse, AIDS, therapeutic immunosuppression and emergence of resistant strains are all responsible for this increase.Tuberculosis has been said to be the great mimicker because of the spectrum of clinical and radiological presentation.The majority of these are children and young adults, presenting with several months of back pain, constitutional symptoms, kyphosis and neurologic deficit.Tuberculosis is a major source of osteoarticular complications in northwestern Spain. The prevailing low level of clinical suspicion may explain the long delay to the diagnosis in most patients. A greater awareness of the possibility of this severe complication, especially in the elderly people or in high-risk populations, would be advisable.The aim of this study to observe the clinical spectrumin patients suffering with tuberculosis of spine.

## MATERIAL & METHODS:

This study was an observational case series carried out from January 2010 to December 2011 at various departments like Orthopaedic Surgery & Traumatology, Neurology, and General Medicine at Liaquat university of Medical & health Sciences Jamshoro, Sindh Pakistan. All patients were assessed at the outpatient clinics as well as patients admitted inLiaquat University Hospital Jamshoro& Hyderabad.All such cases of spinal tuberculosis were diagnosed from their history, clinical examination & investigations. Symptoms like – fever, generalized weakness, loss of appetite, pain in neck, back (dorsal and lumbar regions), occasionally chest pain, parapersis and quadriparesis.Clinically the tuberculosis of the spine usually presents in our study series with complain fever, generalized weight loos,pain in the back of neck, upper dorsal & lumbar regionsthat increased with movements of neck & during walking, local tenderness of spine was found in most of the patients. We also found the khyposis with gibbus formationclinically and onradiologicallyperivertebral abscesses, erosions with vertebral collapse and cord compression were reported on plain X-rays and MRI of spine.

All patients were fully investigated including complete blood count witherythrocyte sedimentation rate (ESR), posteroanterior X-ray chest, X-ray spine AP and lateral views, MRI spine, sputum smears and detailed report of CSF.

The data were collected through the detailed proforma completed for each case and range, mean, median, mode, and percentages were calculated through the SPSS program version 17.0 with the help of biostatician. All patients were informed about thepossibility of publication in the literature.

## RESULTS:

Total numbers of patients were 66. There were 39 males and 27 females. Male and female ratio was (1.5:1). Twenty-three (34.84%) patients were from urban and 43 (65.15%) were from rural areas. Age ranged from 20 to 75 years, mean age was 37 years, median 32 years and mode was also 32 years.

Clinical spectrum of patients was low backache in 17 (25.75%), spastic paraplegia with bladder involvement 09 (13.63%), spastic parapresis with diabetes and tuberculosis spine 21 (31.81%) andquadriparesis 19 (28.78%).

## DISCUSSION:

Tuberculosis of the spine is decreased in the United States and other developed countries. The study was conductedin London from 1985-1992, 95% of cases of spinal tuberculosis were observed in developed countries primarily in immigrants from Africa and Southeast Asia.Brashear HR et al, reported thelower thoracic 48% and thoracolumbar spine 67% was the most common involved areas.

Janssens J-P, De Haller R. et al,reported aretrospective study of 26 cases to review the clinical appearance and outcome of Pott's disease. Swiss nationals (46%) were older than patients from Mediterranean or developing countries (mean age, 69 versus 29 years). Involvement of lumbar in 10, thoracic and lumbar in 2, and thoracic or cervical in 14 cases. Abscesses were present in 15 (57%) subjects and appeared during treatment in 20% of these cases. Three of six lumbar abscesses were initially visualized only by computed tomography. Neurologic symptoms are in most cases related to radicular and medullary inflammation, with arachnoiditis and without compression.

Pertuiset et al recorded weight loss 58% of patients, and Perronnereported 90% to 100% of patients with back pain in spinal Tuberculosis.Nussbaum ES et al reviewed the study of 29 cases of spinal tuberculosis treated from 1973 to 1993 with an average follow-up time of 7.4 years. Clinical findings included back pain, paraparesis, kyphosis, fever, sensory disturbance, and bowel and bladder dysfunction. Twenty-two patients (76%) presented with neurological deficit; 12 (41%) were initially misdiagnosed. Sixteen patients (55%) had predominant vertebral body involvement, 9 had marked bone collapse with neurological compromise. Eleven individuals (39%) had intraspinal granulomatous tissue causing neurological dysfunction in the absence of bone destruction, and two (7%) had intramedullary tuberculomas.

Lindhalet al described the relative merits of different imaging procedures like plain radiography, CT and MRI in the diagnosis of spinal TB. Conventional radiographs give a good overview; CT visualizes the disco-vertebral lesions and paravertebral abscesses, while MRI is useful in determining the spread of the disease to the soft tissues and spinal canal.

Azzamet al described the changes in the plain radiograph consistent with TB spine in 91- 99% of cases. The best diagnostic modality for spinal TB is MRI.MRI is more sensitive than radiography and more specific than CT in the diagnosis of spinal TB. MRI can also provide the diagnosis of TB of the spine 4-6 months earlier than conventional methods, offering the benefits of earlier detection and treatment.

In our study vertebral collapse of spine was observed on the plain radiography and vertebral collapse with nerve root and cord

**TABLE 1.**

| Age in Years | No. of Patients | | No. of cases |
|---|---|---|---|
| | Male (%) | Female (%) | |
| 20-30 | 7 (17.94) | 4 (14.81) | 11 |
| 31-40 | 13 (33.33) | 9 (33.33) | 22 |
| 41-50 | 11 (28.20) | 7 (25.92) | 18 |
| 51-60 | 4 (10.25) | 3 (11.11) | 7 |
| 61-70 | 1 (2.56) | 2 (7.40) | 3 |
| > 70 | 3 (7.69) | 2 (7.40) | 5 |
| Total | 39 | 27 | 66 |

**TABLE 2.**

**CLINICAL & RADIOLOGICAL SPECTRUM**

| Clinical | Plain radiograph | MRI | Diagnosis | No. of Patients |
|---|---|---|---|---|
| Low backache with radiation to lower limb | L3,4 vertebral collapse | L3,4 vertebral collapse with nerve root compression | Lumbar radiculopathy with psoas abscess | 10 |
| Backache with severe pain radiation to chest | T2,3 vertebral collapse | T2,3 vertebral collapse, psoas abscess | Dorsal radiculopathy | 7 |
| Weakness in lower limb with bladder involvement | T10,11 vertebral collapse | T11,12 vertebral collapse with compression effect on dorsal cord | Spastic paraplegia | 9 |
| Weakness in lower limb with bladder & bowel dysfunction | T4 & 5 vertebral collapse | T4 & 5 vertebral collapse with compressive effect | DM + spastic parapresis | 9 |
| Weakness in lower limb with fever | T11,12 vertebral collapse | T11,12 vertebral collapse with compression effect on dorsal cord | Spastic parapresis | 12 |
| Neck Pain & weakness of upper & lower limbs | C 5, 6 vertebral collapse | C 5, 6 vertebral collapse + cord compression | Quadriparesis | 7 |
| Neck Pain & weakness of upper & lower limbs | C 6, 7 vertebral collapse | C6, 7 vertebral collapse + cord compression | Quadriparesis | 12 |

compression was reported through MRI. Most patients were presented with complain of lowbackache and weakness in upper as well as lower limbs. We observed nerve root compression with vertebral collapse of C5, 6 & 7, T2, 3, 4, 5, 10, 11& 12, L3 & 4 as per involvement of spine region followed by lumbar radiculopathy with psoas abscess in 10, dorsal radiculopathy 7, spastic paraplegia 9, diabetes mellitus with spastic parapresis 9, spastic parapresis 12, quadriparesis in 9 patients with TB spine.

## CONCLUSION:

We conclude that in tuberculosis of the spine involvement of nerve root compression with vertebral collapse is the common problem, early diagnosis and management of TB spine can prevent the disability.

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