

Pott's Spine

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Abstract

Pott's spine is one of the oldest demonstrated diseases of humankind, having been documented in spinal remains from the Iron Age in Europe and in ancient mummies from Egypt and the Pacific coast of South America. In 1779, Percivall Pott, for whom the disease is named, presented the classic description of spinal tuberculosis. The spine is the most frequent location of musculoskeletal tuberculosis, and it is the most debilitating form of tuberculosis of spine. Pott's spine is also known as spinal tuberculosis or tuberculous spondylitis (Fig. 1). The main characteristic symptoms are severely curved spinal deformity, back pain and lower limb weakness / paraplegia.

Keywords: Tuberculosis, Spinal deformity; Debilitating; Paraplegia.

Introduction

Pott's spine is otherwise known as spinal tuberculosis or tuberculosis spondylitis is the most common musculoskeletal TB, first described by the British surgeon Percivall Pott in 1779. It is one of the rare infectious disease of the spine with Mycobacterium tuberculosis which affects the dense vasculature of cancellous bone of the vertebral bodies. Lower thoracic vertebrae is the most commonly affected areas followed by upper lumbar vertebrae and cervical vertebrae of the spine. Osteomyelitis and Arthritis are the main characteristic features of Pott's disease. Pott's spine is the known cause of

spinal deformity and paraplegia.

Incidence

Internationally Pott's spine accounts for 1-2% of total tuberculosis, 15% of extrapulmonary, and 50% of skeletal tuberculosis cases. The disease is more common in males than females. Currently the disease is mostly affecting the people in the developing countries.

Etiology

Spinal tuberculosis is caused by extraspinal infection of Mycobacterium Tuberculosis. Hematogenous transmission to the spine leads to spinal tuberculosis in adults. Lymphatic transmission of the bacteria also occurs. (Fig. 2)

Types

The four types of spinal TB lesions in adults are as follows:

1. Paradiscal lesions - 50% of all spinal tuberculosis have paradiscal lesions. It primarily affects the vertebral metaphysis
2. Anterior Granuloma- Granulomas develop underneath the anterior longitudinal ligament leads to development of abscess, necrosis and deformity

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3. Central Lesions - Involves entire vertebral body leads to deformities and pathological fractures
4. Appendiceal Type Lesions mainly develops in Lamina, pedicles, articular facets and spinous processes

Pathophysiology

Mycobacterium tuberculosis travels to the spine hematogenously from an extraspinal site of infection (primarily the lungs) via the venus plexus of Batson.



Infection spreads to vertebrae, intervertebral discs, the epidural or intradural space within the spinal canal and adjacent soft tissues.



When the infection proceeds it can spread up and down the vertebral column and the intervertebral disc become avascular and collapse



Cold abscess develops in the paravertebral region and the adjacent soft tissues and ligaments.



Vertebral collapse leads to spinal deformity.



Spinal cord compression results in neurological manifestations

Clinical Manifestations

Mostly it affects the lower thoracic vertebrae for about 40%-50%, Lumbar spine for about 35% - 45% and Cervical spine for about 10%.

Local pain, local tenderness, stiffness and spasm of the muscles presents.

Spinal or radicular back pain presents.

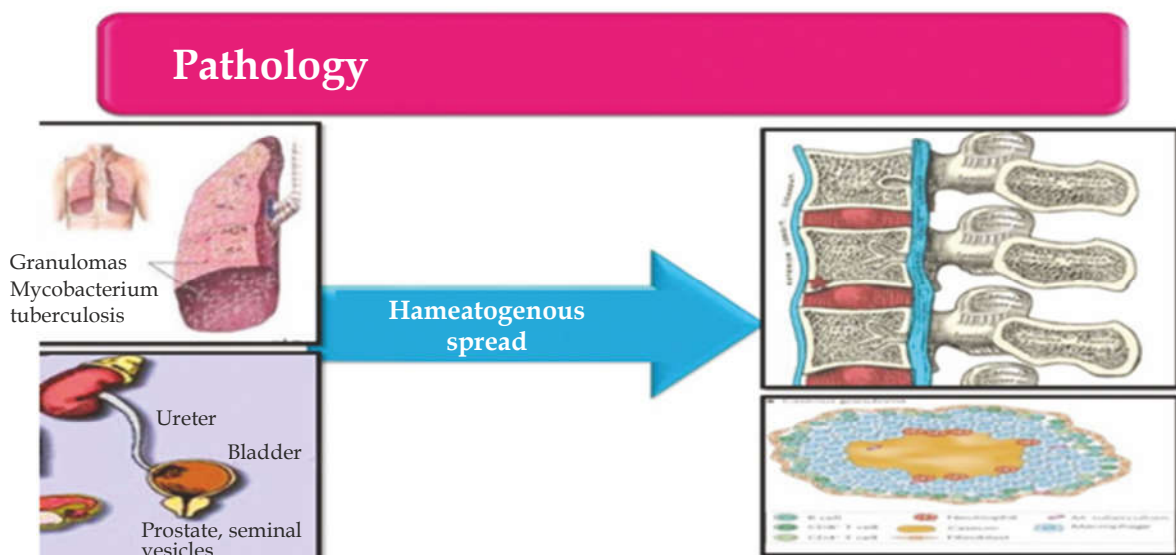
A cold abscess slowly develops when tuberculous infection extends to adjacent ligaments and soft tissues

A prominent spinal deformity - Gibbus deformity is a form of structural kyphosis develops due to collapse of vertebral bodies by spinal tuberculosis commonly affects the young children.

Other symptoms like restricted spinal motion, localized tenderness, compression fractures, fever, night sweats, weight loss, malaise, neurological signs.

Clinical features of spinal TB

- Clinical kyphosis 95%
- Palpable cold abscess 20%
- Radiological paraverebral abscess 21%
- Neurological involvement 20%
- Tubercular sinuses (active/healed) 13%
- Associated extra spinal skeletal foci 12%
- Associated visceral foci 12%



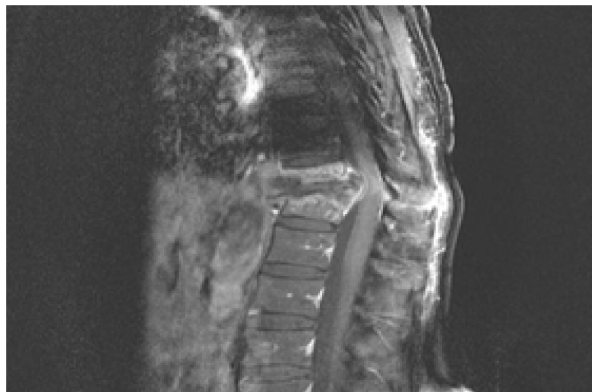


Fig 1: Tuberculous spondylitis with large prevertebral abscess

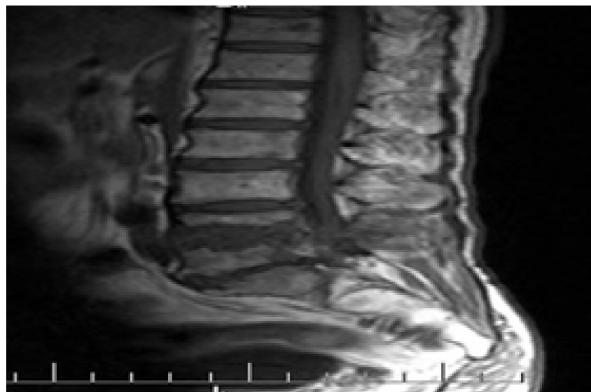


Fig 2 : Lumbar spine tuberculosis

Complications

- Tuberculosis abscess
- Neurological deficits like Paraplegia and Paresis.
- Kyphotic deformity
- Dislocation of the spine
- Cord compressions
- Secondary infections

Diagnostic tests

Medical history and Physical examination – To pick up findings suggestive of tuberculosis.

Blood test - Erythrocyte Sedimentation Rate (ESR) may be markedly elevated (>100 mm/h)

The Mantoux Test (Tuberculin Skin Test), Enzyme-linked immunosorbent assay (ELISA)

Microbiology Studies - Stain for acid-fast bacilli (AFB) done. Organisms are isolated for culture and susceptibility from Bone tissue or abscess

Plain radiograph reveals sub ligamentous lesions and reduction in vertebral height and spinal deformities.

Percutaneous CT-guided needle biopsy of bone lesions can be used to obtain tissue samples

Polymerase Chain Reaction (PCR)-used to detect the mycobacterium rapidly without the need of prolonged culture.

CT scanning and Magnetic resonance imaging is the gold standard methods used to detect the extension of TB lesions and its effects on the spine.

This reveals the disc collapse, cold abscess, vertebral collapse, and spinal deformities.

Medications

Anti tuberculosis drugs -The duration of course of treatment is 6 to 9 months, individualized therapy is needed that should be based on the resolution of active symptoms and the clinical stability of the patient. Patients received Isoniazid and Rifampin during the whole course of therapy along with Pyrazinamide, Ethambutol, and Streptomycin for the first two months of therapy. In cases of drug resistance the use of second-line drugs is indicated.

Surgical Management

Spinal fusion or spinal decompression surgeries are done to correct their structural deformity and prevent further neurological complications. Spinal Stabilization Exercises is advised after spinal decompression surgeries

Radical ventral debridement, fusion and reconstruction of the vertebral column are also done.

Other management

Proper Bed rest to relieve from the pain

For Cervical spine TB – Use Minerva Jacket and collar

High protein diet – to build patients resistance

Mobilisation

Use braces for dorso-lumbar spine

Conclusion

Pott's spine is a rare and classic presentation of tuberculosis of spine. It occurs due to latent Tuberculosis which later leads to active form of tuberculosis infection. Pott's spine leads to deformities, osteoarthritis and severe functional impairment if it is not diagnosed and treated earlier. The patient must need to get the prompt treatment to get rid of the symptoms of pott's spine.

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