

Tuberculosis of Spine (Pott's Disease)

P. Srineeraja

Intern, Saveetha Dental College and Hospitals

Abstract: Spinal tuberculosis is a secondary form of tuberculosis. It is the next stage of lung or abdominal infection caused by *Mycobacterium tuberculosis*. It is also known as Pott's disease. This review studies about the etiology, pathogenesis, clinical features, staging, complications, management and treatment of spinal tuberculosis. Clinicians should consider Pott's disease in the differential diagnosis of patients with back pain, hemiparesis and destructive vertebral lesions. Proper diagnosis and anti-TB treatment with or without surgery will result in cure.

Keywords: Pott's disease, spine, tuberculosis

1. Introduction

Tuberculosis of spine is the commonest and dangerous form of skeletal TB. It involves the bony elements. It was described in 1782 by Sir Percival Pott, an English surgeon. [1] The main causative organism is *Mycobacterium tuberculosis*. The classical presentation of Pott's disease of the spine is the spondylodiscitis. [2] It may include spinal deformity and neurological impairment. Recent molecular studies on mycobacterial DNA demonstrated TB infection in old spinal remains of ancient Egyptians. The aim of this study is to describe the various clinical presentations of Pott's disease of the spine. The dorso lumbar region being the one most affected.

Pathology:

Spinal tuberculosis is the second most common presentation of extrapulmonary tuberculosis which can cause significant morbidity. The bacteria reach via the hematogenous route from lungs or lymph nodes. It spreads through the para vertebral plexus of veins known as Batson's plexus.

Types of vertebral tuberculosis:-

- Paradiscal, Central, Anterior, Posterior
- There is disc degeneration and collapse of vertebra.
- Cold Abscess is a collection of pus and tubercular debris from a diseased vertebra. It may press upon the important neural structures in the spinal canal.

Clinical features:

Clinical presentation of TB of spine is very variable. It may be from a non specific pain in the back to a complete paraplegia. Back pain is the commonest symptom. It may be a radicular pain. There is stiffness leading to para vertebral muscle spasm. Cold abscess may cause dysphagia in TB of the cervical spine. Paraplegia and Gibbus occurs. Other symptoms may include fever, loss in weight etc, Potts disease is associated with neurological deficits due to mechanical compression with granuloma, instability of vertebral segment and inflammatory changes of spinal elements. [11][14]

A typical tuberculosis is a compressive myelopathy or lumbar disc syndrome. Also known as spinal tumour syndrome. Atypical features shows soft tissue swelling, involvement of the vertebral body, bowing of ribs, destruction of lateral or posterior vertebral bodies. [17]

Pott's paraplegia:

It is the TB spine with neurological involvement. It occurs in the dorsal spine. This can be due to inflammatory oedema, extradural pus and granulation tissue, sequestra, internal gibbus, infarction of the spinal cord, extradural granuloma. [3][6]

There are two types of Pott's paraplegia:-

- Early onset paraplegia
- Late onset paraplegia

Clonus is the prominent early sign. Paralysis occurs with muscle weakness, paraplegia in extension and in flexion, complete flaccid paraplegia. [13]

Grading of Pott's paraplegia:

- Grade I- patient unaware of the neural deficit.
- Grade II- patient complains of clumsiness, in-coordination or spasticity while walking.
- Grade III- patient is not able to walk with muscle weakness.
- Grade IV- patient is unable to walk and severe muscle spasm.

2. Examination

The main aim of the examination is to pick up findings suggestive of tuberculosis, to localise the site of lesion, to find skip lesions and to detect any associated complications. [12]

General examination includes gait, attitude, deformity, systemic illness like diabetes, hypertension, jaundice, etc.

Radialogical investigations includes X -Ray examination, CT Scann, MRI, Myelography, Boipsy. [18]

X-Ray Features:

Reduction of disc space, destruction of vertebral body, evidence of cold abscess, paravertibral abscess, widened mediastinum, retropharyngeal abscess, Psoas abscess, rarification, aneurysmal sign, sclerosis. [15]

CT Scan Features:

Para vertebral abscess, sequestrum or bony ridge pressing on the cord. [16]

MRI Features:

Spinal cord compression, oedema, paravertibral soft tissue abscess, pus or sequestra, etc, Myelography is indicated in cases with spinal tumour syndrome.

Biopsy:

CT guided needle biopsy or an open biopsy may be done for doubtful diagnosis.

Other Investigations:

ESR, Montoux test, ELISA test, Chest X-Ray, Asiration of Cold abscess, etc

Complications:

Cold abscess, neurological compressions and deformities like kyphosis, fracture etc,.

Management and Treatment:

Principles of Treatment are to promote recovery, to achieve healing and to undertake rehabilitative measures. Treatment consists of anti tubercular chemotherapy, general care, care of spine, treatment of cold abscess. [4] [7]

Conservative Treatment

4 drug (Rifampicin, INH, Pyrazinamide, Ethambutol) treatment followed by absolute rest with repeated neurological examination. Care of spine includes short period of bed rest followed by Minerva Jacket or a collar for immobilisation of the spine.[5]

Treatment of Cold abscess involves aspiration, evacuation.

Operative Treatment

Surgical intervention is indicated when there is severe paraplegia, spinal tumour syndrome etc.,The operative procedures performed are Costo Transversectomy, antiro lateral decompression, Radical debridement and arthrodesis (Hong- Kong Operation), Laminectomy.[9][10]

Building up of patient's resistance, proper positioning of joints, mobilisation, exercise, weight bearing should also be taken into care.

3. Summary

Timely intervention in treatment of spinal TB can avoid extensive investigations, treatment delays and adverse long term outcomes such as compression fracture with neurological deficits.[8]Patients with spinal TB experience severe pain thus measures to alleviate pain such as spinal bracing and combination of analgesic should be taken. Awareness of this TB is important to prevent mortality and morbidity associated with spinal cord damage and disease dissemination.

References

[1] Pott P (2002) The chirurgical works of Percivall Pott, F.R.S.,surgeon to St.Bartholomew's Hospital, a new edition, with last corrections. 1808. Clin Orthop Relat Res 4-10.

- [2] Elbashir G Ahmed, Nour Eldiam E Elbadawi, Elwathiq K Ibrahim and Mamoun M Mohammed; Clinical presenttion of Pott's disease of the spine in adult Sudanese patients; Ahmed et al.,J Med Microb Diagn 2013, 2:2.
- [3] Moon MS, Ha KY, Sun DH, Moon JL, Moon YW, Chung JW(1996) ; Pott's paraplegia-67 cases. Clin Orthop 323:122-128.
- [4] Moon MS (1997) Tuberculosis of the spine; controversies and new challenges - spine update. Spine 22(15): 1791-1797.
- [5] Moon MS, Moon YW, Moon JL, Kim SS, Sun DH (2002) Conservative treatment of tuberculosis of the lumbar and lumbosacral spine. Clin Orthop 398: 40-49.
- [6] Moon MS, Moon JL, Moon YW et al. (2003) Pott's paraplegia in patients with severely deformed dorsal or dorsolumbar spines: treatment and prognosis. Spinal Cord 41: 167-171.
- [7] Moon MS (2004) Managing tuberculosis of the spine. Med Progress 31(12): 593-602.
- [8] Moon MS (2007) Tuberculosis of spine - contemporary thoughts on current issues and perspective views. Current Orthop 21: 364-379.
- [9] Moon MS, Kim SS, Lee BJ, Moon JL, Moon WY (2011) Surgical management of severe tuberculous kyphosis of dorsolumbar spine. Int Orthop 35: 75-81.
- [10] Oguz E, Sehirlioglu A, Altinmakas M, Ozturk C, Komurcu M, Solakoglu C, Vaccaro AR (2008) A new classification and guide for surgical treatment of spinal tuberculosis. Int Orthop 32: 127-133.
- [11] Rajasekaran S (2002) The problem of deformity in spinal tuberculosis.Clin Orthop 398: 85-92.
- [12] MS. Moon, SS. Kim, BJ. Lee, JF. Lin; Tuberculosis of the spine: evolution in diagnosis and management. Vol. 23 - N°3 - quarterly september 2011 - ArgoSpine NEWS&JOURNAL Argospine and Springer-Verlag France 2011 - DOI 10.1007/s12240-011-0019-5.
- [13] Gautam MP, Karki P, Rijal S, Singh R; Pott's spine and paraplegia. PMID: 16570378 [PubMed - indexed for MEDLINE].
- [14] G C Mbata, E Ofondu, B Ajuonuma, V C Asodike, and D Chukwumam;Tuberculosis of the spine (Pott's disease) presenting as hemiparesis. African Journal of Respiratory Medicine Vol 8 No 1 September 2012Case.
- [15] Stella Safo,Gillian Lieberman, MD;Pott's disease: A Radiological Review of Tuberculous Spondylitis.
- [16] Jeanne M. LaBerge, M. Brant-Zawadzki;Evaluation of Pott's disease with computed tomography;Neuroradiology November 1984, Volume 26, Issue 6, pp 429-434.
- [17] Roberta Buso, Marcello Rattazzi, Massimo Puato and Paolo Pauletto; An Uncommon Presentation of Tuberculosis with Cervical Pott's Disease Initially Suspected as Metastatic Lung Cancer; The Open Infectious Diseases Journal, 2013, 7, 86-89.
- [18] Vikas Singh, Ajay Kumar, KR Patond; Extrasosseous extradural spinal tuberculosis- A case report;Indian Journal Of Orthopaedics January 2005 Vol 39 Number 1: P.62-63.