A systematic review on the clinico-radiological features and surgical outcome of tuberculous spondylolisthesis

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DISCLOSURE

• I do not have any financial relationships with any commercial interest.

• Conflict of interest- None.

• The approval for conducting the study has been obtained from the Institute Ethics committee board.
INTRODUCTION

• Spinal tuberculosis [TB] is a common infectious disease prevalent in developing countries and a rising disaster in developed countries.

• The association of tuberculosis with spondylolisthesis is rarely reported in literature.

• The aim of our review is to analyse the clinical features and radiologic characteristics of TB spondylolisthesis along with providing a concise update on its surgical management, based on current literature.
METHODS

• A systematic review was performed according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses [PRISMA] guidelines.

• A thorough literature search was conducted on Pubmed, Web of science and Cochrane data base, articles were selected systematically based on PRISMA protocol, reviewed completely and relevant data was summarized and discussed.
RESULTS

• A total of 19 articles are selected for the review.

• The most common clinical manifestation observed is focal back pain followed by motor deficit.

• Majority of the patients have Grade 2 listhesis and associated tubercular abscess.

• Apart from listhesis, other common radiologic findings seen in spinal TB are the presence of paravertebral abscess and focal bony destruction with or without spinal cord compression and kyphotic deformity.
• The treatment of TB spine comprises a combination of medical and surgical options.

• However in the context of TB spondylolisthesis especially when associated with instability, surgery plays a significant role in its treatment.

• Anterior, posterior and combined surgical approaches have been described for TB spine.
• The anterior as well as posterior surgical approaches have its own advantages.

• The choice of approach depends on the location of pathology, ease of access, achievement of spinal stability and avoidance of contiguous infection spread.

• Though posterior approach and fixation using pedicular screws and rods along with debridement of pus or granulation tissue is the favored approach in dorsolumbar TB, anterior approach, corpectomy and fusion is preferred in cervical TB.
PEDIATRIC SPINAL TB

• Smith Peterson osteotomy [SPO] followed by spine fusion is beneficial in pediatric spinal TB patients with kyphotic deformity.

• The surgical technique of limited decompression and kyphosis correction combined with anterior debridement and strut bone grafting for young children with active Potts disease is a safe and effective surgical procedure in terms of degree of kyphosis correction, neurological complications, reconstruction of anterior column and maintenance of correction with reduced risk of spinal cord injury.

• The combined (anterior and posterior) instrumentation along with radical debridement may yield better result in the correction of dorsal kyphotic deformity.
DISCUSSION

• The posterior-only approach has become the main option for surgical treatment of active dorso-lumbar TB in adults.

• Anterior approach remains the mainstay surgical treatment of cervical TB with instability, allowing for the debridement and evacuation of an abscess with stabilization of the anterior collapsed segment.

• However the posterior approach is indicated in cervical TB only when there is a posterior abscess.

• Even though subscapularis transthoracic approach for the treatment of dorsal TB has many advantages such as clear vision, avoidance of major blood vessels/nerves as well as safe and adequate spinal decompression, it has significant disadvantages such as insufficient kyphosis correction, larger surgical trauma, longer surgical time, and increased post-operative complications like shoulder movement disorder.
SUMMARY

• The main stay of treatment is TB chemotherapy.

• The indications where surgical management may have an upper hand over medical management are spinal cord compression, significant instability, large tubercular abscess, painful vertebral lesions, kyphosis and infection by MDRTB or XDRTB where medical management alone does not help.

• The surgery is benefitted in these situations by achieving radical debridement, permanent stability, prevention of further neurologic deterioration, and early recovery.

• The surgical approach should be tailored according the location of bony pathology as it is the main deciding factor for the spinal alignment and stability.

• Even though conservative management with absolute immobilization may help in low grade listhesis, posterior approach, decompression and fusion is preferred in unstable dorso-lumbar pathology while anterior approach is preferred in cervical pathology.

• Combined approaches can be considered in pediatric spine TB for the correction of kyphotic deformity and its consequent maintenance.