

Transpedicular Decompression/Debridement and Posterior Spinal Fusion With Instrumentation for Single-Level Thoracic Spinal Tuberculosis With Myelopathy—Is Anterior Column Reconstruction Necessary?

Saumyajit Basu, MS (Orth)*, Sri Krishna Chaitanya Kondety, MS (Orth)

Park Clinic, 4-Gorky Terrace, Kolkata, West Bengal 700017, India

Received 22 August 2017; accepted 12 September 2017

Abstract

Objectives: The purpose of this study is to study the safety and efficacy of single-stage transpedicular decompression/debridement and instrumented posterior spinal fusion for single-level thoracic spinal tuberculosis with myelopathy without anterior column reconstruction.

Summary of Background Data: Existing literature has many reports of transpedicular decompression/debridement and instrumented posterior spinal fusion with anterior column reconstruction. The quoted loss of correction is around 2°, but there is no strong evidence analyzing the loss of kyphosis correction, assessment of fusion in the same, without anterior column reconstruction.

Study Design: Retrospective study.

Methods: Study consisted of 57 patients of single-level thoracic tuberculosis with myelopathy from a single center who fulfilled the selection criteria. All underwent pedicle screw-rod instrumentation (2 up and 2 down), bilateral transpedicular decompression/debridement of granulation tissue/abscess, followed by instrumented posterior spinal fusion with local bone/B-tri-calcium phosphate. Patients were analyzed clinically (ASIA scoring) and radiologically by radiographs for kyphosis correction and CT scans at 2 years (for assessment of fusion). The grade of destruction was correlated with loss of kyphosis correction and neurologic improvement.

Results: There are 43 female and 14 male patients with a mean age of 46.7 years (18.4–74.2), mean follow-up of 3.4 years (2.1–8.4). The mean pre-op Cobb angle is 26.4° and mean correction obtained is 12.6° (47.8%). The mean loss of kyphosis after 2 years' follow-up is 3.6° (13.6%). The mean American Spinal Injury Association (ASIA) grade improvement after surgery is 1.05 ($p = .001$). There is no correlation observed between neurologic recovery and grade of destruction ($R = -0.11$). There is no correlation between the improvement in kyphosis and neurologic recovery ($R = -0.05$). Two-year postoperative CT scan showed solid interbody (55 patients) and posterior fusion (57 patients).

Conclusion: Significant neurologic recovery, kyphosis correction, and posterior/interbody bony fusion can be obtained by transpedicular decompression/debridement and instrumented posterior spinal fusion (without anterior reconstruction) with maintained correction at 2 years.

© 2017 Scoliosis Research Society. All rights reserved.

Keywords: Anterior reconstruction; Myelopathy; Posterior spinal fusion; Single staged transpedicular fixation; Spinal tuberculosis; Transpedicular decompression

Introduction

Spinal tuberculosis is the commonest form of extrapulmonary tuberculosis [1], and alongside HIV it remains the top cause of deaths by infectious disease [2]. Anterior debridement and instrumented fusion (anterior/posterior) was the surgery of choice practiced for many years and well

reported in the literature [3,4]. In these procedures, there is good deformity correction with minimal loss of correction (1°–2°) at the end of 1-year follow-up [3]. The literature is scanty regarding single-stage posterior transpedicular decompression/debridement with instrumented posterior spinal fusion without anterior reconstruction. Some authors report good kyphosis correction with a loss of correction around 3.4° till final fusion occurs [5,6]. There is also no strong evidence in the literature correlating the preoperative grade of destruction with the postoperative kyphosis correction obtained and neurologic recovery. The purpose of this study was to study the safety and efficacy (in terms

Author disclosures: none.

*Corresponding author. Park Clinic, 4-Gorky Terrace, Kolkata, West Bengal 700017, India. Tel.: (+91)-3322817800; fax: (+91)-33-22801807.

E-mail address: saumyajitbasu@hotmail.com (S. Basu).

of kyphosis correction, neurologic recovery, and fusion) of single-stage transpedicular decompression/debridement and instrumented posterior spinal fusion for single-level thoracic tuberculosis with myelopathy without anterior column reconstruction.

Methods

Study design

After taking informed consent from the patients and ethical committee clearance from our institute, retrospective analysis of 57 patients who underwent transpedicular decompression/debridement and instrumented posterior spinal was done. All these patients were operated by the same surgeon from 2004 to 2012 in our institute with a minimum follow-up of 2 years and mean follow-up of 3.4 years (2.1–8.4).

The preoperative, immediate postoperative and 2-year postoperative segmental kyphotic Cobb angles were calculated for each patient. The preoperative and 1-year postoperative neurologic status was also recorded (American Spinal Injury Association [ASIA] scoring). The preoperative grade of destruction is calculated and correlated with loss of correction at 2-year follow-up and neurologic recovery at 1-year follow-up, respectively. Fusion assessment is done with 2-year postoperative CT scan (both posterior and interbody) by using Birdwell's fusion criteria [7].

Inclusion/exclusion criteria

Patients with single-level thoracic tuberculosis with myelopathy not responding to antitubercular drugs and

conservative therapy for at least 4 weeks were included in the study (failure of conservative treatment [including antitubercular drugs] was defined as absence of improvement of neurology and pain or worsening of the same) [8]. All the patients with active disease with a minimum follow-up of 2 years were included in the study.

Patients below 18 years of age, healed tuberculosis, multifocal tuberculosis normal neurology and those with cervical, dorsolumbar (D12–L1 and L1–L2), and lumbar tuberculosis were excluded. Patients with other severe medical comorbidities, which may act as confounding factors for our study (poor bone quality, increased blood loss, and inadequate postoperative rehabilitation) were also excluded from the study.

Collection of data

Radiologic data

Preoperative standing anteroposterior and lateral radiographs and magnetic resonance imaging. Postoperative standing radiographs at 0, 6 months, 1 year, and 2 years and computed tomographic scan done at the end of 2 years are collected from picture archiving and communication systems (PACS).

Clinical data

Preoperative neurologic status and 1-year postoperative ASIA grade is retrieved from patient management software. Patients were assessed clinically, biochemically (normalization of C-reactive protein), and radiologically by MRI scans (reducing abscess/granulation tissue, reducing cord signal intensity, marrow signal intensity change of involved

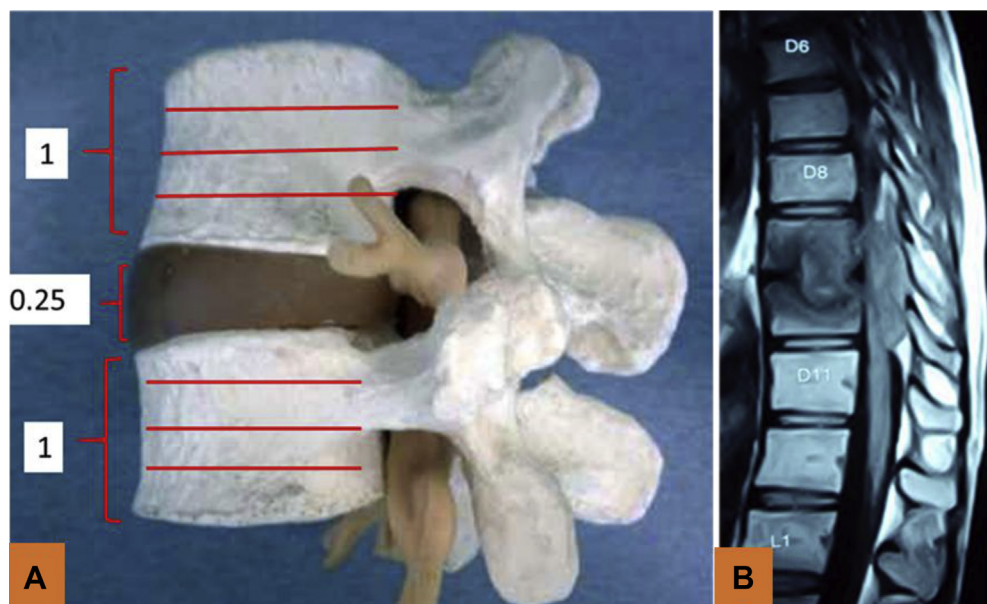


Fig. 1. Figure showing calculation of grade of destruction. (A) Diagrammatic representation showing calculation. (B) MRI showing Spondylodiscitis with GOD 1.25.

Download English Version:

<https://daneshyari.com/en/article/8804244>

Download Persian Version:

<https://daneshyari.com/article/8804244>

[Daneshyari.com](https://daneshyari.com)