بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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Anterior versus Posterior Approach in Surgical Treatment of Tuberculous Spondylodiscitis of Thoracic and Lumbar Spine

A Systematic Review

Submitted in partial fulfillment of the
Master Degree in **Orthopedic surgery**

By

Abdishakur Mohamud Ahmed

Under Supervision of

Prof. Dr. Fady Michael Fahmy Ibrahim
Assistant Professor of Orthopedic and Spinal Surgery
Faculty of Medicine, Ain Shams University

Dr. Zakaria Hassan Ibrahim
Lecturer of Orthopedic & Spinal Surgery
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
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Abdishakor Mohamud Ahmed

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List of Abbreviations

Abb.	Full term
Ant/post	*Anterior/posterior*
ASIA	*American soinal injury association*
AVH	*Anterior vertebral height*
CDA	*Cross-diagonal angle*
CPC	*Calcium phosphate cement*
ESR	*Erythrocyte sedimentation rate*
HREZ	*Isoniazid, rifampicin, ethambutol, and pyrazinamide*
L	*Lumber*
LS	*Lumbo-sacral*
ODI	*Oswestry disability index*
PLL	*Posterior longitudinal ligament*
PMMA	*Polymethylmethacrylate*
PVBA	*Posterior vertebral body angle*
PVH	*Posterior vertebral height*
SCI	*Spinal cord injury*
SD	*Standard deviation*
T	*Thoracic*
TB	*Tuberculosis*
TL	*Thoraco-lumber*
VAS	*Visual analogue scale*
VAS	*Visual analogue score*
VBS	*Vertebral body stenting*
VKA	*Vertebral kyphotic angle*

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INTRODUCTION

According to the World Health Organization's Global tuberculosis report 2015, tuberculosis ranked alongside HIV as a leading cause of death worldwide with 1.4 million deaths in 2014 [1].

Spinal tuberculosis is the most common encountered extra-pulmonary form of the disease and accounts for around 50% of musculoskeletal tuberculosis cases [2], Thoracic spine is the most commonly affected, and involvement of lumbar and lumbosacral region is less common [3, 4], spinal tuberculosis can cause severe neurological deficits, kyphotic deformities, and paraplegia.

The effective anti-tubercular therapy has allowed disease cure in majority of patients with conservative management alone, however, surgery is indicated in patients having disabling back pain or progressive neurological deficit despite conservative management [5].

The aims of such treatment are to eradicate the tuberculosis lesion, relieve spinal nerve compression, regain spinal stability, and correct spinal deformity. Surgical treatment options are available including anterior spinal fusion, anterior-posterior spinal fusion, posterior spinal fusion alone, and posterior fusion followed by anterior spinal fusion [6–8]. Anterior debridement with interbody fusion and internal fixation is being

widely used in the clinical setting for the treatment of spinal tuberculosis, particularly for spinal destruction in the anterior and middle columns [5].

However, this method is time-consuming, causing high volume of blood loss, and results in the spread of infection and other postoperative complications [9–11]. On the other hand, posterior approach has recently been suggested as an alternative to the anterior approach because it is less invasive, allows circumferential cord decompression, can be extended proximally and distally from the involved segment, and provides a stronger three column fixation through uninvolved posterior elements via pedicle screws [12–14].

Aim of the Work

The aim of this study is review the literature comparing the clinical, radiological and functional outcome of anterior versus posterior surgical debridement and fixation in patients with thoracic and lumbar tuberculous spondylodiscitis.

REVIEW OF LITERATURE

Anatomy of thoracic Spine

The thoracic section of the spine consists of twelve vertebrae (T1–T12) and twelve intervertebral discs, and extends from the bottom of the cervical spine to the beginning of the lumbar spine [15], Figure 1.

The thoracic spine's major functions include heavy load bearing and protection of the spinal cord, supporting posture and stability throughout the trunk, and connection of the rib cage that houses and protects vital organs, such as the heart and lungs [15].

This connection poses a significant decrease in mobility, as compared to the cervical spine section, and a greater stability and support of the entire trunk, usually leading to fewer cases of disc degeneration [16,17].

The vertebrae that make up the thoracic spine have body sizes (thickness, width, and depth) that drastically increases descending from T1 to T12, corresponding to an increased load bearing that is transferred from the vertebra above [18]. Fgure1.

All other features stay relatively the same throughout, except for the T11 and T12 vertebrae, in which no ribs are connected.