Conservative versus surgical management of spondylodiscitis: a systematic review

A study submitted for partial fulfillment of master degree in Neurosurgery

By

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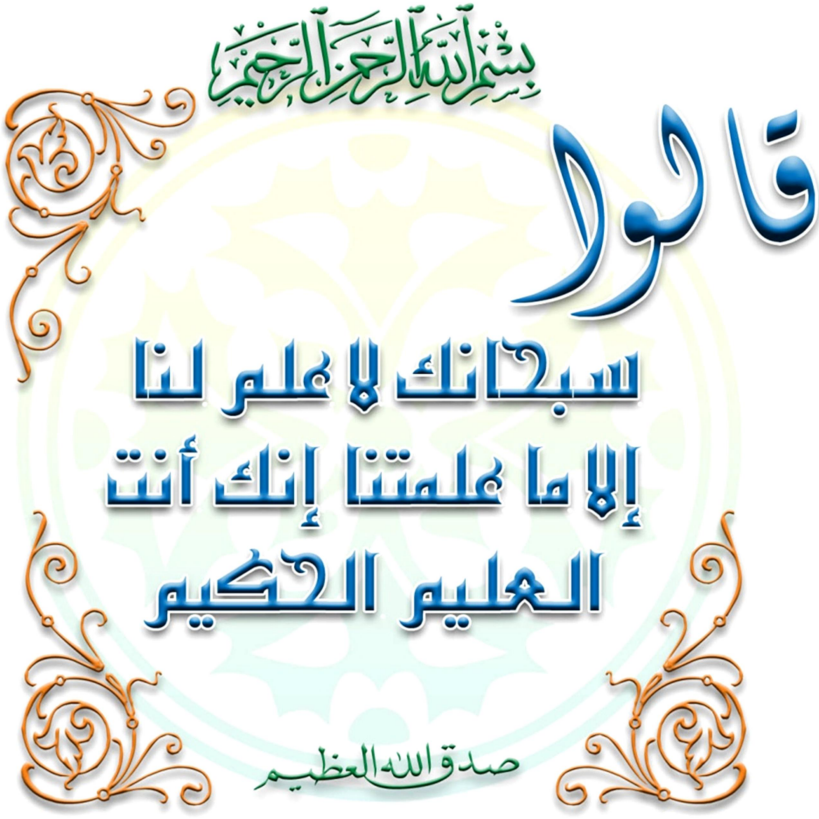

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✍ Mahmoud Ahmed Zidan

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List of Abbreviations

ALIF : Anterior lumber interbody fusion

BMPs : Bone morphogenic proteins

CoNS : Coagulas-negativestaphylococci

CRP : Creactive protein

CT : Computed tomography

ESR : Erythrocyte sedimentation rate

FDA-PET : Fluorine-18 flurodeoxyglucose positron emission tomography

HLA : Human leucocytic antigen

ICBG : Iliac crest bone graft

IDSA : Infectious diseases society of America

IVDA : Intravenous drug abuse

LSO : Lumbo sacral orthosis

MRI : Magnetic resonant image

MRSA : Methicillin resistant s. aures

MSSA : Methicillin sensitive s. aures

OPAT : Outpatient parenteral antimicrobial therapy

P.C.S. : Prospective case series

P.Co.S. : Prospective comparative study

PCR : Polymerase chain reaction

PEEK : Polyether etherketone

R.C.S. : Retrospective case series

List of Abbreviations *(Cont..)*

R.C.T. : Randomized control trial

R.Co.S : Retrospective comparative study

rDNA : Recombinant deoxyribonucleic acid

Rh : Recombinant human

rhOP-1 : Osteogenic protein

SEA : Spinal epidural abcess

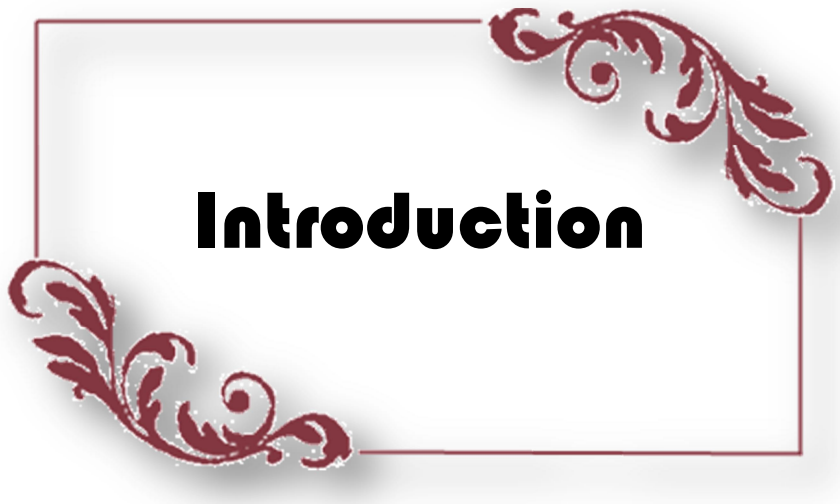
SOMI : Sterno-occipital mandibular immobilization

TB : Tuberculosis

TLSO : Thoraco lumbo sacral orthosis

TTN : Titanium

WBC : White blood cell


Introduction

Introduction

Rationale and Justification of the Study:

Spinal infections can be described etiologically as pyogenic, granulomatous (tuberculous, brucellar, fungal) and parasitic. Pyogenic spinal infections include: spondylodiscitis, a term encompassing vertebral osteomyelitis, spondylitis and discitis, which are considered different manifestations of the same pathological process; epidural abscess, which can be primary or secondary to spondylodiscitis.[1]

The incidence of non-specific spondylodiscitis is about 1:250000, corresponding to about 3% to 5% of all cases of osteomyelitis.[2] Men are up to three times more often affected than women.[3] Although patients may be in any age group, spondylodiscitis is most frequent in the fifth to seventh decades of life.[4] Spondylodiscitis may occur after lumbar operations on intervertebral discs; the frequency depends on the invasiveness of the operation and is given as between 0.1% and 0.6% for microsurgical operations and from 1.4% to 3% for macrosurgical operations.[5]

Although diagnostic and therapeutic possibilities have drastically improved during the past decades, pyogenic

spondylodiscitis remains a diagnostic and therapeutic challenge. Since it is often a complication of a distant process causing bacteremia, the relatively nonspecific varieties of symptoms of spondylodiscitis may be initially dominated by the primary infection.[6] Consequently, clinical presentation is often unclear and a considerable delay in diagnosis frequently occurs.(7) Spondylodiscitis remains a life threatening disease with a mortality rate of 2% to 20%.(8)

Although some therapeutic guidelines are available, treatment of spondylodiscitis is certainly not standardized and is mostly based on local preferences resulting in physician related variability.(9) The essential elements for successful treatment of spondylodiscitis include: fixation of the affected section of the spinal column, antibiotic therapy, and (depending on the severity of the condition) debridement and decompression of the spinal canal.(10)

Conservative treatment can be considered if the clinical symptoms and destruction are relatively mild or the risk of operation appears to be too great.(11) The patients with this disease are mostly older and in poor general condition. If there is no fusion reaction, continuing destruction, or no

clinical improvement, it is not promising to continue conservative treatment beyond four to six weeks.[12]

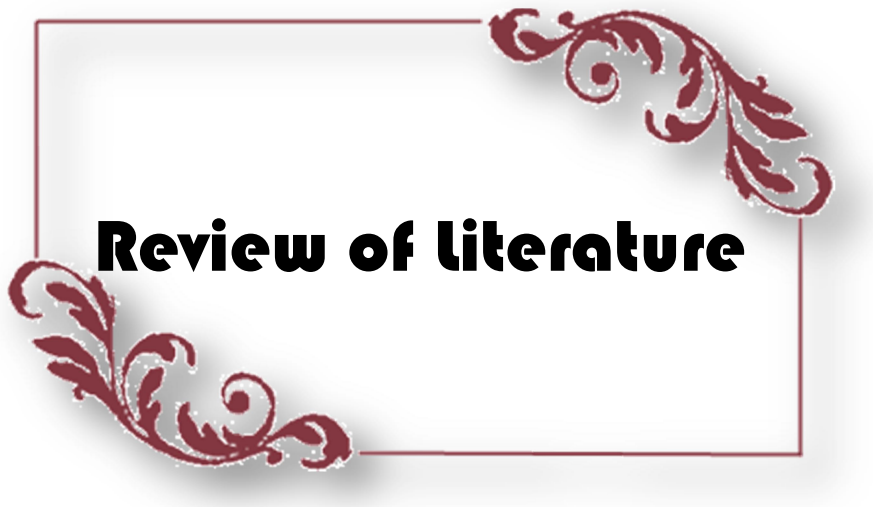
The objectives of surgery in spondylodiscitis are to remove the septic focus and to stabilize the infected section of the spinal column, followed by formation of fused vertebrae. This provides a more reliable and more rapid treatment of the consequences of the infection.[13]

Many fundamental aspects of the treatment of pyogenic spondylodiscitis are still a matter of debate. Therefore, the aim of this study was to systematically review the currently available literature to determine the outcome in patients with pyogenic spondylodiscitis after the different antibiotic and/or surgical treatments.

Aim of the Work

Aim of the Work

The aim of this study is to review, analyze and compare the conservative versus the surgical management in patients with spondylodiscitis regarding the essential elements for successful treatment by fixation of the affected section of the spinal column, antibiotic therapy, debridement and decompression of the spinal canal.


Review of literature