

بسم الله الرحمن الرحيم



-Call 4000





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة يعبدا عن الغبار













بالرسالة صفحات لم ترد بالأصل



Comparative study of minimally invasive lumbar decompression versus decompressive laminectomy with posterolateral transpedicular fixation for the treatment of degenerative lumbar canal stenosis

Thesis

Submitted For Partial Fulfillment of the MD Degree in Neurosurgery

By

Ahmed Mohammed Reda Abd AlmonemAhmed Aldahshory

M.B B.Ch, M.Sc (Neurosurgery)
Faculty of Medicine Ain Shams University

Supervised By

Prof. Dr. Khaled Saoud

Professor of Neurosurgery
Faculty of Medicine - Ain Shams University

Dr. Hazem Antar Mashaly

Professor of Neurosurgery
Faculty of Medicine - Ain Shams University

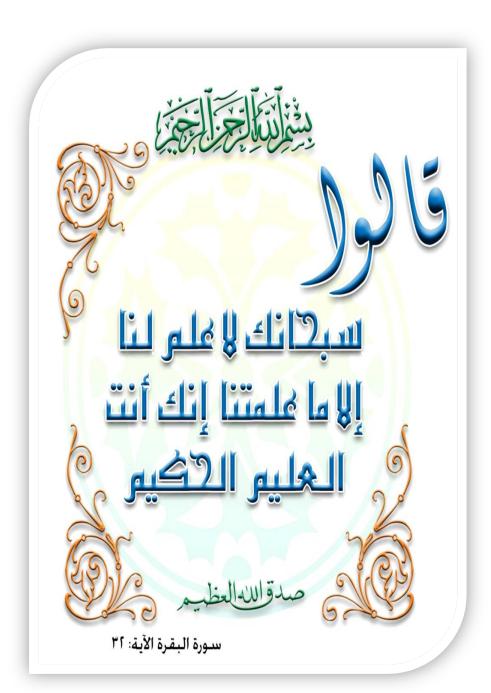
Dr. Shafik Tahseen Shafik El Molla

Assistant professor of Neurosurgery Faculty of Medicine - Ain Shams University

Dr. Ibrahim Abdelmohsen Abdelnaiem Ismaiel

Lecturer of Neurosurgery
Faculty of Medicine - Ain Shams University

Faculty of Medicine Ain Shams University **2020**



Acknowledgments

First and foremost, I feel always indebted to Allah, the MostBeneficent and Merciful, Who gave me the strength to accomplish this work,

My deepest gratitude to **Prof. Dr. Khaled Saoud,** Professor of Neurosurgery, Faculty of Medicine - Ain Shams University, for his valuable guidance and expert supervision, in addition to his great deal of support and encouragement. I really have the honor to complete this work under his supervision.

I would like to express my great and deep appreciation and thanks to Dr. Hazem Antar Mashaly, Professor of Neurosurgery, Faculty of Medicine - Ain Shams University, for his meticulous supervision, and his patience in reviewing and correcting this work.

I can't forget to thank with all appreciation Dr. Shafik Tahseen Shafik El Molla, Assistant professor of Neurosurgery, Faculty of Medicine - Ain Shams University, for the efforts and time he has devoted to accomplish this work.

Last but not least, I would like to thank Dr. Ibrahim Abdelmohsen Abdelnaiem Ismaiel, Lecturer of Neurosurgery, Faculty of Medicine - Ain Shams University, for his great support and fruitful notes during the whole work.

Special thanks to my Parents and all myFamily members for their continuous encouragement, enduring me and standing by me.

Ahmed Reda Aldahshory

List of Contents

Subject	Page No.
List of Tables	i
List of Figures	iii
Introduction	1
Aim of the Work	3
Review of Literature	
Anatomy of the lumbosacral region	4
Pathogenesis	28
Diagnosis of Degenerative Lumbar Canal Stenosis	31
Management	49
Patients and Methods	57
Results	77
Illustrative Cases	89
Discussion	111
Conclusion	120
Summary	121
References	124
Arabic Summary	

List of Tables

Table No.	. Title	Page No.
Table (1):	Differentiation of symptoms of vaciaudication from those of neur claudication	ogenic
Table (2):	Interpretation of the oswestry disidex	
Table (3):	PSI used in this study	75
Table (4):	Baseline demographic data of both and number of levels	
Table (5):	Preoperative clinical presentation of groups	
Table (6):	Total number of operations for each in both groups	
Table (7):	Number of levels in both groups:	79
Table (8):	Distribution of levels in the fusion g	group 80
Table (9):	Difference between pre and postope scores in the fusion group	
Table (10):	Difference between pre and postope scores in the MILD group	
Table (11):	Comparison between VAS values of pain and leg pain between both immediate postoperative and after year	groups er one
Table (12):	Comparison between both groups mean ODI values after 6 months an 1 year postoperatively	d after

Table (13):	Mean ODI change between preoperative and 6 months and one year respectively 86
Table (14):	Patient satisfaction index in both groups 86
Table (15):	Blood loss and hospital stay are higher in the Fusion group. They are equal in mean operative time and complications
Table (16):	Cost per Egyptian pound of both treatment modalities

List of Figures

Figure No.	Title Pag	ge No.
Figure (1):	Lumbar vertebra	4
Figure (2):	Different orientation of the facet joint Superior articular process of L2 has sagittal orientation	a
Figure (3):	Cross section through the left Z joint	9
Figure (4):	Innervation of the Z joints	10
Figure (5):	Posterior aspect of a lumbar vertbra	11
Figure (6):	Intervertebral discs the annulus fibrosic consists of concentric layers.	
Figure (7):	Sagittal and axial sections of the lumb vertebae and associated ligaments	
Figure (8):	Cadaveric specimen of the lumb region.	
Figure (9):	An anatomic image showing the dep of the Quadratus lumborum muscl Contributed by Bruno Bordoni, PhD ⁽¹⁰⁾	e.
Figure (10):	Illustration showing the combined arrangement of the L1–L5 multified segments	us
Figure (11):	Illustration shows the longissimus ar ilicostalis	
Figure (12):	Thoracolumbar fascia with two ways discription	
Figure (13):	The spinal cord is formed by joining the ventral and dorsal roots	

Figure (14):	The lateral recess lies superomedial to the foramen, bounded medially by the thecal sac and laterally by the pedicle 22
Figure (15):	Lateral view of the lumbar spine to show the boundaries of the Lumbar intervertebral foramen
Figure (16):	Contents of the intervertebral foramen 24
Figure (17):	Arterial blood supply of the lumbar spine
Figure (18):	Venous drainage of the lumbar spine 27
Figure (19):	Hypertrophy of the superior facet causes lateral recess stenosis and hypertrophy of the inferior facet causes central stenosis
Figure (20):	Hip x-ray anteroposterior view shows left hip osteoarthritis
Figure (21):	Lumbar CT myelograms axial cuts demonstrating degenerative lumbar spinal stenosis at L2-3 (left), L3-4(Center), and L4-5
Figure (22):	T2 weighted sagittal fast spin-echo MR image of the middle lumbar spine
Figure (23):	T2 weighted axial fast spin-echo MR image of the lumbar spine at the level of L1
Figure (24):	A T2 weighted axial fast spin-echo MR image of the lumbar spine at the level of L5

Figure (25):	An axial computed tomography image of the lumbar spine at the level of L341
Figure (26):	A sagittal view showing two lumbar vertebrae
Figure (27):	Grading of central canal stenosis, A: Normal canal, B: Mild, C:Moderate, D: Severe
Figure (28):	Description of the morphologic classification of central stenosis combining graphic and MRI examples
Figure (29):	Grading of lateral recess stenosis (48)
Figure (30) :	(Grade O) MR image shows no compromise of the nerve root
Figure (31):	(Grade1) MR image shows contact of disk material with the right nerve root 47
Figure (32):	(Grade2) MR image shows dorsal deviation of the right nerve root, caused by contact with disk material
Figure (33):	(Grade 4) MR image shows compression of the right nerve root between disk material and the wall of the spinal canal48
Figure (34):	Upper: Postoperative three-dimensional reconstructions of lumbar CT scans after bilateral laminotomy, laminectomy, and unilateral laminotomy for bilateral decompression
Figure (35):	Visual analogue scale ranged from 0-10 59
Figure (36):	The Oswestry disability index version
riguit (50).	1.0

Figure (37):	Prone position for lumbar spine surgeries. Padding and protection of eyes and the pressure points
Figure (38):	Post-operative CT scan axial cut shows complete laminectomy and removal of the medial facets on both sides
Figure (39):	Preoperative MRI axial cuts shows L3-4/L4-5 stenosis
Figure (40):	Postoperative MRI T2 axial cuts of L4-5
Figure (41):	Postoperative MRI T2 axial cut of L3-4 65
Figure (42):	Postoperative CT scan axial cuts shows transpedicular screw fixation with laminectomy and facetectomy
Figure (43):	Skin incision for MILD is usually 2-3 cm length
Figure (44):	A set of micro lumbar discectomy retractors (Casper and Williams retractors)
Figure (45):	We used the Aesculap Casper retractors for ULBD surgeries
Figure (46):	Laminotomy of the right side of the lamina unsing high speed drill
Figure (47):	Undercutting of the spinous process to gain access to the contralateral side 69
Figure (48):	Undercutting of the spinous process is completed using Kerrison rongeurs
Figure (49):	The contralateral side of the thecal sac now can be palpated