Stand-Alone Open Disectomy versus Fixation in Management of Recurrent Lumbar Disc Prolapse

Systematic Review

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بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم

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List of Contents

Title	Page No.

List of Tables

List of Figures

List of Figures (Cont…)

List of Figures (Cont…)

List of Figures (Cont…)

List of Figures (Cont…)

List of Figures (Cont…)

List of Abbreviations

Abb.	Full term
ADAMs	*A Disintegrin and Metalloproteinase*
AF	*Anulus fibrosus*
ALIF	*Anterior lumbar interbody fusion*
ALL	*Anterior Longitudinal Ligament*
ANOVA	*ANalysis Of VAriance*
AP	*Antero-Posterior*
CBC	*Complete Blood Count*
CEP	*Cartilaginous End Plates*
CES	*Cauda Equina Syndrome*
CILP	*Cartilage Intermediate Layer Protein*
CPC	*Calcium phosphate cement*
CSF	*Cerebrospinal Fluid*
CT	*Computed Tomography*
ESR	*Erythrocyte Sedimentation Rate*
fMRI	*Functional Magnetic Resonance Imaging*
GAG	*Glycosaminoglycan*
HS	*Hounsfield Scale*
IDP	*Intradiscal Pressure*
IFN- g	*Interferon Gamma*
IL	*Interleukin*
IV	*Intravenous*
IVD	*Intervertebral Disc*
IVF	*Intervertebral Foramen*
LBP	*Low Back Pain*
LF	*Ligamentum Flavum*
LI	*Lumbar Instability*
LS	*Lumbar spondylolisthesis*
MED	*Microendoscopic Discectomy*
MEPS	*Multi-axial expandable pedicle screws*

List of Abbreviations (Cont…)

Abb.	Full term
MI	*Microinstability*
MMP-3	*Matrix Metallopeptidase 3*
MRI	*Magnetic Resonance Imaging*
NGF	*Nerve growth factor*
NP	*Nucleus Pulposus*
PELD	*Percutaneous Endoscopic Lumbar Discectomy*
PLF	*Posterolateral Fusion*
PLIF	*Posterior Lumbar Interbody Fusion*
PLL	*Posterior Longitudinal Ligament*
PMMA	*Polymethyl-methacrylate*
SI	*Signal intensity*
SLR	*Straight Leg Raising*
T1WI	*T1 weighted Image*
T2WI	*T2 weighted Image*
TDR	*Total Disc Replacement*
TLIF	*Transforaminal lumbar Interbody Fusion*
TNF-a	*Tumor necrosis factor alpha*
TSE	*T2 weighted spin echo*

Abstract

Objectives: Current surgical treatment options for one-time recurrent lumbar disc herniation (RLDH) include repeat discectomy or discectomy supplemented with fusion. Significant contention exists within the surgical spine community with regard to the most effective treatment modality. The objective of this study is to compare reoperation rates and patient reported outcomes following fusion versus repeat discectomy for RLDH.

Patients and Methods: The electronic literature search was performed in Ovid Medline/Pubmed, EMBASE and Cochrane, for human studies directly comparing repeat discectomy with fusion for ipsilateral or contralateral RLDH. Using mean differences (MD) and odds ratios (OR) for continuous and categorical outcomes, respectively.

Results: A total of 798 patients with RLDH (457 fusions and 341 repeat discectomies) from 11 studies (10 observational and 1 randomized controlled trials) were analyzed. Mean time to reherniation was 54.4 ± 30.4 months, while average follow-up time was 40 ± 11.7 months (range: 12–92.6). No difference was found between fusions and repeat discectomies with regards to related reoperations (OR: 0.68; 95% C.I: 0.14–3.2). Changes in PRO scores from baseline to last follow-up were also similar between the two groups, including VAS- back pain (MD, −0.3; 95% CI, −1.4 to 0.7), VAS-leg pain (MD, −0.3; 95% CI, −1.4 to 0.7), ODI (MD, 0.6; 95% CI, −0.2 to 1.4), JOA (MD: 1.0; 95% CI: 0.02 to 2.0) and MacNab satisfaction (OR: 1.5; 95% CI, 0.9 to 2.3).

Conclusion: Available evidence shows that in treating one-time recurrent disc herniations, repeat discectomy and fusion are associated with comparable reoperation rates, incidence of dural tears, functional outcomes as well as satisfaction with surgical treatment at last follow-up. Future longitudinal, randomized controlled trials should be completed to validate any associations found in this study.

keywords (Discectomy, Fusion, Recurrent, Lumbar disc herniation, Patient reported outcomes, Dural tear, Reoperation, Oswestry disability index, Modified Japanese orthopedic scale, Leg pain, Back pain, Postoperative infections, Operative time, Hospital stay)

Introduction