

XLIF: Patient and Procedure Factors Associated with Indirect Decompression

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Introduction

XLIF is a powerful tool for interbody fusion and coronal deformity correction. However, evidence supporting the use of XLIF for decompressing foraminal, lateral recesses and central canal stenoses is lacking. The purpose of this study was to systematically review current literature on the potentials and limitations of XLIF for indirect decompression of neural elements of the lumbar spine.

Methods

A systematic literature search in PubMed, Cochrane and ScienceDirect databases was performed according to PRISM criteria. Information on study design, sample size, population, procedure, number and location of involved levels, follow-up time and complications, as well as information on conflict of interest was extracted and evaluated.

Results

A total of 1,080 patients from 20 publications were included. The majority of publications (90%) were retrospective case series. The most common indications for XLIF included degenerative disc disease, spinal stenosis, spondylolisthesis and degenerative scoliosis. The majority of studies revealed significant improvement in radiographic and clinical outcome. Mean foraminal area, central canal area and subarticular diameter increased by 31.6mm², 28.5mm² and 0.85mm, respectively. XLIF improved foraminal stenosis; variable results were found for indirect decompression of central canal stenosis. Data on lateral recess stenosis were scarce.

Postoperative neurologic deficits were recorded in 12 of 20 reviewed articles and occurred in 22.9% (range: 6.6% -65.7%) of patients after XLIF. Of those, psoas weakness was reported in 11.3% (range: 0.2% - 31%), thigh numbness in 12.2% (range: 4.4% - 18%), and thigh dysesthesia in 10.6% (range: 5% - 21%) of patients.

Conclusions

Current data suggests XLIF to be an efficient technique for decompression of foraminal stenosis, but evidence on decompression of central canal or lateral recess stenosis via XLIF is low and results are inconsistent. Most studies are limited in study design, sample size and potential conflicts of interest.

Learning Objectives

This study provides insight into the applicability of XLIF and in which scenarios it is most effective. It also brings readers’ attention to the lack of solid data in this realm, and encourages new ideas for research endeavors.

There is no way to predict successful nerve decompression after XLIF. The literature available lacks conclusive evidence to confirm whether increasing the percentage of foraminal and central canal area correlates with nerve compression symptom resolution after surgery. There is not enough data to correlate the benefit of indirect decompression via XLIF on lumbar central canal and lateral recess decompression.

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