

Clinical and Radiological Findings at One Year with a Multi-Expandable Cage in Minimally-Invasive Posterior/Transforaminal Lumbar Interbody Fusion (P/TLIF)

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Introduction

In patients with degenerative disease undergoing P/TLIF procedures, insertion of a smaller-footprint static interbody cages is challenging and limits placement of bone graft, potentially increasing risk of subsidence, migration and/or psuedoarthrosis. Multi-expandable interbody cage technology provides important technical advantages with the ability to place a larger footprint interbody cage without impaction and minimal/no nerve retraction.

Methods

A medical chart review of a multi-center series having minimally-invasive P/TLIF with a multi-expandable interbody cage was initiated by the authors and is currently ongoing. The peek cage is delivered via a 6-8 mm cannula. At full deployment, the cage has a circular footprint of ~25 mm in diameter expandable to heights of 8 to 14 mm allowing for a large graft window. It was hypothesized that patients would demonstrate decreased pain and improved radiological findings.

Results

To date, data is available for 30 patients (30-81 years). Seventeen (61%) patients had a single-level procedure (L5-S1, n=12; L4-L5, n=5) with the remainder having a multi-level fusion, with the multi-expandable cage placed at L4-S1, L3-L5, or at L5-S1. No neurologic or other surgical complications were observed; one small dural tear without CSF leak was seen requiring no repair. Back and leg pain were eliminated or reduced, with MCID achieved by 83% of patients. One patient required a revision surgery at L5-S1 for pseudarthrosis associated with loosened screws. Radiologic findings at the first postoperative visit for the 33 multi-expandable cage levels showed improvements in average disk height of 5.8±2.5 mm and local disk angle increase of 4.4±5.0 degrees that were maintained through 1 year (see Table).

Conclusions

This preliminary cohort demonstrated encouraging clinical outcomes at one year. Radiological findings appeared to be better than comparative literature (see Table), with restoration of disc height and lumbar lordosis, along with maintenance of sagittal correction and lack of cage subsidence.

Learning Objectives

By the conclusion of this session, participants should be able to describe the importance of including multi-expandable interbody cage technology into their fusion techniques armamentarium.

References

Choi W, Kim J, Ryu K, Hur J, Seong J. Minimally-invasive transforaminal lumbar interbody fusion at L5-S1 through a unilateral approach: Technical feasibility and outcomes. BioMed Res Intl 2016, <http://dx.doi.org/10.1155/2016/2518394>.

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