

ABSTRACT ONLY · Volume 24, Issue 9, Supplement 1, S191, September 2024

## P258. Foraminoplasty for the placement of a large footprint TLIF cage using either manual reamers under fluoroscopic or foraminoplasty under endoscopic view: a comparative study

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### » Abstract

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#### BACKGROUND CONTEXT

Foraminoplasty is a critical step in trans-Kambin endoscopic transforaminal lumbar interbody fusion (TLIF) to be able to safely insert an interbody cage inside a lumbar disk. Foraminoplasty consists in reducing and/or removing the superior articulating process (SAP) to avoid compression of neurologic structures inside Kambin's triangle during the insertion of the cage.

Foraminoplasty can be performed percutaneously with progressive manual reamers only under fluoroscopic view (manual group). Alternatively, foraminoplasty can be performed under direct endoscopic view with a high-speed burr (endo group). Usually, the more of the SAP is removed, the larger the interbody cage that can be placed into the disk.

#### PURPOSE

Aim of this study is to compare the clinical outcome and complications between foraminoplasty with manual reamers and endoscopic view for endoscopic/percutaneous TLIF with a large-footprint interbody cage.

#### STUDY DESIGN/SETTING

This is a prospective case-control non-randomized study. Inclusion criteria included degenerative disk disease, foraminal stenosis and spondylolisthesis up to grade II.

#### PATIENT SAMPLE

An overall of 37 patients were evaluated with the manual group consisting of 22 patients (59%) and the endo group of 15 patients (41%).

#### OUTCOME MEASURES

Clinical outcome was measured in the pre- and post-operative stages with a Visual Analogic Scale (VAS) and Oswestry Disability Index (ODI) scores. Radiologic outcome was evaluated post-operatively with standing films of the lumbar spine and a CT scan of the lumbar spine at hospital discharge and 12 months post-op. Student's paired and unpaired T-Test was used for statistical analysis with a significance threshold of  $P < 0.05$ .

#### METHODS

A high-speed burr under direct endoscopic view was employed for the foraminoplasty in the endo-group. For the manual group, manual reamers with progressively increasing diameter of 1mm steps until reaching 12 mm were used only under fluoroscopic view. After completing the foraminoplasty, large-footprint expandable cage (size 39 × 13 × 15mm; Vertaconnect, Signus GmbH, Germany) was placed in the intervertebral disk with the trans-Kambin approach. Bone graft used for all patients was Demineralized Bone Matrix (DBM) and percutaneous transpedicular screws were used as posterior fixation.

#### RESULTS

Demographic data showed a mean age of 61.5 ± 11.9 years with 19 (51%) females. A total of 48 cages were placed, including 9 two-level cases. Total mean follow-up was 25.4 ± 4.8 months.

No significant differences were found between the endo and manual group for overall gender and age, as well as for the pre- and post-operative scores between both groups, respectively. In comparison to pre-operative scores, a significant improvement of post-operative VAS back, leg and ODI scores was found at latest follow-up showed ( $P < 0.01$ ), respectively.

Post-operative transitory radiculitis was observed for seven cases (32%) in the manual group that did not significantly differ from the 5 cases (33%) with radiculitis of the endo-group. Post-operative motor weakness was observed in 4 cases, 2 for each group (9% and 13%, respectively) that partially recovered during follow-up. The endo group presented significantly ( $P < 0.05$ ) higher mean operative time was with 50 minutes per level in comparison to 26 minutes per level for the manual group.

#### CONCLUSION

Foraminoplasty for trans-Kambin TLIF with a large-footprint interbody cage with manual reamers did not result in significant more post-operative complications than foraminoplasty under endoscopic view, while the latter seems to require significantly more surgical time.

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