

## **Modified Far Lateral Endoscopic Transforaminal Lumbar Interbody Fusion using a Biportal Endoscopic Approach: Technical report and preliminary results**

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**Background:** Recently, Endoscopic Lumbar Interbody Fusion Surgery has been attempted using biportal or uniportal endoscopic approaches. Although Endoscopic Transforaminal Lumbar Interbody Fusion (TLIF) has the benefits of Endoscopic Surgery and Minimally Invasive Fusion Surgery, its disadvantages include small cages and cage subsidence. We tried to insert a large Oblique Lumbar Interbody Fusion (OLIF) cage during Biportal Endoscopic TLIF. This study presents modified far lateral biportal endoscopic TLIF using a large interbody cage.

**Methods:** We performed modified far lateral endoscopic TLIF using a biportal endoscopic approach. Unilateral total facetectomy with laminotomy was performed for decompression and exposure of the exiting and traversing nerve roots. The distance between the exiting and traversing nerve roots was measured before OLIF cage insertion. We made an additional third portal laterally for OLIF cage insertion, after which percutaneous pedicle screw fixation was done. We investigated several clinical and radiologic parameters.

**Results:** Modified far lateral biportal endoscopic TLIF was performed in 12 patients who were followed for more than 3 months after surgery. Lumbar Lordosis, Segmental Lordosis, and disc height significantly increased postoperatively ( $P < 0.05$ ). Preoperative radicular leg pain and the Oswestry Disability Index significantly improved after surgery ( $P < 0.05$ ).

**Conclusion:** We successfully performed modified far lateral biportal endoscopic TLIF using large OLIF cages. Our technique of modified far lateral biportal endoscopic TLIF was usually suitable for the L4-5 and L5-S1 levels. Modified far lateral biportal endoscopic TLIF may be an alternative treatment method for lumbar degenerative disease.

### **Biography**

Jinhwa Eum is a Korean board-certified Neurosurgeon who has performed Spine Surgeries for over 30 years. Beginning PELD in 1995, he has performed about 4,000 Biportal Endoscopic Spine Surgeries for 25 years (55% Lumbar Discectomy, 30% decompression for stenosis, 10% endoscopic TLIF, 5% cervical discectomy). He has also taught many aspiring Spine Surgeons from China, Japan, Taiwan, Mexico, and Greece through lectures and cadaver workshops. Since 2016, he has published multiple articles about Unilateral Biportal Endoscopic Surgery, with his most recent being "Modified Far Lateral Endoscopic TLIF (extreme TLIF for large cage)" on Feb 19th, 2021 on *Acta Neurochirurgica*. Currently, he is the Executive Director of KOMISS and KOSESS and the chairman of Korea UBE (Unilateral Biportal Endoscopy) Society.

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