

Original Article

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Step-by-Step Sublaminar Approach With a Newly-Designed Spinal Endoscope for Unilateral-Approach Bilateral Decompression in Spinal Stenosis

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Objective: Spinal stenosis is increasingly common due to population aging. In elderly patients with lumbar central canal stenosis (LCCS), minimizing muscle damage and bone resection is particularly important. We performed a step-by-step operation with a newly designed spinal endoscope to obtain adequate decompression in patients with spinal stenosis.

Methods: From April 2015 to August 2016, 78 patients (48 males, 30 females) with LCCS (91 segments) underwent endoscopic decompression using a newly designed endoscope system. The inclusion criteria were: (1) neurogenic intermittent claudication with or without radiculopathy, (2) LCCS, and (3) having exhausted conservative treatment (>3 months). The exclusion criteria were: (1) >10° of instability, (2) spondylolisthesis grade II or greater according to the Meyerding criteria, (3) foraminal stenosis, (4) vascular intermittent claudication, (5) infection, and (6) stenosis combined with malignancy. We performed a step-by-step procedure using a newly designed endoscope system for unilateral-approach bilateral decompression. We used the same incision for 2–3 segments, only moving the skin.

Results: The mean follow-up was 2.3 ± 1.3 years. *Excellent* or *good* results were found according to the MacNab criteria in 85.9% of cases (67 of 78). The visual analogue scale, Japanese Orthopedic Association score, and Oswestry Disability Index showed significant decreases at 1 month, persisting until the 2-year follow-up. Dural tear occurred in 4 cases (5.1%), and patch repair was performed under endoscopy. No patients experienced aggravated instability requiring surgery.

Conclusion: We obtained *good* results with endoscopic decompression surgery using a newly designed instrument that minimized muscle and bone damage in elderly patients with spinal stenosis.

Keywords: Unilateral approach bilateral decompression, Spinal endoscopy, Step-by-step procedure, Minimally invasive laminotomy



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INTRODUCTION

Lumbar central canal stenosis (LCCS) is a degenerative disease, which is a critical cause of low back pain, gait disturbance,

daily living activity dysfunction, locomotive syndrome in the aging society, and eventually bedridden. Most LCCS patients receive conservative treatment such as drug therapy and block injection to alleviate their symptoms. Surgery is recommended