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Microendoscopic decompression in single and multiple level lumbar canal stenosis: A series of 583 cases

Mohamed S Kabil and **Khaled Ebrahim**
Ain Shams University Hospital, Egypt

Introduction: Traditionally, lumbar canal stenosis (LCS) has been treated with conventional laminectomy involving wide resection of posterior supporting structures of the lumbar spine such as the supraspinous and interspinous ligamentum complex, the spinous process as well as wide areas of the lamina. In addition, this required a large incision of the skin and underlying musculoligamentous complex (posterior tension band). The current study focuses on the clinical outcome and utility of minimally invasive microendoscopic decompression from a unilateral approach in surgical management of patients with single and multiple level lumbar canal stenosis.

Aim: Aim of this study is to describe the indications, significance and applications of endoscopic spine surgery in cases with single and multiple level lumbar canal stenosis. Additionally, to highlight important anatomical perspectives of the technique and share surgical experience and results.

Materials & Methods: From May 2008 to January 2016, 583 consecutive patients were treated for lumbar canal stenosis at our institution. Patients' main complaint was bilateral neurogenic claudication in addition to back pain and sciatic neuralgia that was present in most cases. Single level decompression was performed in 468 (80%) cases and multiple level decompressions in 115 (20%) cases. Magnetic resonance imaging (MRI), computed tomography (CT) scans and plain X-rays were performed for all patients to confirm evidence of central stenosis and then repeated postoperatively. All patients were followed up for at least three months and their data collected. Clinical and functional outcomes were assessed using Visual Analogue Scale (VAS) and the Japanese Orthopedic Association Score (JOA) score for lumbar disease.

Results: Compared to preoperative complaint, there was an improvement of back pain in 62% of patients and in radiating leg pain in 86%. With regards to functional outcomes, median preoperative JOA score was 14.93± 0.48 and improved postoperatively to 27.17±1.45 ($p<0.001$). The mean operating time per level was 78 minutes, and the mean intraoperative blood loss per level was 18 ml. Complications mainly included dural tears in 27 (4.6%) cases, transient postoperative dysesthesia in 46/583 (7.9%) cases and excess bony work in the form of unintended medial facetectomy in 38/583 (6.5%) cases and fracture of the spinous process in three (0.5%) cases.

Conclusion: The microendoscopic decompression technique via a unilateral approach is a minimally invasive surgery that is safe and effective in treatment of single or multiple level lumbar spinal stenosis, it is associated with favorable clinical results and high patient satisfaction.

Biography

Mohamed S Kabil is an Assistant Professor of Department of Neurosurgery, Ain Shams University, Cairo, Egypt. He is also the Medical Director of Cairo Endospine Clinic, for Endoscopic Spine Surgery. He obtained his medical degree in 1996 from the Faculty of Medicine, Ain Shams University where he presently serves as a staff member at the Department of Neurosurgery. He also contributed to numerous publications in international medical journals, he is the First Co-Author of the international book, Endoscopic Skull Base Surgery, and gave many presentations about minimally invasive and endoscopic neurosurgery and spine surgery.

kabilms@yahoo.com

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