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Surgical Outcomes of Laminectomy for Cervical Spondylotic Myelopathy: A Comparison with Laminoplasty

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Background: Posterior decompression surgeries for cervical spondylotic myelopathy include laminoplasty and laminectomy, but the optimal approach remains controversial. Since 2014, our hospital has been performing a less invasive technique, minimal consecutive cervical laminectomy (MicCeL), for cervical spondylotic myelopathy. This study compares the one-year postoperative outcomes of MicCeL with double-door laminoplasty (DDLp).

Research question: What are the comparative outcomes of MicCeL and DDLp for cervical spondylotic myelopathy?

Design: A retrospective cohort study.

Methods: We included 240 cases (MicCeL: 142 cases, DDLp: 98 cases) treated at our hospital for cervical spondylotic myelopathy with posterior decompression surgery from January 2015 to December 2022, and followed up for more than one year postoperatively. Evaluation criteria included operative time, blood loss, decompression range, X-ray parameters (pre- and postoperative cervical lordosis, local kyphotic angle, T1 slope, TS-CL, C2-C7 SVA, ROM in flexion and extension), and clinical outcomes (JOA, neck VAS, NDI, JOACMEQ), comparing both groups one year postoperatively.

Results: There were no significant differences in age at the time of surgery between the groups. There were no significant differences in preoperative X-ray parameters, decompression range, JOA score, JOACMEQ, and NDI. Operative time was significantly shorter for MicCeL (50.8 ± 14.4 min vs 67.7 ± 19.7 min, $P < 0.001$). There was no significant difference in blood loss between the groups. At one year postoperatively, JOA improvement rates ($56.9 \pm 31.4\%$ vs $56.1 \pm 31.8\%$, $P = 0.83$), neck VAS (3.4 ± 2.6 vs 3.0 ± 2.6 , $P = 0.28$), NDI (10.0 ± 7.1 vs 10.0 ± 7.8 , $P = 0.66$), and JOACMEQ showed no significant differences, but ROM was significantly greater in MicCeL ($36.9 \pm 9.5^\circ$ vs $31.2 \pm 12.6^\circ$, $P = 0.01$).

Discussion: Compared to laminoplasty, laminectomy (MicCeL) demonstrated a significantly shorter operative time and greater cervical ROM one year postoperatively.