Laminoplasty for Multilevel Spondylotic Myelopathy and Ossification of the Posterior Longitudinal Ligament:Effects on Cervical Alignment, Spinal Cord Compression, Range of Motion, Clinical Outcome

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Introduction

- Cervical open-door laminoplasty is commonly used for multiple level CSM or OPLL.
- We reviewed our experiences of cervical alignment changes, cord compressions, ROM and assessed outcomes of cervical open-door laminoplasty to compare with patients with OPLL versus those with CSM

Methods

- A retrospective study of the short term result in patients who had open-door laminoplasty for cervical myelopathy caused by OPLL and / or CSM was performed.
- From January 2009 to December 2014, total 44patients underwent open-door laminoplasty at the single medical center;
- 28 patients had OPLL and 16 patients had CSM.
- Clinical factors included the age, sex, operation level, hospitalized dates, estimated blood loss, operation time, spinal cord signal change, symptom duration and followed up duration.
- Clinical outcomes were measured using the mJOA scale.
- Radiologic outcomes included assessment of changes of C2 – 7 Cobb angle in the neutral and flexion-extension at perioperative and final follow-up.

Result

Total 44 patients
- 25 mend and 19 women

Mean age : 61.4 (range, 37 to 84)
- OPLL : 61.8 (range, 47 to 81)
- CSM : 60.6 (range, 37 to 84)

MRI signal change : 27 cases
- OPLL : 16
- CSM : 11

Mean F/U period : 10.4 months (range, 1 to 36)

Mean symptom duration
- OPLL : 10.5 months
- CSM : 8.1 months

Mean hospitalized date
- OPLL : 29.0 days
- CSM : 26.8 days

Estimated blood loss
- OPLL : 332.1 ± 190.6 ml
- CSM : 359.4 ± 174.4 ml

Mean operation time
- OPLL : 3.5 ± 0.8 hours
- CSM : 3.2 ± 0.6 hours

Average operation level
- OPLL : 4.0 ± 0.6 levels
- CSM : 4.1 ± 0.9 levels

mJOA score improvement
- OPLL : 12.3 to 15.3, P<0.01
- CSM : 119 to 15.5, p<0.01

C2-7 cobbs angle differences
- OPLL : -10.2 to -8.2 (P <0.01)
- CSM : -10.4 to -6.4 (P<0.01)

MRI cord compression grade changes
- OPLL : 2.9 to 0.4, P=0.01
- CSM : 2.8 to 0.1, P=0.015

ROM preservation
- OPLL : 32.9 to 23.5, P<0.01
- CSM : 39.4 to 26.4, P=0.14

Conclusions

- Similar clinical and radiologic results were investigated CSM group and OPLL group by this study.
- We conclude that cervical open-door laminoplasty also assures good clinical outcomes for both multiple level cervical spondylotic myelopathy and ossified posterior longitudinal ligament.
- Laminoplasty may limit ROM and aggravate kyphotic change in both CSM and OPLL group