

4<sup>th</sup> Global Congress on

# SPINE AND SPINAL DISORDERS

September 05-06, 2018 Auckland, New Zealand

## Preoperative C4/5 foraminal diameter as a predictor of C5 palsy after laminoplasty

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**Statement of the Problem:** Laminoplasty is frequently performed in cervical myelopathy patients. However, unexpected postoperative C5 palsy occurs incidentally.

**Method:** Between January 2014 and April 2016, 100 patients who underwent laminoplasty for cervical spondylotic myelopathy were included. C5 palsy was defined as a weakness (change MMT score 1 or 2) of deltoid muscle. The patients were divided into two groups, Group A that had experienced C5 palsy and Group B that had not. We evaluated the incidence of C5 palsy, the preoperative C2-7 Cobb's angle and the Pavlov ratio at C4, C5 level using simple radiograph and also using CT scan, the existence of OPLL, the transverse diameter of C4/5 foramen and the increase of AP diameter of spinal canal at C4 and 5 level after surgery. In addition, preoperative high signal intensity on T2 weighted image of the cervical spinal cord was evaluated.

**Findings:** Postoperative C5 palsy occurred in 8 patients (8%). There was no significant difference in sex, age, the existence of OPLL and preoperative high signal intensity on T2 weighted image of the cervical spinal cord. Also, the preoperative C2-7 Cobb's angle, the Pavlov ratio at C4, C5 level, the increase of AP diameter of spinal canal at C4 and 5 level were not significantly related with postoperative C5 palsy. However, the average diameter of the C4/5 foramen of affected side was 2.51 mm in Group A and 3.88 mm in the Group B ( $p=0.004$ ) and the smaller diameter of the C4/5 foramen especially less than 2 mm was significantly related with C5 palsy in binary logistic regression test ( $p=0.000$ ).

**Conclusion:** The diameter of C4/5 foramen was the only reliable parameter to predict C5 palsy after laminoplasty. The results suggest that C4/5 foraminal stenosis is one of most important etiology of C5 palsy.

### Biography

Jae-sung Ahn is currently working as a Professor at Department of Orthopedic Surgery, Chungnam National University Hospital in South Korea. He has published numerous research papers and articles in reputed journals and has various other achievements in the related studies. He has extended his valuable service towards the scientific community with his extensive research work.

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