Surath Sanjaya Kumara, J Neurol Neurosci 2019, Volume 10
DOI: 10.21767/2171-6625-C2-023

Does removal of hypertrophic posterior longitudinal ligament (HPLL) along with cervical discectomy affect surgical outcome in anterior cervical discectomy and fusion (ACDF)?

Surath Sanjaya Kumara
National Hospital for Neurology and Neurosurgery, UK

Objectives: Does hypertrophy of posterior longitudinal ligament (HPLL) significantly contribute to cervical spondylotic myelopathy (CSM), when associated with cervical disc herniation (CDH)?

Although anterior decompression is a common and widely accepted surgical technique for cervical myeloradiculopathy, it is still difficult to determine whether HPLL should be removed during ACDF for CSM.

Materials & Methods: This single institution retrospective study analysed 56 patients presenting with CDH and associated HPLL with CSM during a time period of 4 years from 2012 to 2016. The presence of thickened HPLL was confirmed by T2-weighted Magnetic Resonance Imaging (MRI) scanning.

Preoperative Neurological function was evaluated using the Modified Japanese Orthopaedic Association (MJOA) Cervical Spine Myelopathy Functional Assessment Scale. All the patients were treated by a single/two level ACDF performed by a single surgeon. Removal or preservation of HPLL was decided upon the degree of satisfactory decompression intraoperatively following removal of disc-osteophyte complex. Surgical outcome was evaluated at the end of 12 months according to Odom's criteria. Postoperative MJOA scores and spinal canal diameters were compared in the two groups.

Results: Out of 56 patients who underwent ACDF, HPLL was removed in 29(57.8%) and preserved in 27(48.2%). At the end of 12 months, 26(89.6%) patients who underwent removal of HPLL revealed excellent or good outcome scores according to Odom's criteria, although 18 out of 27(74.1%) patients whom HPLL was preserved found to have similar Odom's criteria. The difference in outcome was statistically significant at a p value of 0.036. The improvement of mJOA scores in removal group is statistically significant at 6 and 12 months follow up compared to the preserved group. (p=0.041). No significant difference in postoperative increase in spinal canal diameters observed between the two groups at follow up.

Conclusion: Removal of HPLL has a significant effect on surgical outcome when performed along with cervical discectomy during single/ two level ACDF.

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