

## Decompression of the spinal canal in subaxial cervical spine by the posterior unilateral approach - over the top hemilaminectomy. Results after two years of an ongoing study

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**Background:** In an effort to preserve the physiology of the cervical spine as much as possible, the authors in a prospective study verify the posterior unilateral approach to the cervical spine and decompression of the spinal canal from "over the top" hemilaminectomy. The aim of the study is to prove the efficiency and safety of the surgical technique and the sufficient stability of the cervical spine after these operations.

**Methods:** During 2 years, 15 patients who suffered from cervical spinal cord compression were included in the study. Before and after the procedure, an X-ray (AP, lateral, dynamic) and MRI images of the cervical spine and the patient's neurological status were taken. Spinal canal cross-sectional areas in all decompressed levels before and after surgery were compared as well as cervical lordosis (Cobb angle).

**Results:** Decompressions were performed in total in 41 levels. The mean spinal canal cross-sectional area value for the one segment before decompression was on average  $85.3 \text{ mm}^2$ , after decompression was  $172.7 \text{ mm}^2$ . It means an average increase in space by  $87.4 \text{ mm}^2$ , i.e. by more than 100%. The value of the cross-sectional area in segment where the spinal cord showed a myelopathic signal was an average of  $55.4 \text{ mm}^2$ , it was enlarged to an average of  $168.6 \text{ mm}^2$ , i.e. by more than 200% of the original size. The cervical sagittal profile did not change even after 6-12 months of follow-up, the Cobb angle C2-7 did not exceed changes of  $3.5^\circ$  on average. On dynamic images, there was no instability within the follow-up of and all patients showed an improvement in their condition at outpatient check-ups.

**Conclusion:** Decompression of the spinal canal of the cervical spine from hemilaminectomy and undercutting over the top is an elegant microsurgical method, at least partially sparing the physiology of the cervical spine. For now, the study proves the sufficiency and safety of this operative method.