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Result of full-endoscopic system utilization for nervous structures decompression on the lumbar spine level: Report of first experience

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Background: A lot of effective methods of decompression of structures in channel of the spine are used in modern medicine. The study deals with the whole experience of authors regarding 161 patients, who underwent full endoscopic lumbar procedure in two centers. For 151 consecutive patients, only sequestrectomy was used and 10 patients with central or foraminal stenosis underwent transforaminal or interlaminar decompression. This presentation reviews a private experience of using a full-endoscopic uniportal sequestrectomy for decompression of nerve root in lumbar region in retrospective cohort evaluation.

Methods: We utilized transforaminal and interlaminar approach for patients with disc herniation. First 44 patients were operated by interlaminar endoscopic approach, all patients had L5-S1 disc herniation, next 107 patients were operated by transforaminal approach. Among them, 59 patients had disc herniation on L5-S1 level, 42 on L4-L5 level, five on L3-L4 and one patient on the L2-L3. Summarized 152 patients with different locations of pathology had undergone 154 operations, (one patient had pathology on two levels and one underwent repeat surgery due to lost fragment in first hour). Pre- and post- operating examination included scoring by visual analogue scale (VAS), Oswestry Disability Index (ODI), evaluation of operation time and MacNab evaluation.

Results: Before the operation, data of all patients was calculated using the given scales and questionnaires. Mean ODI was $50\pm 7\%$ (min: 40, max: 70, mode: 50), mean VAS1 (back pain) was 6 (min: 1, max: 10, mode: 9), mean VAS2 (leg pain) was 8 (min: 5, max: 10, mode: 9). Mean follow-up was 13.6 months (min: 4, max: 47, mode: 4). Survey has been carried every three months after surgery, but this presentation demonstrates the latest data. Post-operative data showed that mean ODI decreased to $8.31\pm 1.53\%$ (min: 5, max: 10, mode: 10). All of the patients noted improvement in their pain status. Mean VAS1 and VAS2 improved to 0.98 ± 0.02 and 0.18 ± 0.3 , respectively. Evaluation of MacNab's significance showed that 73 (48%) patients considered result of surgery as good, 42 (28%) evaluated the result as excellent and 35 (23%) as fair. The mean of operation time was 71 minutes (min: 30, max: 130, mode: 60 mins).

Conclusions: Utilization of full endoscopic system in routine practice proved to be a good alternative to microsurgical method of disc herniation removing. Improvement of visualization of instruments under the nerve root, supports increasing of quantity, "best result" of surgery via improving of quality of decompression of nervous structures.