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Lumbar Foraminal Stenosis classification that guides surgical treatment

There are numerous radiological and anatomical studies on lumbar foramina in the literature, but there are no distinctive studies about the relationship between treatment and the type of foraminal stenosis. This study was conducted to better evaluate foraminal stenosis and to plan treatment accordingly. Foraminal stenosis was divided into two groups: stable and unstable stenosis. Both groups were also divided into four subgroups in relation to the cause of and type of compression and based on the structure of the intervertebral disc. Visual analog scale for leg pain (VAS-LP) and Oswestry Disability Index (ODI) scores were investigated before and after surgery.

One hundred and fifteen patients (59 females and 56 males) underwent surgery for lumbar foraminal stenosis. The mean patient age was 56,1 (range, 17 to 80) years. The mean follow-up was 29 months (range, 24-39 months). There were 36 patients (32%) with stable foraminal stenosis and 79 patients (68%) with unstable foraminal stenosis. The majority of the patients were identified as having unstable type 1 foraminal stenosis (45 of 115). The VAS-LP and ODI scores for each groups decreased gradually during the follow-up periods and showed significantly decrease during the last follow-up (p<0.001). Inter-observer and intra-observer agreement in the classification of foraminal stenosis was found to be nearly perfect. No patients experienced postoperative radiculopathy complication. Only two patients experienced superficial operation site infection and one showed deep wound infection. The patient who had deep wound infection was needed to repeat surgery for the infection. We introduced a novel classification system for lumbar foraminal stenosis. We aimed to guide appropriate treatment modality depending on the determined classification. This classification helps to determine the optimal treatment. In the light of our findings, the patients who were operated according to our classification experienced satisfactory clinical outcomes and lower complication rates.

Recent Publications

1.	Rienmüller AC, Krieg SM, Schmidt FA, Meyer EL, Meyer B. Reoperation rates and risk factors for revision 4 years after dynamic stabilization of the lumbar spine. Spine J. 2019; 19:113-120. DOI: 10.1016/j.spinee.2018.05.025

2.	Gill GG, Manning JG, White HL. Surgical treatment of spondylolisthesis without spine fusion: excision of the loose lamina with decompression of the nerve roots. J Bone Joint Surg Br 1955; 37: 493–520. DOI: 10.2106/00004623-195537030-00005

3.	Smith GA, Aspden RM, Porter RW. Measurement of vertebral foraminal dimensions using three-dimensional computerized tomography. Spine 1993; 18:629-636. DOI: 10.1097/00007632-199304000-00016

Biography

Ali Fahir Özer graduated from Atatürk University School of Medicine in 1976. He did his Neurosurgery Residency between 1977 and 1982 at Hacettepe University School of Medicine. He obtained his Associate Professor degree in 1988 and full-professorship in 1994. He has been working at American Hospital Neurosurgery Department since 1995 and is currently a faculty at Koc University School of Medicine, Department of Neurosurgery. He is Adjunct Professor in Bioengineering and Orthopaedic Surgery Colleges of Engineering and Medicine, University of Toledo in 2018. He has authored or co☐authored well over 230 papers and wrote 46 book chapters, and he also editor of 9 books about his topic. Ozer's research mainly focuses on biomechanics and dynamic stabilization of spine. He had patented Orthrus Dynamic Spinal System, Safinaz Dynamic Screw and Cervical Disc Prosthesis.

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