

## Clinical: Lumbar Non-Fusion (i.e. MIS discectomy, percutaneous discectomy)

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### Disc-FX - A New Combination Procedure for Disc Surgery - Basics and 2 Years Results of a Prospective Study

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Chemonucleolysis and percutaneous discectomy as well as laser decompression and discectomy are used methods besides the rapidly developing endoscopic techniques as minimal aggressive techniques for discal pain syndromes. In recent years, the use of different radiofrequency energy was added to this spectrum. Every technique from thermocoagulation for annuloplasty to the "coblation" must be considered as unique procedure. A new minimally invasive technology for the treatment of discal diseases of the lumbar spine with high radiofrequency based on the extensive use of the percutaneous RF-techniques and positive experiences with use in endoscopic spine surgery has been developed to recombine the advantages of the different methods in one minimal invasive surgery. The purpose of the presentation is to assess the feasibility and the potential of this radiowave based combination procedure. First we will discuss basic investigations for the efficacy and safety of this procedure. Then we will present our first clinical results after 2 years.

**Methods:** For this first prospective outcome study patients with radicular pain syndromes and simple neurological deficits as well as contained disc extrusions or protrusions has been included. We did the procedures in two different centers by different surgeons in different cultures and investigated the outcome postoperatively, after 6 weeks, 6 months and 2 years by a standardized protocol partly by independent investigators. Beside the clinical results two scores has been observed.

**Results:** Limited temperature rise was demonstrated at the site of high frequency radiowave application. There was no effect on epidural structures. The average ablation of the nucleus was 0.8 g and the average annular shrinkage was 30 percent by simultaneous demonstrations in surgery. Clinically VAS scores improved from 8,6 to 1.9 two days postoperatively. At six weeks and 6 months VAS scores were 3.5 and 3.3, respectively. The current investigation for the 2 years follow up shows no significant change of the results with a VAS of 2,1. The McNab index, and Andrews and Lavyene score showed excellent outcomes in the immediate postoperative period and good outcomes after six weeks and six months. After 2 Years we got excellent and good results in 82,2% There were no complications in the study.

**Conclusion:** The results after 2 years encourage us to implicate this procedure into the algorithm of disc surgery and seem to be comparable to the other minimal invasive procedures avoiding an open surgery and to fill the gap in the cascade of treatment of discal disorders. The combination of different techniques in one procedure with the use of special radiowave mark an advantage and seems to be superior to a single technique. The risk of a complication especially epidural scaring is diminished by this technique. Cause of the instruments there are further optional opportunities and it is less invasive than an fullendoscopic procedure, but an endoscopic assisted controll is possible.