

Comprehensive Review

The Current State of Endoscopic Disc Surgery: Review of Controlled Studies Comparing Full-Endoscopic Procedures for Disc Herniations to Standard Procedures

Christof Birkenmaier, MD¹, Martin Komp, MD², Hansjörg F. Leu, MD, PD³, Bernd Wegener, MD¹, and Sebastian Ruetten, MD, PD²

From: ¹Department of Orthopaedics, University of Munich (LMU), Grosshadern Campus, Munich, Germany; ²Department of Spine Surgery and Pain Therapy, Center for Orthopaedics and Traumatology, St. Anna-Hospital Herne, University of Witten/Herdecke, Herne, Germany; and ³The Bethania Spine Base, Bethania Hospital, Zurich, Switzerland

For the International Society for Minimal Intervention in Spinal Surgery (ISMIS)

Address Correspondence: Christof Birkenmaier, MD
Department of Orthopaedics
University of Munich (LMU)
Grosshadern Campus
Marchioninstr. 15
81377 Munich, Germany
E-mail: doctor-b@web.de

Disclaimer: Some aspects of this data have been presented at the 3d WCMISST, Salvador de Bahia, Brazil (18.-18.8.2012) and at the 31st International Course for Percutaneous Endoscopic Spinal Surgery and Complementary Minimal Invasive Techniques in Zurich, Switzerland (24.-25.1.2013).
Conflict of interest: None.

Manuscript received: 02-27-2013
Accepted for publication: 03-29-2013

Free full manuscript:
www.painphysicianjournal.com

Background: Neuropathic pain originating from spinal disc herniations is a very common problem. The majority of disc surgeries are performed to alleviate this pain once conservative measures and targeted injections have failed. Endoscopic spinal surgery is increasingly popular because it minimizes access trauma and hastens recovery from the intervention. This clinically oriented review evaluates controlled studies that investigate the clinical results and the complications of full-endoscopic lumbar and cervical procedures for symptomatic disc herniations in comparison to a microsurgical standard procedure. This review focuses exclusively on modern, full-endoscopic disc surgery irrespective of the specific access technique (e.g., interlaminar vs. transforaminal) and irrespective of the spinal region.

Study Design: Comprehensive review of the literature.

Objective: To assess the clinical outcomes and complication rates of full-endoscopic disc surgery compared to the microsurgical standard procedures.

Methods: A PubMed and Embase search was performed, considering entries up to January 2013. All 504 results were screened and categorized. Only 4 randomized controlled trials (RCTs) and one controlled studies (CS) could finally be considered for evaluation. All 5 manuscripts were meticulously analyzed with regards to randomization mode, inclusion/exclusion criteria, clinical results, and complication rates.

Results: Overall, the endoscopic techniques had shorter operating times, less blood loss, less operative site pain, and faster postoperative rehabilitation/shorter hospital stay/faster return to work than the microsurgical techniques. There were no significant differences in the main clinical outcome criteria between the endoscopic and the microsurgical techniques in any of the trials. All 5 studies had fewer complications with the endoscopic technique and this was statistically significant in 2 of the studies. One study showed a lower rate of revision surgeries requiring arthrodesis with the endoscopic technique.

Limitations: All 5 studies that could be considered originate from experienced investigators and all 4 RCTs came from one group. This limits the transferability of their results to surgeons less experienced in endoscopic disc surgery.

Conclusions: The studies show that full-endoscopic disc surgery can achieve the same clinical results in symptomatic cervical and lumbar disc herniations as the microsurgical standard techniques. This does not appear to come at the price of higher complication rates.

Key words: Neuropathic pain, disc herniation, cervical, lumbar, endoscopic, endoscopy, review

Pain Physician 2013; 16:335-344