



## BETHANIA SPINE BASE

UNDER THE AUSPICES OF THE  
INTERNATIONAL SOCIETY FOR MINIMAL INTERVENTION IN SPINAL SURGERY  
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# ABSTRACTS

INTERNATIONAL 28<sup>th</sup>

## COURSE FOR PERCUTANEOUS ENDOSCOPIC SPINAL SURGERY AND COMPLEMENTARY MINIMAL INVASIVE TECHNIQUES

SYMPOSIUM WITH INTERNATIONAL GUEST FACULTY  
& WORKSHOP DEMONSTRATIONS / TECHNICAL EXHIBITION

C o u r s e C o - C h a i r m e n :

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S S O / S G O - C M E - C r e d i t s : 1 6



**RESULTS:** - At 3 months post operatively we noted that: Neurological signs had disappeared in 88% of the cases. Radicular pain was reduced on average by 81% on the AVS and lumbar pain by 65%. The DALLAS score was reduced by 53%. Also, 87% of the patients considered the result as a success.

- At 12 months post operatively (688 patients) the results were: Radicular pain decreased on average by 88% and 74% for lumbar pain. The DALLAS score reduced on average by 63%. The success rate increased to 91%. The rate of complications was very low (1.06%), as in the other studies.

**DISCUSSION:** It becomes actually evident that the goal of spinal surgery is to require, more than ever, the least amount of iatrogenic effects. The transforaminal approach brings the best answer, by avoiding transcanal effraction with a limited annular fenestration, a minimal access to the epidural space and above all without destabilization of the intervertebral joint. By acquiring experience, the author has enlarged his indications by treating intracanal, foraminal, extraforaminal and extruded herniations as well as lateral stenosis. He especially underlines the importance of the provocative discography to confirm the symptomatic discs and to evaluate the extension of annular tears. In his opinion, one of the best successes of this technique is to be able to treat efficiently patients with failed primary open surgery. This minimally invasive technique also allows it to be repeated in case of failure or recurrence, with a similar rate of success and complications.

**CONCLUSION :** Endoscopic spinal surgery has now reached its maturity, appearing as a real functional method as well as did arthroscopy and coeliosurgery a few decades ago. The author's experience suggests that this endoscopic microsurgical technique on the spine is an extremely efficient and safe method, to the patient's benefit. ♦

### **Endoscopic transforaminal discectomy (ETD)**

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**Background:** Microscopic dorsal lumbar discectomy is the gold standard treatment for lumbar symptomatic disc herniation. To reduce the complication rate and to eliminate the risks of general anaesthesia, more minimal invasive procedures gain significant interest in patients and spine surgeons.

**Purpose:** Of this study is to evaluate the effectiveness and complication rate of the endoscopic transforaminal discectomy (ETD) in all kinds of disc herniation whether far above or below the disc level.

**Study Design:** A prospective clinical study.

**Patient Sample:** 252 consecutive patients over a four year period with a MRI proven disc-herniation in the lumbar spine with radicular symptoms, positive Lasegue (<45°), or neurological symptoms that did not respond satisfactory to conservative treatment off at least two months.

**Outcome Measures:** The patients had a clinical evaluation 3 months after surgery and returned at two years an extensive questionnaire including VAS Scores, MacNab Score as well as subjective satisfaction.

**Methods:** All patients were treated under local anaesthesia and could be discharged the day after surgery. From a lateral approach first the intervertebrale foramen was enlarged and a working cannula was inserted in the spinal canal. The prolapsed or extruded part was removed under endoscopic vision with special forcepses, curettes and with an awl and a special reamer the inferior endplate was perforated, abraded and all loose intradiscal fragments were removed.

**Results:** At the two year follow-up 96,4% of the patients reported an excellent or good result, 2,8% a fair and 0,8% unsatisfactory result. Patients reported a significant improvement in leg and back pain according to the VAS scale. According to MacNab criteria: 44,8% of the patients felt fully regenerated, 48,8 % felt their capacity slightly restricted, 5,6% felt they were noticeably restricted and 0,8 % felt unchanged. In 6 (2,4%)cases an early recurrent disc herniation (<3month) appeared. 3 patients (1,2%) had a temporary paraesthesia and foot weakness (which disappeared after 3 months). There were no cases of discitis. 13 patients (5,2%) were treated for recurrent disc herniation (between 3month and 2 years). 10 of those patients where treated endoscopically again, 3 had a microdiscectomy. 10 patients were very satisfied or satisfied after second surgery, one was unchanged and two were unsatisfied.

**Conclusion:** The endoscopic transforaminal discectomy appears to be a safe, effective procedure without significant complications and is an alternative to open microdiscectomy. ♦



## Endoscopic microsurgical treatment for recurrent lumbar disc herniation

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The present spinal surgery requires, more than ever, that the greatest possible therapeutic result should be achieved with the least amount of iatrogenic effects. The stereotaxy was the first step towards minimally invasive technique. Subsequently, the introduction of the operating microscope permitted a reduction of surgical field with consequent improvement of surgical procedure. Furthermore, the development of neuroimaging methods, like C.T. and M.R.I., revolutionised radiologic diagnostics, permitting precise surgical planning and three-dimensional programming. The use of the computer applied to the surgery, the so called "navigator", has yielded high precision in surgical techniques. The endoscopes, optic flexible or rigid instruments transferring images from an area inside the body to the outside by the help of the microcamera system, allowed the development of spinal endoscopic microsurgery. Following this philosophy, keyhole surgery began, to the patient's benefit. Our personal experience in the minimally invasive spinal surgery started from 1989. To date we performed 2867 operations by endoscopic microsurgery with transforaminal approach to treat lumbar disc herniation. In 767 cases of this study surgery was performed for recurrent lumbar disc herniation (previous treatment by endoscopic surgery in 60 patients, previous treatment by microsurgery in 239 patients, previous treatment by traditional surgery without microscope in 468 patients). After surgery we had transitory sensory troubles in 63 cases (8.2%), residual fragment after surgery in 12 cases (1.6%), transitory increased neurologic deficits in 11 cases (1.4%), small dural laceration without CSF leakage, so that it not required a surgical treatment in 3 cases (0.4%), disc space infection that not required a surgical treatment in 2 cases (0.3%), retroperitoneal hematoma in 0 case (0%). We didn't have patient with scar tissue formation, neither secondary spinal instability after endoscopic microsurgery to treat lumbar disc herniation. Our success rate was about 92%. In our experience the treatment of recurrent lumbar disc herniation by this minimally invasive technique with transforaminal approach was extremely advantageous and safe. ♦

## Transforaminal endosc. discectomy (TESSYS® - technique) experience / learning curve

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**STUDY DESIGN:** Prospective single center study of 26 patients with symptomatic disk herniation of the lumbar spine. It was performed at the Orthopaedic University Hospital Heidelberg, Heidelberg, Germany.

**OBJECTIVE:** To evaluate the operation technique, complication rate and surgeons experience in patients with symptomatic disk herniation of the lumbar spine.

**METHODS:** Data of twenty six patients who fulfilled the criteria of disk herniation of the lumbar spine with nerve root pain and treatment of conservative therapy over a minimum of three month. These patients were selected for operative treatment by transforaminal endoscopic discectomy with TESSYS® (transforaminal endoscopic spinal system) in local anaesthesia and analgosedation. In all patients data were collected for operation time and intra- and postoperative complications as well as preoperative and postoperative follow up (3-4 weeks, 3, 6, 12 and 24 months) for ODI and VAS.

**RESULTS:** We included 12 women and 14 men. The level of disk herniation was in 4 patients L3/4, in 11 patients L4/5 and in 11 patients L5/S1. The mean operation time was 74 minutes (33 – 118). There were no major intra- and postoperative complications (i.e. bleeding, haematoma, infection, nerve root, dura lesion or neurological deficits). In two times there were intraoperative technical problems (pump, endoscope). In one patient there was a re-herniation at the third postoperative day treated again by transforaminal endoscopic discectomy. There was improvement for ODI and VAS.

**CONCLUSION:** In patients with lumbar spine disk herniation and symptomatic nerve root compression transforaminal endoscopic discectomy with TESSYS® (transforaminal endoscopic spinal system) in local anaesthesia and analgosedation it is a save operation technique and comparable to microdiscectomy. ♦