



## BETHANIA SPINE BASE

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

INTERNATIONAL 27<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 :

**Hansjörg F. Leu - Andreas G. Panoussopoulos - Stefan M. Kern**

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**CH - 8044 Zurich - Switzerland**

Course Secretary's fax: x41-[0]-43-268 28 01 / e-mail: [bethania-spine@bluewin.ch](mailto:bethania-spine@bluewin.ch)

**SSO / SGO - CME - Credits : 16**

## Endoscopic interlaminar lumbar disc surgery with Easy GO

Oertel J., PD Dr.med.\*, Gaab M., Dr.med.#

\*LOA Neurochirurgische Klinik und Poliklinik, Johannes Gutenberg-Universität Mainz  
D- 55101 Mainz / Germany - oertel@nc.klinik.uni-mainz.de

# Klinik für Neurochirurgie, Nordstadtkrankenhaus Hannover

Minimally invasive spine surgery is under intense investigation. However, many endoscopic systems are difficult to apply and handle.

The authors developed a new system for endoscopic spinal surgery. The main goals for this system were easy application and intraoperative handling as well as avoidance of a difficult and prolonged learning curve for experienced spine surgeons. The system consists of various dilators, three different work tubes, a 30° optic fixed to the work sheath in a flexible position, and an endoscope holder. Through the work sheath, the procedure can be performed using standard microsurgical skills with bimanual technique.

Since August 2006, 89 lumbar spinal surgeries for lumbar disc herniation and lumbar stenosis (mean age 52 yrs, range 22-85 yrs) have been performed with this system. In all intraoperative situations, the system was easy to handle. Mean surgical time scored 75 min (range 28 – 168 min). An immediate reduction of radicular pain was observed in all patients (100%). No CSF leakage, no root injury and no new postoperative neurological deficit were observed. In four cases, the endoscope was abandoned, and the procedure microsurgically continued (4.4%). At the last follow up visit (mean FU 10 ms, range 2 wks up to 21 ms), a significant reduction of radicular pain allowing the patient to continue in their normal daily activities was observed in 89% (71/80). Four patients suffered from recurrent disc prolapses (4.4%) within the follow up. Another five patients (5.6%) were not satisfied with the result and complained of severe lumbar or pseudoradicular pain without any evidence of re-prolaps or re-stenosis.

In conclusion, the Easy GO system was easy and safe to handle with the standard bimanual microsurgical technique. Good postoperative results were achieved. The system provides an alternative to other endoscopic techniques particularly for those who want to avoid a prolonged learning curve to perform minimally invasive endoscopic procedures. ♦

## Transforaminal endoscopic stenosis surgery (TESS)

Morgenstern R., Prof. Dr.med. Dr.-Ing.,

Chirurgia Ortopedica, CIMA Clinic / Centro Médico Teknon

E-08950 Barcelona / Spain – rumor@basis-int.de

A new endoscopic procedure, the "Transforaminal Endoscopic Stenosis Surgery" (TESS), is presented. This technique is performed through a posterolateral transforaminal approach and allows widening the foramen in a collapsed lumbar disc by undercutting the superior facet under direct endoscopic control. A new endoscopic small reamer is used for this purpose that allows minimizing the aggression to the surrounding tissues.

This study of 216 cases of lumbar foraminal stenosis compares the results of one group, in which the new endoscopic bone reamers were used for the foraminoplasty, with another group, in which only classical foraminoplasty was performed with a standard Holmium-YAG laser.

Methods : 216 patients with lumbar foraminal stenosis underwent endoscopic spine surgery from 2003 to 2008 at Centro Médico Teknon in Barcelona (Spain). 125 patients underwent classical endoscopic surgery, thus, only a Ho-YAG laser was used for the foraminoplasty (Group A). 91 patients underwent TES surgery, hence, the new endoscopic bone reamers were used for the foraminoplasty (Group B).

The inclusion criteria were: a) unilateral or bilateral radicular leg pain associated to image evidence of foraminal or lateral stenosis. b) Inadequate response to conservative treatment for > 6 months.

All 216 procedures were performed in prone position and under local anesthesia. Pain was scored for every patient, pre- and post-operatively, with a Visual Analogic scale (VAS) and the disability with the Oswestry Disability Index (ODI). The post-operative scores were updated every 3 months. The mean follow-up period was 2.8 years (with a range of 6 - 61 months).

Results : 216 patients who met the inclusion criteria underwent TES surgery. These 216 patients comprised 143 men and 73 women with ages ranging from 17 to 82 years (mean age 45.8 years). The overall results, evaluated according to Macnab criteria, for the 216 cases were: 151 excellent (69.9%), 45 good (20.8%), 16 fair (7.4%), 4 poor (1.9 %). Results for group A (125 cases): 90 excellent (72%), 20 good (16%), 14 fair (11.2%), 1 poor (0.8%). Results for group B (91 cases): 61 excellent (67%), 25 good (27.5%), 2 fair (2.2%), 3 poor (3.3%).

The surgical time average was of approx. 50 min. for group A, while the surgical time average was of approx. 30 min. for group B.

Conclusions : This study demonstrates the efficacy and efficiency of a new surgical technique (TESS) for foraminal stenosis that uses bone reaming under direct endoscopic control to widen the foramen in cases of foraminal or lateral stenosis. This endoscopic technique appears to be more accurate than other reaming techniques that only use X-ray C-arm control and have no direct endoscopic vision. Similar outcome and scoring results were achieved by the laser foraminoplasty and the reamed foraminoplasty but the latter was more efficient as it presented a lower average surgical time (approx. 20 min less) and lower material costs. This new endoscopic reaming technique opens the way for surgeons to primarily avoid more aggressive methods of decompression and minimize the surgical costs. ♦

### TES<sup>TM</sup>: transforaminal endoscopic lumbar surgery: technique/experience since 2004

Alfen F., Dr.med.  
Orthopädische Privatpraxis  
D-97082 Würzburg / Germany - [praxis@dr-alfen.de](mailto:praxis@dr-alfen.de)

a) Introduction : Meaning of TES<sup>TM</sup>: Transforaminal Endoscopic Surgery. Main Indications for this surgical technique : Decompression and dilation of the Intervertebrale Foramen, Removal of any kind of lumbar disc herniations, Decompression of the nerve root and the dura mater, Removal of scar tissue at patients which already had been operated (Microlaminektomy, Microdisectomy)

According to own studies and studies of other surgeons, Transforaminal Endoscopic Surgery (TES<sup>TM</sup>) is an efficient operating technique with results that at least are comparable to results achieved with conventional methods in the indications mentioned above.

b) Material and Method : Study Design : retrospective, not randomised, clinical study. Objective of this study : The aim of this study is to investigate, if the TES<sup>TM</sup> technique can be seen as an alternative operating method for the treatment of lumbar disc herniations. Overview of background data/data base : After having clearly defined and observed the operating indications, the patient's stay in the hospital is being reduced to one day or treatment is being conducted in day care surgery. The stay in rehab can be avoided, all advantages of endoscopic surgery known come to the fore.

From April 2004 until September 2007, 321 patients in total (96 female; 225 male) have been operated in our occupancy section. The age average was 53 years (min. 19/ max. 84 years). Data evaluation was made by single/multilevel TES<sup>TM</sup> surgeries. Patients have been questioned 6 weeks, 3 months, 6 months, 1 year, 3 years after surgery via questionnaires and functional checks (e.g. VAS). With this, subjective as well as objective data has been collected.

c) Results: The results of VAS (Visual Analogus Score), satisfaction of patients, attitude towards recommendation and efficiency have been comparable or even better when being compared with results achieved with conventional methods. The recidive rate was very small; only 12 patients have had to be operated again.

d) Discussion: It should be considered and discussed if, despite a relatively long learning curve, endoscopic surgery can or will replace open techniques. Additional prospective randomized studies should be initiated to confirm these results. ♦

### Transforaminal endoscopic discectomy and foraminoplasty after FBSS

Gozlan E., Dr.med, & Forgerit M., Lavignolle B., Ricart O., Lavignolle-Aurillac V., Dres med.  
Att. Service de Medecine Orthopédique, Hôpital Foch  
F-75006 Paris / France - [ericgozlan@libertysurf.fr](mailto:ericgozlan@libertysurf.fr)

STUDY DESIGN A multicentric study concerning 125 cases still suffering from a radiculopathy after interlaminar open surgery, have been evaluated at 3 and 12 months after Transforaminal Endoscopic Discectomy (T.E.D.).

PURPOSE To evaluate efficacy and safety of TED, after failure of translaminar open surgery.

SUMMARY OF BACKGROUND DATA This study follows a multicenter study of selective lumbar endoscopic discectomy published in December 2005 at the French GIEDA's congress, concerning 644 patients presenting a radiculopathy secondary to a lumbar disc herniation treated by the Y.E.S.S. technique. This study included all sorts of herniations and the senior author reported a series of 46 patients presenting a Y.E.S.S. and with a success rate of 87% after TED.

METHOD This study concerns 125 patients presenting FBSS and evaluated 3 and 12 months after their index operation. A provocative discography was systematically performed. Sex ratio was M/F = 65/60. Average duration of the symptoms was 17.46 months. 13 patients had TED at 2 levels and 30 patients had



