Clinical Neurology and Neurosurgery 139 (2015) 324–327

Contents lists available at ScienceDirect

Clinical Neurology and Neurosurgery

journal homepage: www.elsevier.com/locate/clineuro

# Endoscopic lumbar discectomy under local anesthesia may be an alternative to microdiscectomy: A single centre's experience using the far lateral approach☆

T. Sanusi, J. Davis*, N. Nicassio, I. Malik

*Department of Neurosurgery, Kings College Hospital, Denmark Hill, London SE5 9RS, United Kingdom*

ARTICLE INFO

*Article history:*
Received 10 March 2015
Received in revised form
16 September 2015
Accepted 1 November 2015
Available online 4 November 2015

*Keywords:*
Degenerative disk disease
Local anesthesia
Minimally invasive surgery
Transforaminal endoscopic discectomy

ABSTRACT

*Objectives:* Since the turn of the century, minimally invasive surgery has become increasingly widespread. Discectomy surgery has evolved from wide open to microscopic and now endoscopic. This study aims to demonstrate that transforaminal endoscopic discectomy is an alternative and safe approach for degenerative disk surgery.
*Patients and methods:* Two year retrospective assessments of patients who underwent transforaminal endoscopic discectomy at a tertiary neurosurgical center in the United Kingdom by a single surgeon. Under strict confidentiality, data was collected from online patient data and PACS systems. Patient feedback was achieved using phone call follow up and clinic appointments. Standard statistical analysis was performed.
*Results:* 201 patients had endoscopic discectomy and the mean age was 41 years. Male:female ratio was 1.3:1.0. Mean time of onset of symptoms was 5.5 months and the most common level was L4/5 (53%). All endoscopic discectomies were performed under local anesthesia. Theater time was on average 110 min. 10 patients were lost to follow up. 95% of patients were discharged within 7 h post operatively. Visual acuity score of the pain dropped from an average of 7/10 pre-operatively to 0–1/10 in 95% of patients two weeks post operatively. 87% patients went back to their normal daily activities within two weeks. There were no cases of CSF leak, hematoma formation or wound infection. 1% of patients developed a nerve root injury. 6% of patients had recurrent herniation and require microdiscectomy.
*Conclusion:* Endoscopic discectomy can be an alternative approach to microdiscectomy. While it can take more expertise to perform endoscopic discectomy, our data shows that the far lateral endoscopic discectomy using the TESSYS technique has comparable outcomes to microdiscectomy.
© 2015 Elsevier B.V. All rights reserved.

## 1. Introduction

In 1934 Mixter and Barr first described the surgical treatment of lumbar disk herniation by performing an open laminectomy and discectomy [1]. With the introduction of the microscope, Caspar and Yasargil refined the original laminectomy into an open microdiscectomy [2,3]. Currently discectomy can be performed via a small midline open procedure, microdiscectomy and it is the most widely performed neurosurgical procedure. The overall outcomes of microdiscectomy are usually dependent upon the clinical presentations. However, adequate decompression is usually achieved. Potential complications of microdiscectomy are similar to those associated with conventional discectomy. They included risks associated with general anesthesia, cosmesis, infection, neural tissue damage, cerebrospinal fluid leak and infection. Due to less tissue dissection, postoperative pain and discomfort is decreased in patients who undergo microdiscectomy but the recovery period is still 4–8 weeks [4,5]. Consequently, in recent years there has been an increasing drive to perform discectomy using an even smaller endoscopic approach. In 1997, Foley and Smith described endoscopic discectomy as a new percutaneous technique for the treatment of lumbar disk herniation [6]. Since then, few studies have been performed to compare outcomes of microdiscectomy and endoscopic discectomy. Currently, there exist debate as to the outcome of endoscopic discectomy and whether the results are

*Abbreviations:* CSF, cerebrospinal fluid; NHS, National Health Service; MRI, magnetic resonance imaging; PACS, picture archiving and communication system; TESSYs, transforaminal endoscopic surgical system; VAS, visual acuity score.

☆ Congresses: 15th Dubai Spine and 10th Pan Arab Spine conference (19th–24th April 2014).

* Corresponding author.
*E-mail address:* js.davis1989@gmail.com (J. Davis).

http://dx.doi.org/10.1016/j.clineuro.2015.11.001
0303-8467/© 2015 Elsevier B.V. All rights reserved.

comparable with microdiscectomy. Very few centers around the world currently perform this procedure. We therefore present our endoscopic discectomy results using the far lateral approach.

## 2. Methods and surgical approach

We performed a retrospective analysis of 201 patients who underwent an endoscopic discectomy for lumbar disk herniation between October 2011 and December 2013. All the operations were carried out by the same neurosurgeon who specializes in complex spine surgery at a tertiary neurosurgical center. Inclusion criteria to enter were a diagnosis of symptomatic lumbar disk herniation with in patients aged over 18 years with:

- Pain and/or neurological signs including sciatica in a concordant distribution.
- Radiological evidence of lumbar disk herniation.

Exclusion criteria for selecting patients for endoscopic discectomy using TESSY's technique included multilevel degenerative disease with concomitant disk herniation, pathological fractures with disk herniation, recurrent disk herniation discitis and cauda equina syndrome. In this study we excluded patients who underwent endoscopic discectomy but were converted intraoperatively to microdiscectomy.

The diagnosis and level of the lumbar disk herniation were confirmed using MRI (Fig. 1). The type of lumbar disk herniation was rated as midline, paramidline, foraminal or far lateral with documentation of nerve root compression causing the symptoms. All patients considered suitable for surgical intervention were provided with the option of an endoscopic discectomy. The size of the disk herniation was not a reason for not offering an endoscopic approach. All studied patients were electively admitted for the procedure.

The surgical approach used for all our patients was a lateral transforaminal endoscopic discectomy using the TESSYS technique with the patient placed in the lateral decubitus position. Endoscopic approach was determined from the midline and they were 8–10 cm lateral from midline for L3/4, 10–12 cm for L4/L5 and 12–14 cm for L5/S1. A 3 step guide wire concept was used under X ray guidance to gain access to the disk space. Rigid tissue expanders were then introduced following the trajectory of the guide wire and also under X ray guidance (average six X rays). The endoscope was then introduced and discectomy performed under full endoscopic guidance (Figs. 2 and 3). No bone was removed during the operation. A final endoscopic check was performed to ensure that the nerve roots were free. All patients were operated on using local anesthetic.

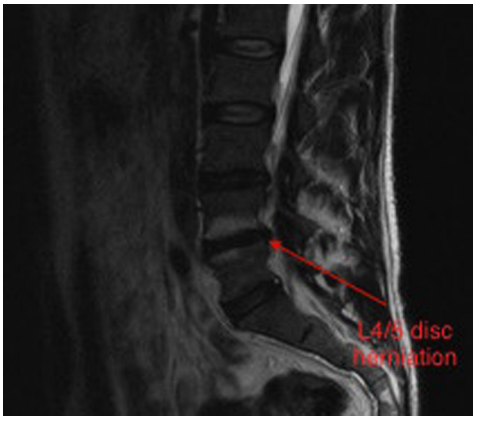


**Fig. 1.** A T2 saggital MRI showing a L4/5 prolapse that was considered suitable for the TESSY's procedure (arrow denotes intervertebral disk herniation).

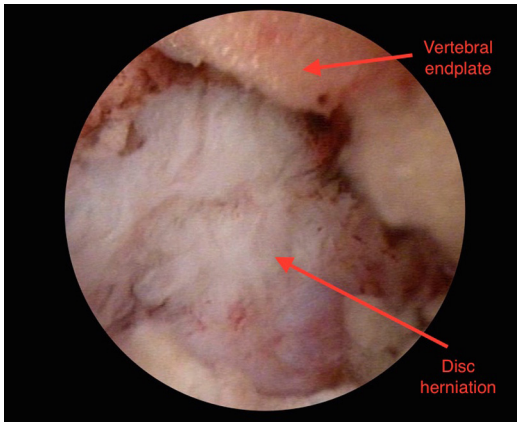


**Fig. 2.** Annotated photograph showing the endoscopic view of the disk herniation prior to discectomy

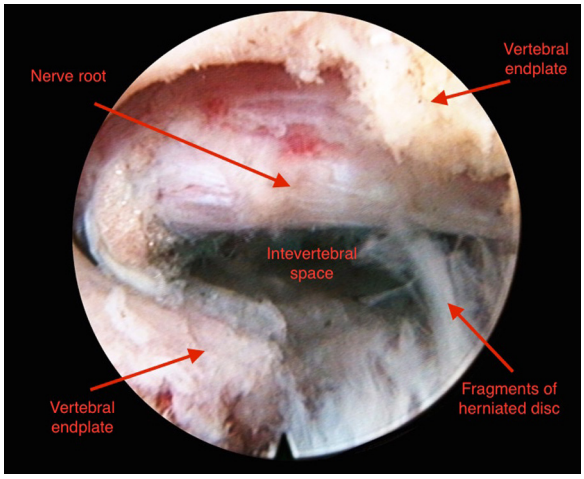


**Fig. 3.** Annotated photograph showing the endoscopic view during discectomy.

All patients had either telephone follow up or a clinic appointment within two weeks post operatively and were reviewed again at three and six months. This was carried out by the surgical team performing the operation. We used the VAS and time to return to normal activities of daily living to assess post operative recovery.

## 3. Results

A total of 201 consecutive patients were operated on between 2011 and 2013 with a mean age of 41 years (range 23–76 years). The male to female ratio was 1.3:1.0 and the mean duration from onset of symptoms to operation was 5.5 months. Pre operatively, all patients had sciatica and back pain, 87% of patients had paresthesia and 3% of patients had weakness in a myotomal distribution. In our study transforaminal herniations accounted for 55% of cases while midline and lateral disk herniations were less frequent and accounted for only 32% of cases. Over 50% of patients who underwent endoscopic discectomy had a disk herniation at the L4/5 level whereas disk herniations at L2/3 and L3/4 accounted for only 16% (Fig. 4). Approximately 30% of patients in our cohort had an L5/S1 disk herniation (Fig. 4).

Ten patients (5%) were lost to follow up. Of the remaining patients, 90% had an inpatient stay of less than 10 h. 30% of patients were discharged $\leq$4 h post operatively, 65% were discharged between 4 and 7 h post operatively (Fig. 5). 5% stayed in

Download English Version:

https://daneshyari.com/en/article/3039804

Download Persian Version:

https://daneshyari.com/article/3039804

Daneshyari.com