Lumbar microdiscectomy

- Reoperation Rates After Lumbar Discectomy in Pediatric Patients
- When can lumbar fusion be considered appropriate in the treatment of recurrent lumbar disc herniation? A systematic review and meta-analysis
- Uniportal Endoscopic Microdiscectomy Is an Effective Treatment Option for Far-Lateral Lumbar Disk Herniations
- Radiological and Patient-Derived Predictors for Recurrent Lumbar Disc Herniation After Minimally Invasive Tubular Discectomy: A Single Center Analysis of 404 Patients
- Dorsal epidural disc migration-MRI characteristics and surgical microdiscectomy treatment: Case report and review of the literature
- Comparison of Dexmedetomidine and Remifentanil on Adropin Expression in Unilateral Lumbar Microdiscectomy: A Prospective Active Controlled Randomized Trial Study
- A Retrospective Study of Lumbar Disk Herniation: An Analysis of Clinical Cases and Treatment Plans
- Effects of revision lumbar microdiscectomy and scarectomy versus scarectomy micro-surgery alone in pain perception: a retrospective pilot study

The introduction of microsurgical techniques in 1977 and 1978 was introduced for spinal surgery by the work of the famous neurosurgeon Mahmut Gazi Yasargil [1] and Wolfhard Caspar [2] and so-called microdiscectomy was introduced and represented an important evolution in lumbar disc surgery.

Technique

1. position: prone

2. equipment: microscope (if used), minimally invasive retractors (if used)

3. consent (in lay terms for the patient—not all-inclusive):

a) procedure: through the back to go between the bones and remove the piece of disc that is pressing on the nerve(s)

b) alternatives:nonsurgical management

c) complications: usual spine surgery complications, plus the disc can herniate again in the same place in ≈ 6% of cases, it is possible that a fragment of the disc can be missed at the time of surgery, there might not be the amount of pain relief desired (back pain does not respond as well to surgery as nerve-root pain).

In conjunction with the traditional discectomy, a laminotomy is often involved to permit access to the intervertebral disc. In this procedure, a small piece of bone (the lamina) is removed from the affected vertebra, allowing the surgeon to better see and access the area of disc herniation.

Outcome

The effectiveness and safety of single-level microdiscectomy are similar in adolescents and the adult population at 1-year follow-up [3].

The clinical outcome of minimally invasive tubular microdiscectomy is comparable to the reported success rates of other minimally invasive techniques. The dural tear rate is not associated to higher morbidity or worse outcome. The technique is an equally effective and safe treatment option for recurrent LDH [4].

Complications

see Lumbar discectomy complications.

Prospective observational cohort studies

A study explores the prognostic factors in patients undergoing lumbar microdiscectomy, which could help identify those at higher risk of surgical failure.

Prospective analysis of patients treated with lumbar microdiscectomy (n = 52) and healthy control subjects (n = 45) in a single tertiary centre. Follow up of 12 and 24 months after surgery, with radicular and lumbar pain evaluation according to the Visual Analogue Scale (VAS) and Oswestry Disability Index (ODI). Comparison of several objective spinal biomechanic factors, measured by a single experienced radiologist. Assessment of spinal sagittal balance as a prognostic factor after lumbar discectomy.

Compared to healthy individuals, patients with symptomatic lumbar disc herniation showed lower thoracic kyphosis (39.03 vs. 34.42° p = 0.034), lower thoraco-lumbar transition T10-L2 angulation (6.79 vs. 2.08° p = 0.005), lower lumbar lordosis (59.54 vs. 48.36° p < 0.001) and lumbo-sacral angulation L4-S1 (40.20 vs. 29.16° p < 0.001), lower pelvic incidence (54.71vs 49.86° p = 0.014) and lower sacral slope (42.07 vs. 33.34° p < 0.001). Sagittal balance (SVA) was negative in healthy subjects -3.09 mm and positive lumbar-disc patients 15.04 (p = 0.013). Noteworthy, the radicular and lumbar pain and disability outcomes 12 and 24 months after surgery were significantly better in the group with normal sagittal balance (ODI 14.52 vs. 40.06 p < 0.001; radicular VAS 2.74 vs. 5.58 p < 0.001; lumbar VAS 3.61 vs. 4.06 p < 0.001).

Lumbar degenerative disc disease represents a major burden for healthcare systems; thus, its management is determinant. Lumbar discectomy shows overall positive results, with a significant reduction of pain and disability in the majority of cases. However, a subgroup of patients, still not well defined, may experience persistent pain after the intervention. The use of objective measurements of sagittal balance may help identify these patients for which simple discectomy may not suffice and contribute to treatment planification [5].

1)
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