

Annual Regional Anesthesia Acute Pain Medicine Meeting – May 2-5, 2013

**Hydrodiscectomy – a Percutaneous Technique to Treat Radicular Pain from
Contained Lateral Lumbar Disc Herniations**

Abstract

Stephanie Gianoukos MD*, Renee Pitts DO*, Frederic J Gerges MD **

* Pain fellow

** Assistant Professor of Anesthesiology, Tufts University School of Medicine

Program Director, Pain Medicine Fellowship

Medical Director, St Elizabeth's Pain Management Center

Pain Management Center, Department of Anesthesiology and Pain Medicine, Steward St Elizabeth's
Medical Center, Boston, MA, USA

Address correspondence to:

Frederic J Gerges, M.D

Medical Director, Pain Management Center

St Elizabeth's Medical Center

736 Cambridge Street

Boston, MA 02135

Phone: 617 789-3100

Fax: 617 789-2467

E-mail: frederic.gerges@steward.org

Percutaneous disc decompression (PDD) techniques are increasingly being offered to patients with contained disc herniations. They offer an alternative to minimally invasive spine surgery. Hydrodiscectomy (Hydrocision, North Billerica, MA, USA), specifically, employs a high-pressure water jet to simultaneously resect and remove nuclear material, while preserving the surrounding tissue. We present a patient who benefited greatly from this procedure with complete resolution of his radicular symptoms. Patient gave consent for this publication.

Case Report:

A 43-year-old otherwise healthy male, presented to our Pain clinic with low back pain radiating to his left posterior thigh, calf and sole of the foot. His pain was shooting,

5/10 on VAS scale, worse with coughing, walking or bending. He had undergone conservative therapy with NSAIDs, heat/ice, and physical therapy for three months, with minimal relief. On physical examination, he had a positive left Straight Leg Raise. Lumbar MRI showed L5-S1 moderate left lateral disc protrusion compressing the left L5 nerve root (Fig 1). He underwent four Lumbar Epidural Steroid Injections over six months with 80% reduction of his symptoms for only 3-4 weeks following each injection. At this point, he underwent a left-sided L5-S1 Hydrodiscectomy (Fig 2). At his 2 weeks follow-up, his back pain was 1/10 and the radiating pain to his leg had completely resolved.

Discussion:

Surgical approaches to disc decompression are accompanied by a number of damaging sequelae, such as annular incompetence, epidural fibrosis, and formation of scar tissue around the nerve. In addition, data have shown that the recurrence rate of lumbar disc herniation following Microdiscectomy is as high as 26%.¹

PDD aim to reduce intradiscal pressure in the nucleus and thereby create space for the contained herniated disc fragment to retract inwards. As a result, there is a reduction of nerve root compression, thus less radicular pain.

The goal of Hydrodiscectomy, specifically, includes pulverizing a quantifiable amount of disc material and removing it via an evacuation tube. Only a 4-mm annulotomy is required, through which 15% of the nucleus is removed. Advantages include: lack of nerve root manipulation, scar tissue formation, and epidural fibrosis. It is done under local anesthesia/sedation in an outpatient setting, with the ability to return to

work within one week. A recent report showed 94% short term improvement < 6 Month in lower back and radicular pain². We believe that Hydrodiscectomy bridges the gap between failed conservative therapy and Microdiscectomy for patients with contained lateral disc herniations causing unilateral radicular symptoms. However, well-designed, prospective case-controlled trials are needed to determine its long term efficacy and safety.

References:

- 1- Carragee EJ, *et al.* Clinical outcomes after lumbar discectomy for sciatica: the effects of fragment type and annular competence. *J Bone Joint Surg Am.* 2003; 85-A(1):102-8.
- 2- Hardenbrook MA, *et al.* Clinical Outcomes of Patients Treated with Percutaneous Hydrodiscectomy for Radiculopathy Secondary to Lumbar Herniated Nucleus Pulposus. *The Internet Journal of Spine Surgery.* 2013 Volume 7 Number 1.

Figure 1 – Lumbar MRI showing L5-S1 Lateral Disc Herniation Compressing the Exiting Left L5 Nerve

Root

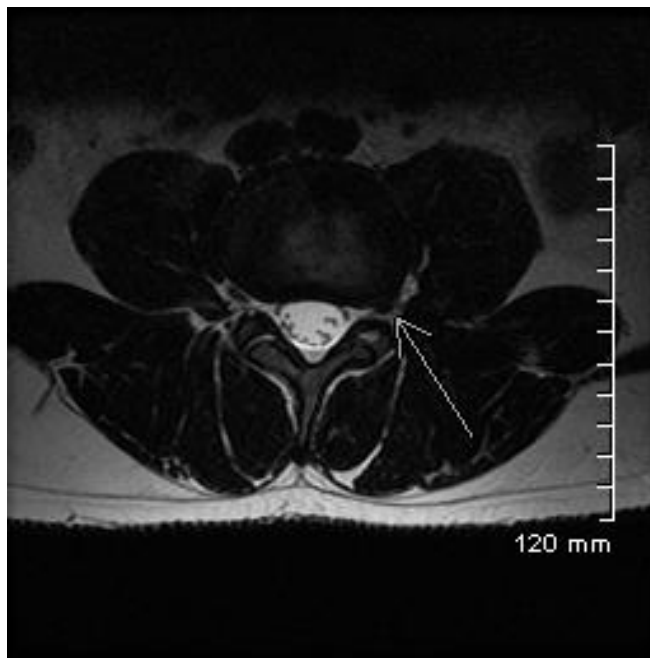


Figure 2 – Insertion of Resector via Percutaneous Access Cannula into the middle of the L5-S1 Intervertebral Disc

