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Preliminary Results of Patients Treated with Percutaneous Hydrodiscectomy for Radiculopathy Secondary to Herniated Nucleus Pulposus

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Background: Various minimally invasive Percutaneous procedures have evolved over the decades as alternatives to open microdiscectomy, the gold standard surgical treatment for patients with contained herniated nucleus pulposus that have failed conservative treatment.¹⁻⁵ A new technique, percutaneous hydrodiscectomy, uses a high velocity, non-thermal saline fluid jet through a cannulated system to mechanically remove disc material to reduce intradiscal pressure on the nerve root. The procedure is performed under local anesthesia with sedation with minimal complications, blood loss and tissue disruption.

Objective: To evaluate the clinical and radiographic outcomes of patients that had percutaneous hydrodiscectomy for radiculopathy secondary to herniated nucleus pulposus.

Methods: Retrospective chart review was conducted on consecutive patients that failed conservative management for radiculopathy secondary to subligamentous lumbar herniated nucleus pulposus and were treated with percutaneous hydrodiscectomy at a single lumbar level. An independent reviewer blinded to the clinical outcomes evaluated pre and post procedure magnetic resonance imaging studies.

Results: A total of 15 patients (73% male) with a mean age of 45 years underwent percutaneous hydrodiscectomy without complications. Fourteen patients (93%) had an improvement in back pain and radiculopathy; one patient did not have improvement in symptoms and required a spinal cord stimulator. Five patients that reported improved symptoms were treated with subsequent transforaminal epidural steroid injections; 2 aggravated by new events not related to the procedure and 3 for residual incisional pain that resolved. Mean VAS decreased significantly from 60 to 32 ($p=0.03$) and mean ODI significantly improved from 40% to 22% ($p=0.007$) at last follow-up.

Conclusions: These early preliminary results demonstrate percutaneous hydrodiscectomy is safe and effective in a select group of patients. Larger prospective controlled studies are warranted to validate the longterm benefits of this promising new technology.

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