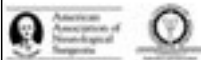


Hydrodiscectomy: A Novel Approach to Lumbar Microdiscectomy

Mitchell A. Hardenbrook, MD; Sharese White, MD; William Sukovich, MD
Bone and Joint Institute, Naval Medical Center Portsmouth, VA



Introduction

The recurrence of lumbar disc herniation and neurofibrosis after microdiscectomy is believed to be dependent on the size of the annulotomy and decreased nerve root manipulation respectfully. A modification of the traditional technique of lumbar microdiscectomy was developed at NMCP using a 4-millimeter cannulated system and fluid jet technology (Microresector, Hydrocision; Billerica, MA). The purpose of this study is to compare the outcomes of lumbar microdiscectomy performed at a single institution comparing the traditional technique to the modified cannula technique.

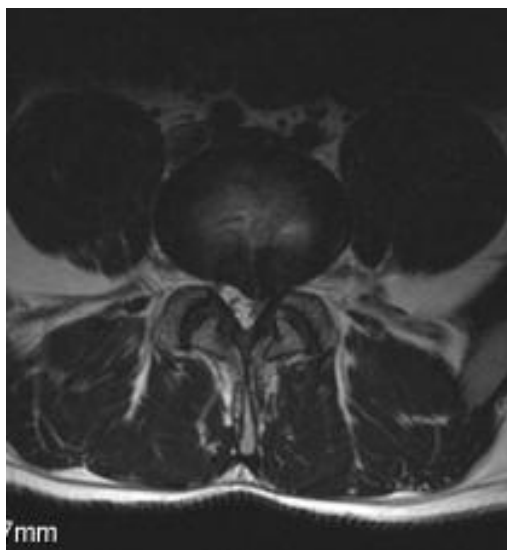
Methods

A retrospective review of patients who underwent lumbar microdiscectomy by two fellowship-trained, board-certified spine surgeons on the Orthopedic Spine service at NMCP from March 2005 and May 2006 was performed. One surgeon performed traditional microdiscectomy (Group A) while the other surgeon performed the modified cannula microdiscectomy (Group B).

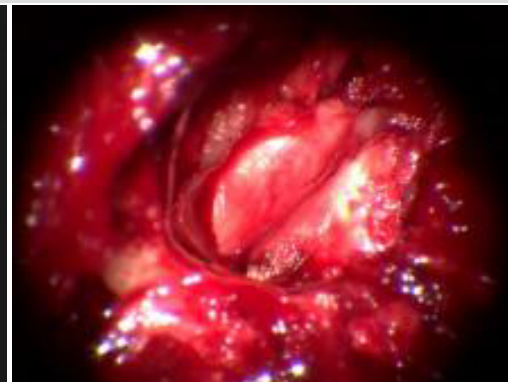
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preoperative sagittal image



preoperative axial image



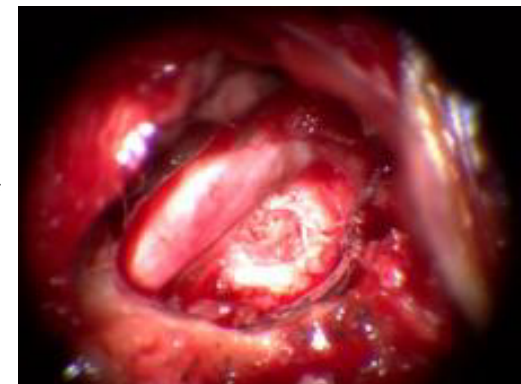
intraoperative herniation



Microresector cannula

Results

Thirteen of 34 patients in Group A with post-operative radicular symptoms (38.2%) had pain similar to their pre-operative pain at three-month follow up. Six of these 13 patients had recurrent disc herniation on MRI at the operative level (17.6%). One patient of 27 in Group B with post-operative radicular symptoms (2.8%) reported improvement in pain at 2-month follow-up. The difference in the rate of persistent leg pain and recurrent herniation between the two groups is statistically significant ($p < 0.025$).



Resulting annular defect

Conclusions

Utilizing new technology to decrease the manipulation of the nerve root and size of the annulotomy resulted in improvement of outcomes with respect to persistent radicular symptoms resulting from neurofibrosis and recurrent disc herniation at short-term follow-up.

Learning Objectives

Understand how smaller annulotomy results in decreased rate of recurrence.
Understand how decreased nerve manipulation decreases epidural fibrosis.
Perform microdiscectomy via a cannulated technique.