

Posterior Thoracic Discectomy Through a Hemilaminectomy Hemipediclectomy and Unilateral Facetectomy Approach, Facilitated Using a New High Speed Shielded Curved Device

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Introduction

The appropriate approach for surgical removal of thoracic disc herniations is controversial:

- The posterior approach has led to high rates of neurological deterioration due to spinal cord manipulation.
- The open and thoracoscopically assisted anterior approach entails a larger magnitude of surgery if open and is technically demanding if approached thoracoscopically.
- Approaching the thoracic disc posteriorly following unilateral facetectomy and pediclectomy was first described in 1995 but has failed to gain popularity due to unpredictable outcomes and complications.

The purpose of this study is to present a new technique for posterior thoracic discectomy following a hemilaminectomy, unilateral facetectomy and hemipediclectomy.

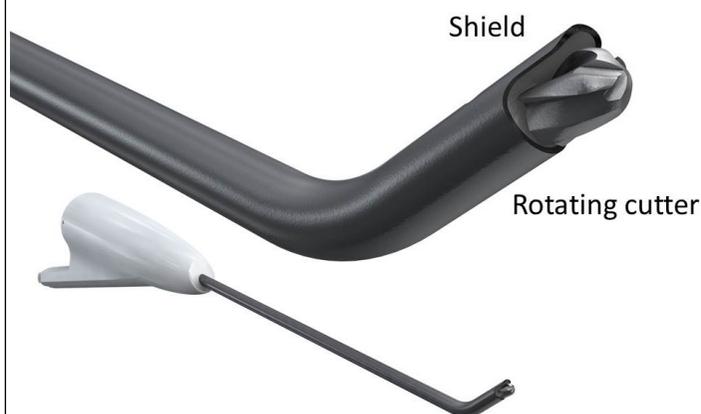
This approach is facilitated by using a high speed dorsally shielded curved drill-like device. The device is entered ventral to the dural sac, thus allowing removal of calcified and soft disc fragments without vigorous manual maneuvers and spinal cord manipulation.

Methods

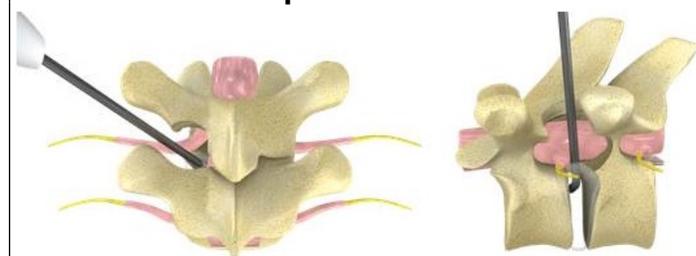
The side of maximal disc protrusion is approached through a hemilaminectomy, unilateral facetectomy and hemipediclectomy. The superior half of the pedicle is removed and the disc is transforaminally exposed. The disc excision is facilitated using the described device.

Six patients, presenting neurological deterioration and pyramidal signs, underwent posterior thoracic discectomy applying this approach. The treated levels were D3-4 (1), D5-6 (1), D11-12 (3) and D12-L1 (1).

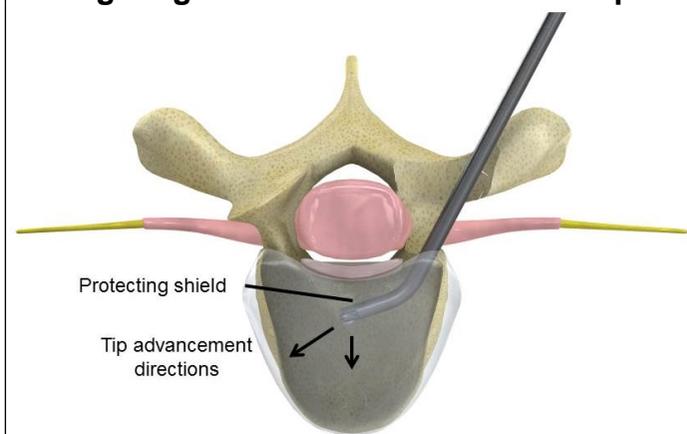
The curved-tip drill-like device (bottom) and expanded view of the distal tip (top)



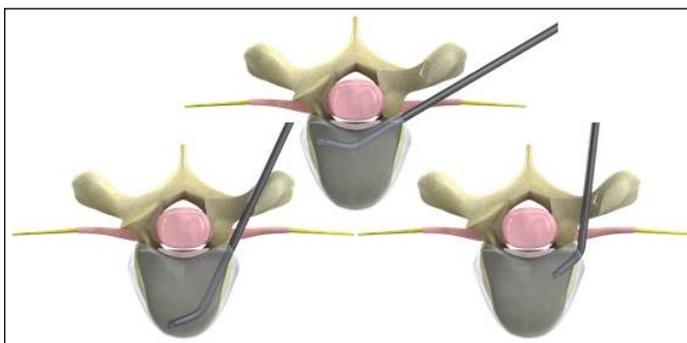
Posterior (left) and lateral (right) views of the procedure



Navigating the device inside the disc space



Intra-operative fluoroscopic image of the curved-tip drill-like device inside the disc space



Results

All procedures were uneventful. The curved configuration of the device allowed access to the disc space without rib head removal and extending the approach laterally. Remaining transforaminal hemipediclectomy allowed better visualization and working space. Continuous irrigation of the device head precluded thermal damage to the tissues. Pedicle fixation and fusion concluded all procedures. No dural tears were observed and none of the patients deteriorated neurologically.

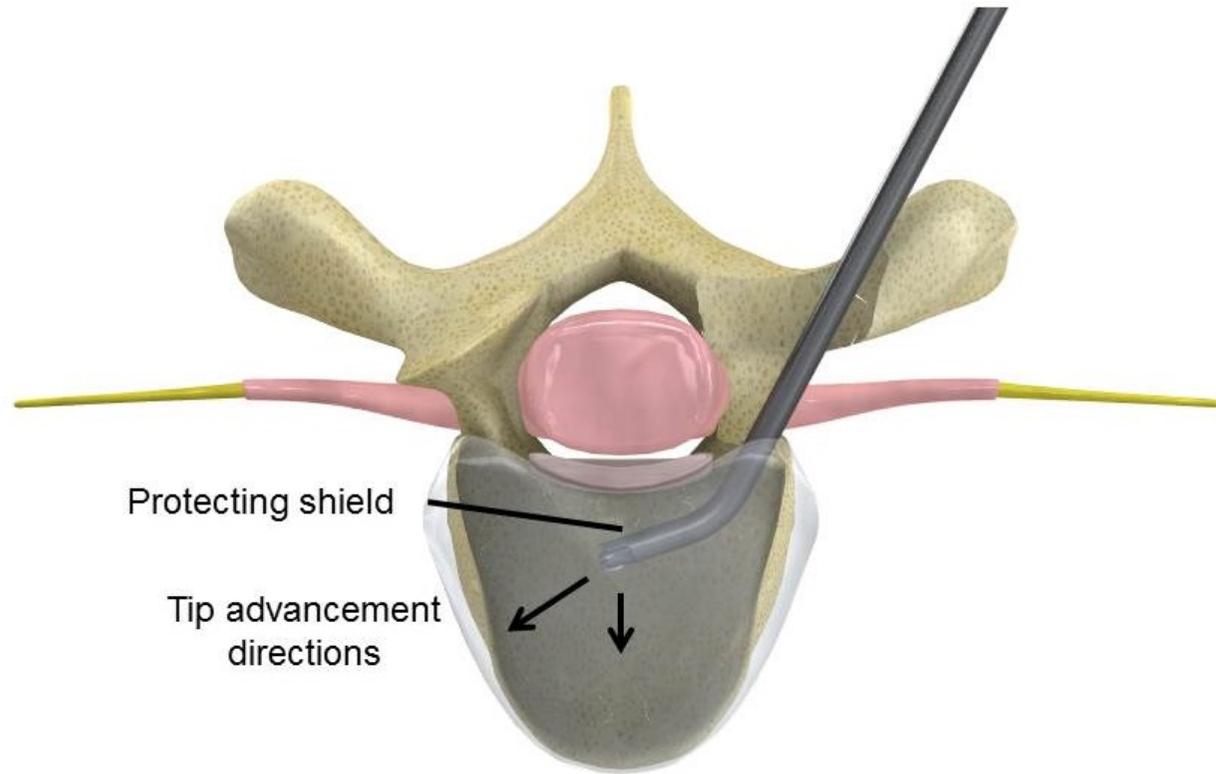
Conclusions

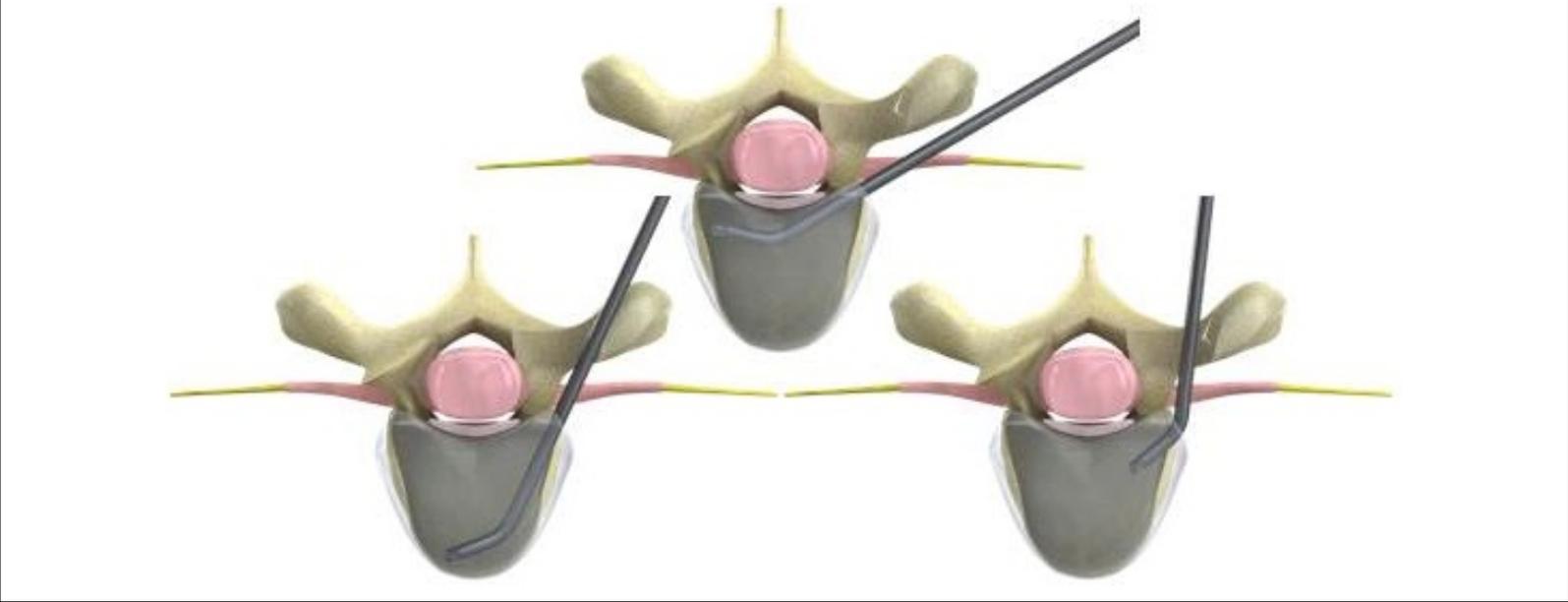
We believe that this approach allows for a smaller, shorter and neurologically safer procedure for thoracic disc herniation removal.

The curved-tip drill-like device (bottom) and expanded view of the distal tip (top)



Navigating the device inside the disc space





Posterior (left) and lateral (right) views of the procedure



Intra-operative fluoroscopic image of the curved-tip drill-like device inside the disc space

