



Intervertebral Disc Herniation

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Intervertebral disc herniation is a common cause of axial spine and limb pain. The size of the disc herniation does not often correlate with the symptoms. Various degrees of disc herniation can be classified as, disc bulge (Figure 1), disc protrusion (Figure 2), disc extrusion (Figure 3) and disc sequestration (Figure 4). It is unclear why disc herniation manifests with severe symptoms in some patients and minimal to none in

others. The natural history of acute disc herniation, contribution of inflammation towards producing symptoms, and the role of periradicular steroid injections is discussed below.

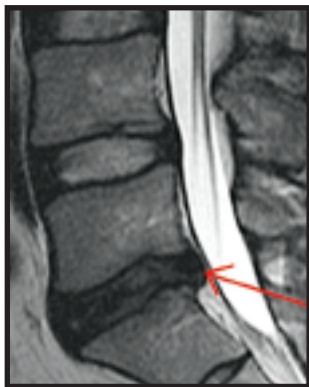


Figure 1. Disc bulge

Compression of a nerve root is likely to produce pain. However, some individuals with severe compression may present with neurological deficits without coexisting pain. Such observations have led to a greater focus on the role of inflammation in symptomatic herniated discs. There is now significant evidence that demonstrates the presence of inflammation following disc herniation. It has been observed that the contents of nucleus pulposus are intrinsically irritant and are also

potent inducers of inflammation. Inflammatory response has been shown to positively correlate with disc resorption and this is likely to be a normal physiological reaction.

A large majority of disc herniations tend to resolve. Interestingly, the larger uncontained disc herniations are more likely to recede.

However, it is observed that even minimal reduction in the size of herniated discs can lead to successful outcomes. In an observational study of 36 herniated discs it was seen that, 56% of the contained, 79% of the non-contained, and 100% of sequestered disc herniations decreased in size. Only one patient in each of the contained and non-contained groups showed an increase in size. However, resolution of symptoms (no pain or mild pain) was comparable in the contained and non-contained groups at 72% & 79%. (1)



Figure 3. Disc extrusion

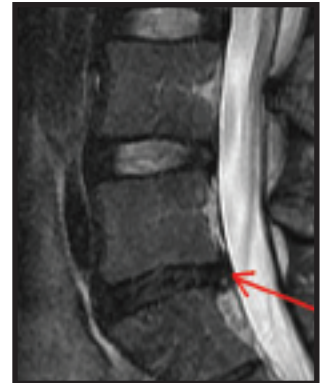


Figure 2. Disc protrusion

Periradicular and epidural steroid injections can bring about profound pain relief in a patient with excruciating pain secondary to disc herniation (2); this additionally supports the role of inflammation as the cause of pain.

CONTINUED ON BACK

WE HAVE EXPANDED TO THE SOUTH SHORE!

On June 1st, the Spine and Pain Institute of New England opened its third location in Duxbury, Massachusetts. We are a group of 4 pain specialists who are fellowship trained in Pain Management and board certified in Anesthesiology and Pain Medicine. We specialize in minimally invasive treatments for chronic back and neck pain, and also treat a variety of chronic pain disorders. Two of our physicians, Steven Barna, MD and Aneesh Singla, MD, MPH are staffing the Duxbury location and look forward to providing quality care in the community.



Figure 4.
Disc sequestration

The concern that this may inhibit the beneficial inflammatory response was allayed in a subsequent randomized control trial of periradicular steroids that demonstrated no difference in resorption of herniation. Furthermore, on subgroup analysis, the steroid group tended to demonstrate faster resorption of herniation (3).

CONCLUSION

There is an increasing focus on the inflammatory component as the cause of pain associated with disc herniation. The larger and more exposed the disc, the more likely it is to regress. Small changes in disc size can bring about resolution of symptoms. Even though there is evidence for resolution, severe pain and neurological deficits should be carefully followed and may require operative intervention. Periradicular steroids can provide meaningful pain relief allowing for continuation of conservative therapies and allowing the body time to heal. They do not adversely affect the phenomenon of disc herniation resolution and subgroup analysis suggests a tendency for faster resorption of herniation in the steroid group. In the future, stronger anti-inflammatory agents such as TNF alpha antagonist; factors stimulating resorption, such as fibroblast growth factor, and vascular endothelial growth factor (VEGF) may be introduced. The effects of these agents will need to be carefully studied.

References:

1. Ahn SH, Ahn MW, Byun WM. Effect of the transligamentous extension of lumbar disc herniations on their regression and the clinical outcome of sciatica. *Spine* 2000 ; 25: 475-802.
2. Vad V, Bhat A, Lutz G, Camissa F. Transforaminal Epidural Steroid Injections in lumbosacral radiculopathy. A prospective randomized study. *Spine* 2002; 27: 11-16.
3. Autio RA et al. Effect of periradicular methylprednisolone on spontaneous resorption of intervertebral disc herniations. *Spine* 2004 Aug 1; 29:1601-7.

INTERVENTIONAL PROCEDURES

- Diagnostic and therapeutic injections
- Spinal cord stimulators
- Radiofrequency lesioning
- Percutaneous disc decompression
- Discography
- Botox injections for pain
- IDET
- Epidural steroid injections
- Facet joint injections
- Vertebroplasty
- Epidural lysis of adhesions
- Sacroiliac joint injection
- Sympathetic nerve blocks
- Selective nerve injections

OUR LOCATIONS

