Topic 2

Diffusing Deceptive Rhetoric from Insurance Companies

As stated in topic 1, when insurance companies are settling cases, they will deploy deceptive rhetoric to mitigate or reduce settlement offers based on your demand letters. Today, I will discuss topic #2 on how to refute another one of their most utilized topics. This rhetoric is utilized when MRIs are obtained in an injury/accident case which show disc herniations/protrusions. And they claim that these disc findings were all pre-existing and are not a consequence of the accident/crash. Their deceptive rhetoric goes like this:

All Disc Bulges/ Herniations on MRI are Pre-Existing

Background:

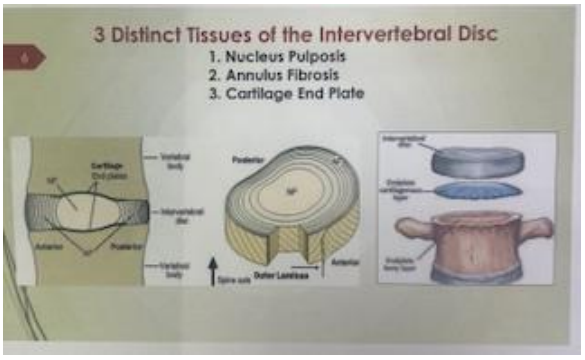
Disc definitions

Unfortunately, there are a lot of different colloquial terms used for disc problems which create confusion amongst the public as well as the medical profession. Consequently, the three major societies including the American Society of Neuroradiology, North American Spine Society, and the American Society of Spine Radiology came together in 2014 to standardize disc definitions. These were published by Fardon, Dohring, and Rothman in the November issue of the Spine Journal in 2014. I will use these standardized disc definitions as described below.

Normal disc

A normal disc is composed of an outer fibrous ring (annulus fibrosis) which surrounds an inner gel like center, the nucleus pulposus which is attached to a cartilage end plate. **A normal disc is wholly within the boundaries of the disc space, as defined, craniad and caudad by the vertebral body end plates and peripherally by the planes of the outer edges of the vertebral apophyses, exclusive of osteophytes**.

The annulus fibrosis consists of several layers (laminae) of fibrocartilage made-up of both type 1 and type 2 collagen. The nucleus pulposus contains loose fibers suspended in a mucoprotein gel. The nucleus of the disc acts as a shock absorber, absorbing the impact of the body's activities and keeping the two vertebrae separated. Importantly, the discs are vascularized only until puberty at which time they depend on osmosis to get the nutrients they need to survive and maintain health.



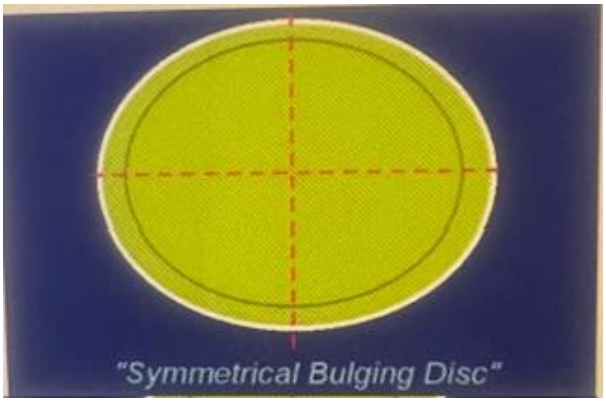
Annular Fissures

Annular Fissures are separations between the angular fibers or from the angular fiber attachments to the vertebrae. There are three types of fissures as described below:

1. Concentric Annular Fissure
2. Transverse Annual Fissure
3. Radial Annual Fissure-a Radial Fissure is a vertically, horizontally, or obliquely oriented separation of annular fibers that extend from the nucleus peripherally to or through the annulus. **This type of fissure is directly related to trauma.**

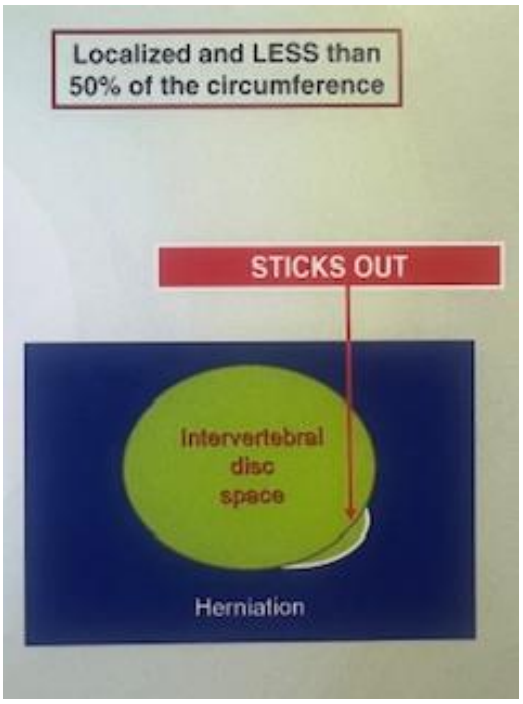
Disc Bulge-Disc Degeneration

The presence of disc tissue extending beyond the edges of the ring apophyses, throughout the circumference of the disc, is called bulging and is not considered a form of herniation. This is a form of degeneration and is not traumatic in origin. The extension of the disc material Is circular and caused by the weakening of the annulus fibrosis. This is similar to an ice cream sandwich that is starting to soften and when pushing it the ice cream comes out circumferentially. Occasionally, there is asymmetric bulging of disc tissue greater than 25% of the disc circumference often seen as an adaptation to adjacent deformity, is, also not a form of herniation.

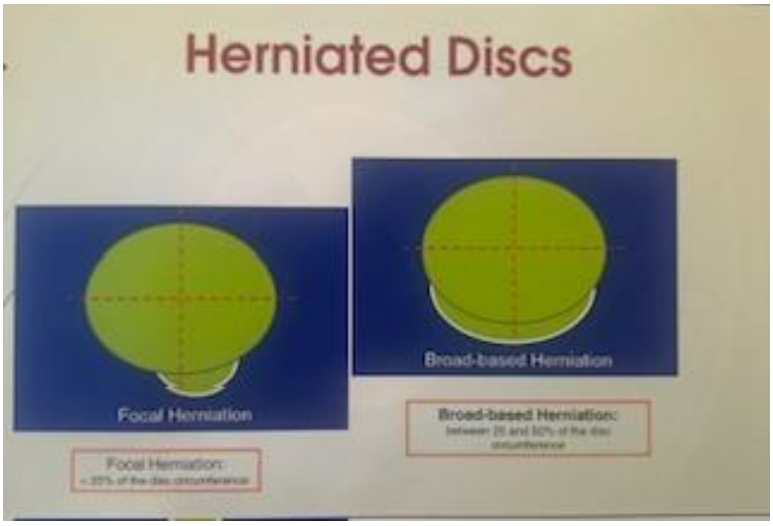


Herniated disc

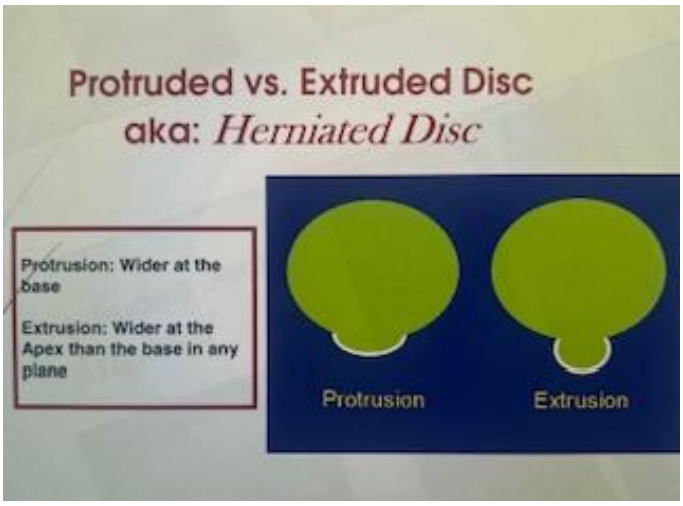
Herniation is broadly defined as a localized or focal displacement of disc material beyond the limits of the intervertebral disc space. The inside material (nucleus) must stick out from a tear in the annulus.



A **focal herniation** (sometimes called a protrusion) Is less than 25% of the disc circumference. A **broad-based** herniation is between 25 and 50% of the disc circumference.



Furthermore, herniated discs may be classified as **Protrusion or Extrusion** based on the shape of the displaced material. A **Protrusion** is when the base is wider than the apex of the herniation. An **Extrusion** is when the herniation is wider at the apex than the base in any plane.



Sequestration

Sequestration is when the displaced disc material has lost continuity completely with the parent disc. Thus, a sequestered extruded disc is completely unattached.

Migration

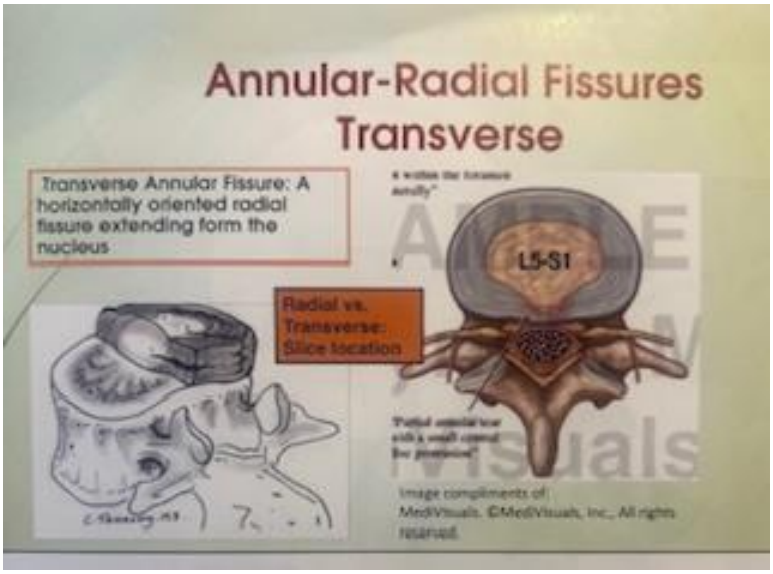
Migration is in which direction the displacement of the disc material is from the site of extrusion. The migrated extruded disc is still attached to the parent disc. Usually this is expressed as migrated **superiorly or inferiorly** to the disc involved.

Summary of disc definitions

First and foremost, a degenerative disc and disc bulge are essentially synonymous. **Degenerative changes in the spine are not traumatic** in nature and can include any or all of the following:

desiccation (drying out of the disc), narrowing of the disc, diffuse bulging of the annulus beyond the disc space, osteophytes of the vertebral apophyses, intradiscal gas, and sclerosis of the end plates. However, **if you have a significant trauma, you can have a disc herniate focally from the bulging disc and this can be seen on MRI (see # 6 of age dating discs).**

On the other hand, **a herniated disc is due to trauma causing a radial annular tear/fissure which causes a localized or focal displacement of disc material beyond the limits of the intervertebral disc space.** Whereas a disc bulge is smooth and circumferential, a herniated or protruded disc sticks out when the disc material escapes the nucleus pulposus via the radial tear/fissure. This is the arbiter between non traumatic (disc bulge/degeneration) and traumatic (herniated disc). So how do you respond to the carrier's deceptive rhetoric that all disc bulges/ herniations on MRI are pre-existent?



Discussion/ Solution

We now have over 19 ways to age date herniations/vertebrae to prove that there was trauma caused by the accident/crash. We can demonstrate within a reasonable degree of medical probability if the accident was the cause of the bodily injuries which have led to the persistent functional impairment and loss. Here are some of the ways we can age date herniations and demonstratively show that the accident caused the patients/clients persistent functional loss. Below are some of the most common forms of age dating we utilize:

1. Causality and herniations: if the patient **had no radiating pain before the accident and then radiating pain after the accident correspondent with a herniated disc that equals causality**.
2. If there is a focal high/bright signal (in the annulus) utilizing a T-II sequence on MRI, this confirms acute injury consistent with a radial fissure/herniation.
3. Bone inflammation: we can visualize within 6 to 8 weeks after the injury/crash if there are inflammatory and edematous changes in the subchondral endplates. **This can be shown**

on MRI as Modic I changes. We use a special MRI sequence (Stir Sequence=Short Tau Inversion Radiant) which suppresses fat and shows high signal (bright) with inflammation and edema consistent with a recent injury at the vertebral end plates.

4. We look at the **disc height of the herniated disc which is the arbiter of a new versus old herniation.** If there is a herniation in a vertebra with ample disc height, we conclude that this herniation is current
5. Wolff's Law states that a bone in a healthy person or animal will adapt to loads under which it is placed. It takes six months to create bone based on the Piezoelectric effect after trauma. **Thus, if there are no osteophytes or disc degeneration in a disc with a herniation, we know that this is a new herniation. Consequently, it is important to obtain an MRI within six months of the motor vehicle accident/crash as bone spurs/thinning discs may start developing at six months.**
6. Acute on chronic injuries, aka: a new aggravation. This can be seen on MRI when the disc material sticks out further than the osteophyte formation (from degenerative changes) indicative of an acute herniation. Indeed, degeneration of the annulus is a risk factor for traumatic herniation. It takes less force as the annulus is thin and more fragile than a normal disc.

Furthermore, we are now able to colorize herniations on MRIs which allow juries and judges to demonstratively visualize the age dating methods above. If you have any further questions, please feel free to contact me.

References

1. Fardon D.,Dohring E.,Gabriel Rothman S., Lumbar disc nomenclature: version 2.0 (2014) The Spine Journal (14) P2525-2545