

Herniated Disc

Introduction

A herniated disc is a fragment of the disc nucleus which is pushed out of the outer disc margin, into the spinal canal through a tear or "rupture." In the herniated disc's new position, it presses on spinal nerves, producing pain down the accompanying leg. This produces a sharp, severe pain down the entire leg and into the foot. The spinal canal has limited space which is inadequate for the spinal nerve and the displaced herniated disc fragment.

The compression and subsequent inflammation is directly responsible for the pain one feels down the leg, termed "sciatica." The direct compression of the nerve may produce weakness in the leg or foot in a specific pattern, depending upon which spinal nerve is compressed.

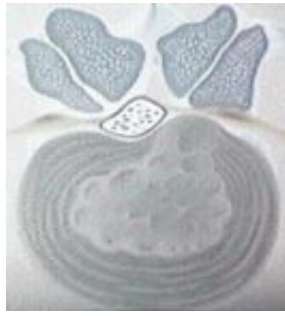
A herniated disc is a definite displaced fragment of nucleus pushed out through a tear in the outer layer of the disc (annulus). For a disc to become herniated, it typically is in an early stage of degeneration. A person who has sustained one disc herniation is statistically at increased risk for experiencing another. There is an approximate 5% rate of recurrent disc herniation at the same level, and a lesser incidence of new disc herniation at another level. Factors involved may be weight related level of physical conditioning, work or behavioral habits. Since these factors are typically the same after surgery, there is an increased risk of herniated disc in this group, over the general population.

However, the good news is that the majority of disc herniations (90%) do not require surgery, and will resolve with conservative, nonoperative treatment, without significant long-term sequelae. Unfortunately, approximately 5% of patients with herniated, degenerated discs will go on to experience symptomatic or severe and incapacitating low back pain which significantly affects their life activities and work. This unfortunate result is not always specifically the result of surgery. The causes of this unremitting pain are not always clear or agreed on, and may be from several sources. When this occurs, the prognosis is poor for returning to normal life activities regardless of age.

After a successful laminotomy and discectomy, 80-85% of patients do extremely well and are able to return to their normal job in approximately six weeks time. There may be small permanent patches of numbness in the involved leg which, fortunately, are not disabling. Flare-ups or exacerbations of less severe and less significant sciatic type pain may develop in the future (usually on an infrequent basis).

Anatomy

This view looking down the spinal canal (horizontal, axial view or CT scan view) to show how a herniated or bulging disc can irritate the nerve. In this situation there is a portion of the annulus that has isolated itself from the rest of the disc and all or part of its displaced well out into the canal.



This situation is the one that responds best surgery. It may not respond to conservative therapy, including manipulation and even chemonucleolysis.

Symptoms

Typically, a herniated disc is preceded by an episode of low back pain or a long history of intermittent episodes of low back pain. However, when the nucleus actually herniates out through the annulus and compresses the spinal nerve, then the pain typically changes from back pain to sciatica. Sciatica is sharp pain which radiates from the low back area down through the leg, into the foot in a characteristic pattern, depending upon the spinal nerve affected. This pain often is described as sharp, electric shock-like, severe with standing, walking or sitting. The pain is frequently relieved by lying down or utilizing a lumbar support chair or insert.

There also may be resulting leg muscle weakness from a compromise of the spinal nerve affected. Most commonly, the back pain has resolved by the time sciatica develops, or there is minimal back pain compared to the severe leg pain. The location of the leg pain is usually so specific that the doctor can identify the disc level which is herniated. In addition to leg muscle weakness, there may also be knee or ankle reflex loss.

Diagnosis

X-rays of the low back area are obtained to search for unusual causes of leg pain, i.e. tumors, infections, fractures, etc. An MRI of the lumbar spine area is obtained, as this will demonstrate the degree of disc degeneration at the herniated level, in addition to the condition of other lumbar discs in the low back.

A quality MRI will accurately demonstrate the size of the spinal canal and most other medically significant factors. A nerve test may be indicated to demonstrate whether there is ongoing nerve damage, or if the nerves are in a state of healing a past insult, or whether there is another site of nerve compression.

Treatment

The initial treatment for a herniated disc is usually conservative, i.e. nonoperative. One usually begins with resting the low back area, maintaining a comfortable posture and painless activity level for a few days to several weeks. This is in order to allow the spinal nerve inflammation to quiet down and resolve.

A herniated disc is frequently aided by non-steroidal anti-inflammatory medication such as Motrin, Voltaren, Naprosyn, Lodine, Feldene, Clinoril, Tolectin, Dolobid, Advil or Nuprin. An epidural

steroid injection may be performed utilizing a spinal needle under x-ray guidance to direct the medication to the exact level of the disc herniation.

Physical therapy may be beneficial, under the direction of a physical therapist. The therapist will perform an in-depth evaluation; this information, combined with a physician's diagnosis, will dictate a treatment based on successful physical therapy treatment modalities which have proven beneficial for herniated disc patients. These may include traction, ultrasound, electrical muscle stimulation, etc., to relax the muscles which are in spasm and secondarily inflamed from the compressed spinal nerve. Pain medication and muscle relaxing medications may also be beneficial to help physical therapy or other conservative, non-operative treatment to relieve the pain while the spinal nerve root inflammation resolves and the body heals itself. If these conservative treatments are not successful and the pain is still severe or muscle weakness is increasing, then surgery is necessary. Surgery may be in the form of a percutaneous discectomy if the disc herniation is small and not a completely extruded disc fragment. Selective Endoscopic Discectomy (percutaneous discectomy) can usually be utilized to remove the herniated disc. This procedure is performed under local anesthesia. If there is a completely extruded disc fragment and that fragment has not migrated significantly away from the disc space then the fragment often can be removed endoscopically as well.

If the herniation is large, or is a "free fragment" that has migrated more than 1 cm away from the disc space level then a microlaminotomy with disc excision may be necessary. A microlaminotomy requires one to two days of hospitalization after the surgery for the wound to heal and postoperative physical therapy to begin. The sciatic pain down the leg should be resolved immediately after the surgery. However, there will be some discomfort in the low back area where the operation is performed, lasting several days to a couple of weeks. This is controlled with pain medication.