HERNIATED LUMBAR DISC

A **spinal disc herniation**, incorrectly called a "**slipped disc**", is a medical condition affecting the spine, in which a tear in the outer, fibrous ring (*annulus fibrosus*) of an intervertebral disc allows the soft, central portion (*nucleus pulposus*) to herniate.

It is normally a further development of a previously existing disc protrusion, a condition in which the outermost layers of the *annulus fibrosus* are still intact, but can bulge when the disc is under pressure.

Frequency

Disc herniation can occur in any disc in the spine, but the two most common forms are the cervical disc herniation and the lumbar disc herniation. The latter is the most common, causing lower back pain and often leg pain as well, in which case it is commonly referred to as sciatica.

Lumbar disc herniation occurs 15 times more often than cervical disc herniation, and it is one of the most common causes of lower back pain. The cervical discs are affected 8% of the time and the upper-to-mid-back (thoracic) discs only 1 - 2% of the time.[1]

The following locations have no discs and are therefore exempt from the risk of disc herniation: the upper two cervical intervertebral spaces, the sacrum, and the coccyx.

Most disc herniations occur when a person is in their thirties or forties when the nucleus pulposus is still a gelatin-like substance. With age the nucleus pulposus changes (dries out) and the risk of herniation is greatly reduced. After age 50 or 60, osteoarthritic degeneration or spinal stenosis are more likely causes of low back pain or leg pain.

Lumbar disc herniation

Lumbar disc herniations occur in the lower back, most often between the fourth and fifth lumbar vertebral bodies or between the fifth and the sacrum. Symptoms can affect the lower back, buttocks, thigh, and may radiate into the foot and/or toe. The sciatic nerve is the most commonly affected nerve, causing symptoms of sciatica. The femoral nerve can also be affected.[4] Can cause the patient to experience a numb, tingling feeling throughout one or both legs and even feet.

Causes

Causes of a disc herniation can include general wear and tear on the disc over time, repetitive movements, stress on the disc that occurs while twisting and lifting, genomic susceptibility, or other injuries.

Symptoms

The chief complaint for spinal disc herniation is leg pain greater than lower back pain, symptoms of a herniated disc can vary depending on the location of the herniation and the types of soft tissue that become involved. They can range from little or no pain if the disc is the only tissue injured to severe

and unrelenting neck or low back pain that will radiate into the regions served by an affected nerve root when it is irritated or impinged by the herniated material. Other symptoms may include sensory changes such as numbness, tingling, muscular weakness, paralysis, paresthesia, and affection of reflexes. If the herniated disk is of the Lumbar region the patient may also experince sciatica due to irritation of the sciatic nerve. Unlike a pulsating pain or pain that comes and goes, which can be caused by muscle spasm, pain from a herniated disc is usually continuous.

It is possible to have a herniated disc without any pain or noticeable symptoms, depending on its location. If the extruded nucleus pulposus material doesn't press on soft tissues or nerves, it may not cause any symptoms. It has been estimated that as many as 50% of the population have focal herniated discs in their cervical region that do not cause noticeable symptoms.[5]

Typically, symptoms are experienced only on one side of the body. If the prolapse is very large and presses on the spinal cord or the cauda equina in the lumbar region, affection of both sides of the body may occur, often with serious consequences.

Diagnosis

Diagnosis is made by a practitioner based on the history, symptoms, and physical examination. At some point in the evaluation, tests may be performed to confirm or rule out other causes of symptoms such as spondylolisthesis, degeneration, tumors, metastases and space-occupying lesions as well as evaluate the efficacy of potential treatment options. These tests may include the following:

- **X-ray**: Although traditional plain X-rays are limited in their ability to image soft tissues such as discs, muscles, and nerves, they are still used to confirm or exclude other possibilities such as tumors, infections, fractures, etc.. In spite of these limitations, X-ray can still play a relatively inexpensive role in confirming the suspicion of the presence of a herniated disc. If a suspicion is thus strengthened, other methods may be used to provide final confirmation.
- **Computed tomography scan**: A diagnostic image created after a computer reads x-rays. It can show the shape and size of the spinal canal, its contents, and the structures around it, including soft tissues.
- **Magnetic resonance imaging**: A diagnostic test that produces three-dimensional images of body structures using powerful magnets and computer technology. It can show the spinal cord, nerve roots, and surrounding areas, as well as enlargement, degeneration, and tumors. It shows soft tissues even better than CAT scans.
- **Myelogram**: An x-ray of the spinal canal following injection of a contrast material into the surrounding cerebrospinal fluid spaces. By revealing displacement of the contrast material, it can show the presence of structures that can cause pressure on the spinal cord or nerves, such as herniated discs, tumors, or bone spurs. Because it involves the injection of foreign substances, scans are now preferred when available, although myelograms still provide excellent outlines of space-occupying lesions.
- **Electromyogram and Nerve conduction studies (EMG/NCS)**: These tests measure the electrical impulse along nerve roots, peripheral nerves, and muscle tissue. This will indicate whether there is ongoing nerve damage, if the nerves are in a state of healing from a past injury, or whether there is another site of nerve compression.

Treatment

The majority of herniated discs will heal themselves in about six weeks and do not require surgery. One study found that "After 12 weeks, 73% of patients showed reasonable to major improvement without surgery.".[6]

Conservative treatment

Pain medications are often prescribed to alleviate the acute pain and allow the patient to begin exercising and stretching.

There are a variety of non-surgical care alternatives to treat the pain, including:

1. Bed rest and lumbo-sacral support belt.
2. Physical therapy
3. Osteopathic/chiropractic manipulations.
4. Massage therapy
5. Non-steroidal anti-inflammatory drugs (NSAIDs)
6. Oral steroids (e.g. prednisone or methyprednisolone)
7. Epidural (cortisone) injection

Surgery

Surgery should be considered if a patient has a significant neurological deficit, or if they fail non-surgical therapy. The presence of cauda equina syndrome (in which there is incontinence, weakness and genital numbness) is considered a medical emergency requiring immediate attention and possibly surgical decompression.

Regarding the role of surgery for failed medical therapy in patients without a significant neurological deficit, a meta-analysis]of randomized controlled trials by the Cochrane Collaboration concluded that "limited evidence is now available to support some aspects of surgical practice". More recent studies refine indications for surgery

Surgical options include:

- Microdiscectomy.[14]
- Laminectomy - to relieve spinal stenosis or nerve compression
- Hemilaminotomy - to relieve spinal stenosis or nerve compression
- Lumbar fusion (lumbar fusion is only indicated for recurrent lumbar disc herniations, not primary herniations)

Surgical goals include relief of nerve compression, allowing the nerve to recover, as well as the relief of associated back pain and restoration of normal function.