



Spinal Stenosis

Introduction

The lower back is a common place to experience pain and discomfort. The lumbar spine is located in your lower back. The bones align to form the spine. Aging, arthritis, and degenerative conditions can cause the bones to change shape and narrow the areas where the spinal cord and nerves travel through, causing spinal stenosis.

Spinal stenosis is a condition that can cause lower back, buttock and leg pain. The majority of people with spinal stenosis find symptom relief and improved function with pain management, including medications, therapy and back bracing for support. Epidural steroid injections place pain relieving and anti-inflammatory medication directly at the source of the pain.

Pain management is helpful for many people. However, pain management treatments cannot correct the structural changes and narrowing in the spine. For a percentage of people with spinal stenosis, surgery may be necessary.

Anatomy

The lumbar area of your spine is located in your lower back and forms the curve below your waist. Five large bones (vertebrae) make up the lumbar spine. Intervertebral discs are located between each vertebra. The discs are cushion-like shock-absorbers. The disc's outer layer is made of tough connective tissue and it is filled with a gel-like substance. The discs and two small facet joints allow movement in the lumbar spine, while providing stability.

The opening in the center of each vertebra forms the spinal canal. Your spinal cord is located within the protective spinal canal. The spinal cord extends from the brain and is a major part of your nervous system. The spinal cord is surrounded by the epidural space (cavity), which contains tissue, nerves, and blood vessels.

Spinal nerves extend from the spinal cord and exit the lumbar spine through "tunnels" called foramina. The nerves travel to the lower back, buttocks, legs, and feet. The spinal cord and nerves at the lumbar spine send signals for sensation and movement between your brain and lower body muscles. The spinal cord tapers near the first lumbar vertebra and forms a group of nerves called the cauda equina. The cauda equina is involved with regulating bowel and bladder functions.

Causes

Spinal stenosis is most frequently caused by the gradual degeneration of the spine. The spine can break down because of the natural aging process, arthritis, or certain spine conditions. Also with age, the discs become less fluid-filled

and dry out. The discs can lose height and bulge into the spinal canal. The facet joints and ligaments can thicken and push into the spinal canal. These changes cause the spinal canal and foramina to narrow, causing painful pressure on the spinal nerves.

Symptoms

Spinal stenosis may or may not produce symptoms. Many people with spinal stenosis do not experience symptoms. Common symptoms include back, buttock, and leg pain, that tends to get worse over time and with activity. You may also experience leg heaviness, numbness, weakness, or cramping.

Prolonged standing or walking may increase your symptoms. Bending forward or sitting may relieve symptoms because these positions increase the room in the spinal canal, taking pressure off the spinal cord.

If the spinal nerves in the lower end of the lumbar spine are compressed, a condition called Cauda Equina Syndrome may result. Cauda Equina Syndrome can cause loss of bladder and bowel control, as well as low back pain, leg pain, leg weakness, lower body sensory deficits, and reduced or absent leg reflexes. If you suspect you have Cauda Equina Syndrome, seek medical treatment immediately.

Diagnosis

Your doctor can diagnose spinal stenosis by performing a physical examination and conducting some tests. Your doctor will ask you about your symptoms and medical history. You will be asked to perform simple movements to help your doctor assess your muscle strength, joint motion, and spine stability. Imaging studies will be ordered to learn more about the location and extent of your spinal canal narrowing and nerve root compression.

Your doctor may also order computed tomography (CT) scans or magnetic resonance imaging (MRI) scans to get a better view of your spinal structures. CT scans provide a view in layers, like the slices that make up a loaf of bread. The CT scan shows the shape and size of your spinal canal and the structures in and around it. The MRI scan is very sensitive. It provides the most detailed images of the discs, ligaments, spinal cord, nerve roots, or tumors.

Treatment

The majority of people with spinal stenosis can be treated with non-surgical methods aimed at pain management. Over-the-counter medication or prescription medication may be used to reduce pain. If your symptoms do not improve significantly with these medications, your doctor may recommend epidural steroid injections or physical therapy.

Epidural steroid injections are used to place medicine at the source of pain and inflammation. The medication is injected in the epidural space of the spinal canal. Steroid medication is used to reduce inflammation and relieve pain.

Epidural injections are outpatient procedures that can be received at a surgery center, hospital, or your doctor's clinic. Before you receive the epidural injection, your lower back area will be sterilized, and numbed with an anesthetic. You may receive a relaxation medication before your procedure.

Your doctor will use a live X-ray image (fluoroscopy) to carefully insert and guide the needle to the epidural space. A contrast dye is used to confirm the needle placement. Next, the medication solution is delivered to the epidural space, and the needle is removed. You will be monitored for several minutes before you can return home. Most people can resume their regular activities the next day.

Pain relief from epidural spinal injections may allow you to participate in physical therapy to help you strengthen your back, stomach, and legs. Persons with weak stomach muscles or spinal degeneration may wear a lumbar brace or corset during activities to provide support. Stretching exercises will help to keep your back flexible. Cardiovascular exercises help to build up your endurance and improve blood circulation to your nerves. This can help to relieve the symptoms of spinal stenosis. Your therapist can also recommend durable medical equipment to aid your safety and activity performance. Such devices could include a cane for walking or a shower chair.

Non-surgical treatments for spinal stenosis are designed to relieve pain and restore function, but they cannot correct the narrowing of the spinal canal. Surgery is recommended when non-surgical treatments have provided minimal or no improvement of your symptoms. Surgery may be advised if your leg weakness becomes progressively worse or if you experience associated bowel and bladder problems. The most common surgery for spinal stenosis is a lumbar laminectomy to decompress the spinal canal and help decrease the leg pain.

Prevention

One of the best ways to help prevent spinal stenosis is to perform regular exercise to help keep your back strong. It can be helpful to achieve and maintain a healthy weight. Do not smoke cigarettes. Cigarette smoke and nicotine can speed up spine degeneration.

Am I at Risk?

Spinal stenosis is more common in people over the age of 50 because of "wear and tear" on the spine associated with the aging process. Spinal stenosis can occur in younger people that are born with a narrowed spinal canal. Certain medical conditions can lead to spinal stenosis, including:

- Arthritis, especially a type of degenerative arthritis called osteoarthritis, can lead to abnormal growths in the spine (bone spurs), as well as disc and facet joint degeneration.
- Spondylolisthesis, a spine condition, results when one vertebra slips forward on another, causing the spinal canal to narrow.
- Acquired spinal stenosis is caused by spinal tumors or abnormal soft tissue growths that extend into the spinal canal or cause swelling.
- Acquired spinal stenosis can also develop when a spinal ligament ossifies.

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