

# Foraminal Stenosis

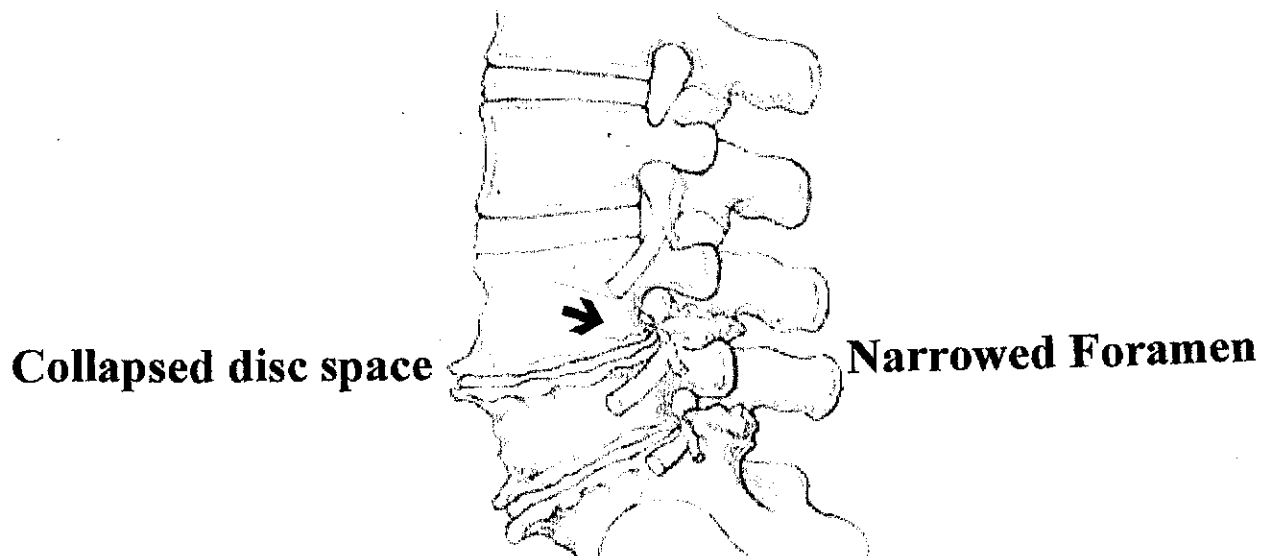
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Foraminal stenosis is a spinal condition which commonly affects one or more spinal nerve roots. The foramen is the opening between two vertebrae that allows the nerve root to exit from the spinal column. The nerve branches off from the spinal cord and exits the spine through the foramen to serve the regional neurological requirements of the body. Stenosis is a condition which describes a narrowing or closing of an anatomical space. Therefore, stenosis of the foramen is a condition in which a nerve root is compressed as it leaves the spinal column.

## Causes of Foraminal Stenosis

A herniated disc can bulge into the foramen and constrict the nerve. When a nerve is compressed, a patient may develop pain, numbness, and tingling in the involved extremity. In addition, a collapse of the disc space between two vertebrae can result in foraminal stenosis.

Enlargement of the facet joints of a vertebra can also cause narrowing of the foramen. This would also result in symptoms in the extremity. Osteophytes or bone spurs from the vertebrae itself and from the facet joint also can narrow the foramen. Finally, arthritis can cause degeneration of the joints in the spine and allow a vertebrae to slip forward (spondylolisthesis) causing the foramen to narrow.



## Symptoms Caused by Foraminal Stenosis

Often the patient is completely asymptomatic despite foraminal stenosis. However, there are patients who develop symptoms when their foramen is narrowed. The symptoms include tingling, numbness, weakness, and pain in the area served by the affected nerve. Usually the symptoms are positional and improve with change in position.

### **Diagnostic Tests**

Spinal stenosis can usually be determined with a thorough clinical history and examination of the patient. It is then confirmed with an MRI (magnetic resonance imaging) or a CT (computed tomography) scan of the spine. Occasionally, EMG/NCV (electromyography/nerve conduction velocity) is performed to confirm the diagnosis or differentiate between two potentially symptomatic nerves. This test is performed by a Neurologist or a Physiatrist. X-rays can be helpful in suggesting a diagnosis of foraminal stenosis. However, a nerve cannot be seen on an x-ray and, therefore, a supplemental test such as an MRI scan or CT scan is necessary to make a definitive diagnosis.

## **TREATMENT**

### **Nonoperative Treatment Options for Foraminal Stenosis**

In almost all cases, nonoperative treatment is generally attempted first. This includes medications, physical therapy, and/or epidural steroid injections. Medications include anti-inflammatories, tapering doses of steroids, muscle relaxants, and narcotics. If the symptoms do not respond to physical therapy and medications then an epidural injection is recommended. Three epidural injections can be given within a six month period.

### **Surgical Options for Foraminal Stenosis**

Surgery is reserved for patients who fail nonoperative care and who have significant decrease in their quality of life. Additionally, individuals who have severe or incapacitating pain and significant or progressive neurologic deficits are also considered for surgery.

The type of surgery depends on the exact problem that is causing the stenosis. If it is a disc herniation in an otherwise normal spinal canal, a simple discectomy is performed. If the stenosis is caused by bone spurs, a laminectomy and foraminotomy are performed. If, however, the problem is secondary to a collapsed disc space and/or scoliosis (curve) then a fusion may be needed. Often, the fusion involves placing a spacer or a jack between the two vertebrae to allow the nerve to have additional space to exit the spine. In addition, a fusion is often recommended if the patient has a considerable amount of back pain associated with the extremity pain. A spinal fusion is the most invasive treatment option for this problem.

In general, surgery is very predictable and successful in relieving extremity pain. Unfortunately, back pain that is associated with the extremity pain is less predictably relieved with surgery.