

LUMBAR DEGENERATIVE SPONDYLOLISTHESIS

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Degenerative spondylolisthesis is a degenerative slippage of one vertebra over the other. It is most common at L4-5. It is more common as patients age in women of which up to 20-25% may be affected when elderly. The condition is related to disc degeneration as well as degeneration of the facet joints. Degenerative hypertrophy of the facet joints may lead to stenosis. The slippage can be up to 30%. Studies have shown that there is a difference in morphology of the facet joints in patients with degenerative spondylolisthesis compared to those who do not have slippage. Often as the disc narrows it bulges back and there is additional stenosis from the redundant ligamentum flavum. Up to 20-25% of the patients have had a history of a prior discectomy at that level. Symptoms are typically low back pain and buttock pain. Pain, however, is not correlated to the degree of slippage, but is more correlated to the degree of dynamic instability and the degree of stenosis most commonly affecting the fifth lumbar nerve root. Most patients do not have neurological deficits on examination.

Nonoperative treatment includes physical therapy, nonsteroidal antiinflammatory medication, part time bracing, epidural steroid injections, nerve root injections, and sometimes facet joint injections. Approximately 10-15% of patients fail nonoperative treatment and go onto operative treatment. Those that have operative treatment typically have leg symptoms worse than back pain consistent with more severe stenosis. Decompression only surgery can give good short term results. However, long term there is a risk of progressive spondylolisthesis and recurrence of symptoms. Multiple studies have shown that a fusion combined with decompression gives improved long term results. A fusion procedure can sometimes be challenging in these patients because the condition often occurs in elderly females who have osteopenia or osteoporosis.

A workup of osteopenia in these patients can also be non-routine as simple DEXA scanning in these patients will often read the bone density of the bone spurs rather than the vertebral bodies. It has now become clear that patients who present with back pain and are also being screened or evaluated for osteopenia or osteoporosis need to have a lateral spine DEXA scan performed to avoid the artifact seen on AP only DEXA scans of the spine. The reason bone quality is important in these patients who may undergo surgery is that internal instrumentation, which is commonly used, relies on healthy bone. Instrumentation getting loose in osteopenic bone may lead to instability and a lack of fusion taking place with the patient having recurrence of progressive symptoms. In some cases where osteoporosis is advanced, instrumentation can not be used and in-situ posteriolateral fusion may be performed after which the patient is then braced for a period of time. Unfortunately, many elderly patients do not tolerate braces. Other spinal fusion techniques now include interbody techniques in addition to the posterolateral techniques. The type of fusion and instrumentation depend upon the degree of pain from the unstable discs vs the pain from the stenosis. A newer technique for treating these patients includes the use of "posterior dynamic stabilization construct" in addition to the decompression. Short term results have been good, but this is most likely due to the decompression.

Whether these new techniques indeed offer the stability that is required to prevent progression of spondylolisthesis recurrence of symptoms is not yet known. These systems also require adequate bone stock to be successful, and once again, all of these patients need to be carefully worked up to exclude osteopenia and osteoporosis prior to having this type of procedure performed.

In conclusion, degenerative spondylolisthesis is related to degeneration of the disc and the facet joints, there is a period of instability which leads to the slippage and facet osteophytes which cause stenosis. A few patients require surgery, which entails adequate decompression and usually instrumented fusion.