

Spondylolisthesis, L5 Radiculitis and Gluteal Pain – Diagnosis and Treatment

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Lumbar spondylolisthesis is common, painful, and very treatable. An understanding of the association among lumbar spondylolisthesis, L5 radiculitis, and “posterior hip” pain will save the patient and practitioner a frustrating delay in diagnosis and treatment.

The term “spondylolisthesis” is derived from the Greek words spondylos (vertebra) and olisthesis (slippage). It describes the forward displacement of one vertebra on another. Spondylolisthesis is common in the low lumbar spine and may be secondary to a fracture between the anterior and posterior elements or to degenerative changes. Regardless of the cause, irritation of the fifth lumbar nerve root generally causes gluteal or “posterior hip” pain.

Pathophysiology

Lytic spondylolisthesis is associated with a fracture (lysis) in the pars interarticularis. The fracture allows the vertebra above to slip forward on the bony spinal column below. This commonly occurs at L5-S1. The exiting L5 nerve root gets caught between the callus surrounding the fracture and the deformed intervertebral disc below, causing an L5 radiculitis.

Degenerative spondylolisthesis is caused by degeneration and instability of the intervertebral disc and facets. This commonly occurs at L4-L5. Degenerative changes include facet hypertrophy and disc deformity. The traversing L5 nerve root becomes pinched between the hypertrophic facet and the bulging disc in the area called the lateral recess. This also causes an L5 radiculitis.

Axial low back pain is caused by both the mechanical instability and a change in posture, resulting in increased muscle strain and fatigue. The altered mechanics produce additional wear of the facet joints and intervertebral discs, worsening the degeneration.

Presentation

Patient age at presentation is variable. Pars fractures often appear during childhood and may be associated with sports involving lumbar hyperextension, such as gymnastics, diving, and football. Young patients generally complain of back pain that interferes with their sports activities.

Young and middle-aged adults may present with chronic lytic spondylolisthesis. They often report long histories of low back pain. However, it is the L5 radicular pain that causes them to seek medical attention. Older adults are more likely to present with degenerative changes, including an L4-L5 degenerative spondylolisthesis and associated stenosis. These patients complain of a combination of back and L5 radicular pain.

L5 radiculitis involves referred pain in the L5 myotomes (gluteal and peroneals musculature). Upper-gluteal, achy pain is the most common complaint. Achy pain over the lateral calf is less frequent. Dysesthesia and pain at the distal foot and big toe is less common.

Diagnostics

The physical examination is often normal. Lumbar hyperextension may exacerbate low back pain in young patients with a lytic spondylolisthesis and should be documented. Altered sensation over the lateral calf and medial toes or weakness of the great toe extensor may signal an L5 radiculopathy. Patients sometimes have increased gluteal pain with straight leg raises.

Standard anteroposterior and lateral radiographs may show forward displacement of one vertebra on another. Oblique views are often insensitive to a nondisplaced pars fracture and should not be ordered as a screening study.

Computed tomography and SPECT scans may document pars fractures in young patients with back pain exacerbated by lumbar hyperextension activities. These studies do not adequately show nerve compression and are less useful for older adults.

Patients with nerve compression symptoms (gluteal, posterior thigh, or calf pain) should have a magnetic resonance imaging (MRI) scan. MRI of an L5-S1 lytic spondylolisthesis will show foraminal stenosis.

The fifth lumbar nerve root is seen trapped between the pedicle superiorly, callus posteriorly, and deformed disc space inferiorly.

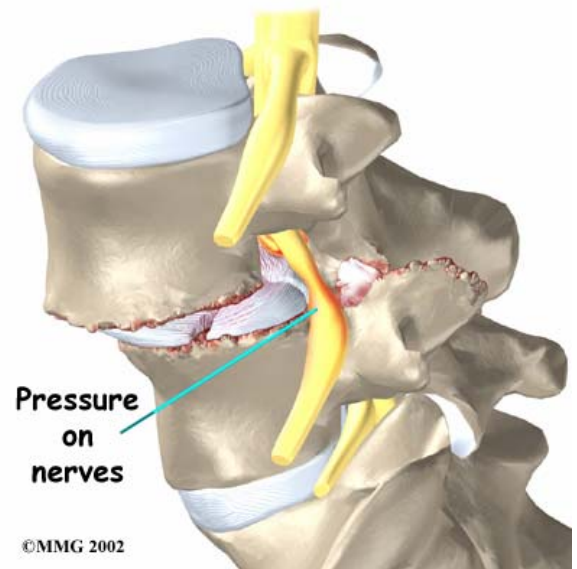
MRI of an L4-L5 degenerative spondylolisthesis will show lateral recess stenosis. The L5 nerve root is compressed deep to the hypertrophic facet and superficial to the bulging disc. The degenerative canal develops a trefoil shape. The nerve root gets pulled into the “funnel” of the lateral recess and pinched there.

Initial Management

If a slight slippage is visualized, the patient can be reassured that the deformity is stable. Early conservative management includes a brief trial of activity modifications augmented with anti-inflammatories and physical therapy for a lumbar stabilization program.

Patients with interests in acupuncture, chiropractic manipulation, massage, and other treatment modalities should be encouraged to pursue them. Young patients with lytic spondylolisthesis should avoid lumbar hyperextension activities.

Flexing the lumbar spine unbuckles the ligamentum flavum posteriorly and decreases the stenosis associated with degenerative spondylolisthesis among older adults. Patients who are uncomfortable walking are encouraged to maintain aerobic conditioning on a bicycle or inclined treadmill. Bringing the knees to the chest for a minute before getting out of bed may reduce morning pain and stiffness.



Physiatrists and Epidural Steroid Injections

If your patient's pain is not adequately controlled with conservative measures, consider referring him or her to a physiatrist or spine surgeon for additional nonoperative management. Most physiatrists are experienced in the diagnosis and management of low back, neck, and radicular pain and are excellent resources for patients whose pain has lasted for more than a few weeks. These practitioners work closely with local spine surgeons to expedite treatment, offering a variety of minimally invasive injections and treatment options.



L5 transforaminal injections may provide months of relief, allowing a satisfactory level of comfort and activity. Transient relief helps confirm the diagnosis and gives patients who precede to decompression surgery an idea of how much pain relief to expect.

Translaminar injections provide a shotgun approach to pain relief for patients who have more diffuse symptoms or who may not be operative candidates. Facet injections aid in the diagnosis and treatment of pain associated with arthritis and facet joint degeneration. Trigger point injections are indicated for individuals with muscle pain and spasms associated with inflammation about the muscle insertion.

Patients should avoid a long series of injections if they are not experiencing substantial benefits. If the patient gets weeks to months of transient relief, those injections may be repeated three to four times a year.

Surgical Considerations

Patients with incomplete transient relief following L5 transforaminal injections are typically good surgical candidates. Surgery is focused at decompressing the involved nerve root. Decompression surgery usually requires approximately one hour in the prone position under general anesthesia and involves 100 ml to 200 ml of blood loss. Patients may discharge the same day but frequently remain in the hospital for one to three nights postoperatively, depending on age and preoperative health status.

Patients with axial low back pain associated with motion-segment instability may benefit from arthrodesis. The fusion is generally accomplished using pedicle screws placed posteriorly. Interbody spacers placed either by posterior or anterior approach augment the stabilization. A single-level decompression generally requires two to four hours under anesthesia, 100 ml to 500 ml of blood loss, and one to four nights in the hospital.

Summary

Stresses in the low lumbar spine may cause an L5-S1 lytic spondylolisthesis that becomes symptomatic in childhood or early adulthood. Older adults may present with an L4-L5 degenerative spondylolisthesis. Either deformity can result in irritation of the fifth lumbar nerve root, causing gluteal or "posterior hip" pain.

Early management should include reassurance, activity modifications, anti-inflammatories, and physical therapy. Recalcitrant symptoms warrant evaluation by physiatrist or spine surgeon.