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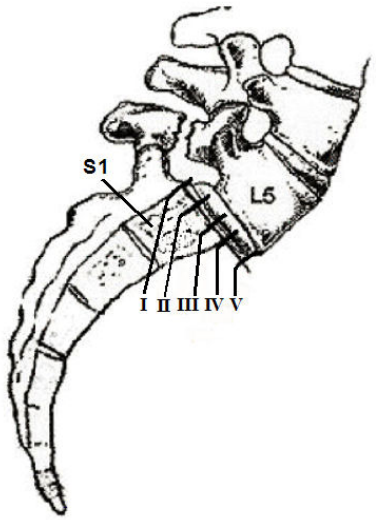
Adult Isthmic Spondylolisthesis (Slipped Vertebra)

What is it? What treatments are available?

The spine is made up of a series of connected bones called "vertebrae." In about 5 percent of the adult population, there is a developmental crack in one of the vertebrae, usually at the point at which the lower (lumbar) part of the spine joins the tailbone (sacrum). It may develop as a stress fracture. Due to the constant forces the low back experiences, this fracture does not usually heal as normal bone. This type of fracture (called a spondylolysis) is simply a crack in part of the vertebra (see illustration) and may cause no problem at all. However, sometimes the cracked vertebra does slip forward over the vertebra below it. This is known as adult isthmic spondylolisthesis.



What are the symptoms?

Isthmic spondylolisthesis may not cause any symptoms for years (if ever) after the slippage has occurred. If you do have symptoms, they may include low back and buttocks pain; numbness, tingling, pain , muscle tightness or weakness in the leg (sciatica); increased sway back; or a limp. These symptoms are usually aggravated by standing, walking and other activities, while rest will provide temporary relief. Studies have shown that 5-10 percent of patients seeing a spine specialist for low back pain will have either a spondylolysis or isthmic spondylolisthesis. However, since isthmic spondylolisthesis is not always painful, the presence of a crack (spondylolysis) and slip (spondylolisthesis) on the X-ray does not mean that this is the source of your symptoms.

How is it Diagnosed?

Initial assessment involves taking a careful history and performing a physical examination, and then plain xrays of lumbar spine are ordered. However, sometimes it is difficult to see a crack and/or slippage on an X-ray, so additional tests may be needed. A computed axial tomography (CAT) scan can show a crack or defect in the bone more clearly. A magnetic resonance imaging (MRI) study may be ordered to clearly show the soft tissue structures of the spine (including the nerves and discs between the vertebrae) and their relationship to the cracked vertebra and any slippage. It also will show whether any of the nearby discs have suffered any wear and tear because of the spondylolisthesis (slippage). If isthmic spondylolisthesis is present, it can be graded as I, II, III or IV (see illustration) based on how far forward the vertebra has slipped.

What treatments are available?

If it is clear that the spondylolisthesis is causing your pain, nonsurgical treatments are tried at first. These treatments may include a short period of rest, anti-inflammatory medications (orally or by injection) to reduce the swelling, analgesic drugs to control the pain, bracing for stabilization, and physical therapy such as physiotherapy or chiropractic and exercise to improve your strength and flexibility so you can return to a more normal lifestyle.

If a combination of medication and simple therapies fails to provide relief then further investigations are ordered often at this time and MRI scan is arranged.

Medications and Pain Management

Initially, one medication or a combination of medications is tried. Medications used to control pain are called analgesics. Most pain can be treated with nonprescription medications like aspirin, ibuprofen, naproxen or acetaminophen. Some analgesics, referred to as nonsteroidal anti-

inflammatory drugs, or NSAIDs, are also used to reduce swelling and inflammation that may occur. These include aspirin, ibuprofen, naproxen, and a variety of prescription drugs. If your doctor gives you analgesics or anti-inflammatory medications, you should watch for side effects like stomach upset or bleeding. Chronic use of prescription or over the counter analgesics or NSAIDs should be monitored by your physician for the development of any potential problems. If you have severe persistent pain that is not relieved by other analgesics or NSAIDs, your doctor might prescribe narcotic analgesics (such as codeine) for a short time. Take only the medication amount that is prescribed. Taking a larger dosage doesn't help you recover faster. Side effects include nausea, constipation, dizziness and drowsiness, and use can result in dependency. All medication should be taken only as directed. Make sure you tell your doctor about any kind of medication you are taking-even over-the-counter drugs-and inform your doctor whether or not your medication is working for you. There are other medications that also have an anti-inflammatory effect. Corticosteroid medications-either orally or by injection-are sometimes prescribed for more severe back and leg pain because of their very powerful anti-inflammatory effect. Corticosteroids, like NSAIDs, can have side effects. Risks and benefits of this medication should be discussed with your local doctor if you are concerned. Selected spinal injections, or "blocks," may be used to relieve symptoms of pain. These are injections of corticosteroid into the epidural space (the area around the spinal nerves) or facet joint (between vertebrae) performed by a doctor with special training in this technique. The initial injection may be followed by one or two more injections at a later date. These are most often done as part of a comprehensive rehabilitation and treatment program.

Nonsurgical Treatment

Techniques of physiotherapy include ultrasound, electric stimulation, hot packs, cold packs, and manual "hands on" therapy to reduce your pain and muscle spasms. At first, the exercises you learn may be gentle stretches or posture changes to reduce the back pain or leg symptoms. When you have less pain, more vigorous aerobic exercises (such as stationary bicycling or swimming) combined with strengthening/stretching exercises will likely be used to improve flexibility, strength, endurance, and the ability to return to a more normal lifestyle. Developing your back and stomach muscles will help stabilize your spine and support your body. Exercise instruction should start right away and be modified as recovery progresses. Learning and continuing an exercise and stretching program are also important parts of treatment, as is maintaining a reasonable body weight. The presence of this "cracked vertebra" (spondylolysis) or "slippage" (spondylolisthesis) by itself usually does not represent a dangerous condition in the adult. Therefore, treatment is aimed at pain relief and increasing the patient's ability to function. Although none of the nonsurgical treatments will correct the "crack" or "slippage" they can provide longlasting pain control without requiring more invasive treatment. A comprehensive program may require three or more months of supervised treatment.

What if I need Surgery?

Surgery is reserved for that small percentage of patients whose pain cannot be relieved by nonsurgical treatment methods. A pinched nerve may cause the pain, movement of the unstable cracked vertebra, or from nearby discs which are being affected. If a spinal nerve is being compressed by the forward slip, surgery may be needed to reopen a "tunnel," or space, for the nerve. In addition to relieving pressure on a nerve around the crack or slippage, a stabilizing procedure or fusion may be recommended. This will stop any further slippage of the vertebra and also will prevent recurrent nerve pressure from developing at this site. Occasionally the "crack" in the vertebra can be repaired by placing bone graft from the pelvis to the site of the crack. A fusion can be performed from the front (anterior approach) or the back (posterior approach). Both require the placement of bone graft or bone graft substitute and/or instrumentation between the vertebrae being fused. The choice of approach to the fusion (front/back) is influenced by many technical factors including need for spur removal, location of the spurs, anatomic variation between patients and the experience of your surgeon. The success rate of fusion surgery for relief of isthmic spondylolisthesis is over 75 percent. After surgery, you will remain in the hospital for at least a few days, and most patients are able to return to work within six to nine months. A thorough postoperative rehabilitation program is advisable to help you resume the normal activities of daily living.

Further information about spinal fusion is covered in the handout entitled "Spinal Fusion for Degenerative Lumbar Disease".