

What is It?

Spondylolysis is a defect that occurs in the posterior part of the spine known as the pars interarticularis. When we are young, our lumbar spine individual vertebrae each start as one continuous bone made of cartilage, like a shark's, and later calcifies from several places at once. These spreading waves of calcification meet up and join (or occasionally not) the area called the "pars". That is the spot where the x-ray sees a gap or a hole because cartilage does not show up on x-ray.

The lowermost vertebrae in the human spine, which are the most angled off the horizontal, are the ones most likely to crack when the formative process of replacement of cartilage by bone leaves this zone as cartilage. The sections of vertebrae involved in this cartilage-to-bone process are most at risk of coming apart where the carried weight is the greatest and the shearing forces highest. That is, in the lowest two lumbar vertebrae (numbers 4 & 5, called L4 and L5).

Not only is spondylolysis a nasty name to say, but remember it is also often misleading. In fact there may very well be no crack structurally; rather, the connection between the back and front in the vertebrae simply remains cartilaginous. About five to seven percent of Americans have this variant and don't know it. One group of Eskimo people has a 40 percent incidence. It isn't a problem just because it shows on x-ray. It is a trait, just like blue eyes.

What Causes It?

There are many causes of spondylolysis. It is believed that it is an inherited defect of the pars interarticularis. It can also occur in young athletes, especially in gymnasts, weight lifters, and football players. The repetitive stress to the low back is what can lead to fractures in the pars interarticularis. Many believe that most children with spondylolysis may be born with "weak" pars interarticularis and with repeated stress and activity, especially during the adolescent growth years, stress fractures, or spondylolysis may occur.

Spondylolysis is seldom seen in patients under the age of five and is found in five to seven percent of people over the age of seven. Whether there is a hereditary component of the disease is not clear, but explanation for the increase in instances relative to age could be explained by the increase in activity of children, as they get older. Young children involved in regular sports are more at risk of developing structural disorders including spondylolysis.

What are the Symptoms?

Interestingly, this defect will also show up in adults with back pain and no prior history of injury or sports participation. Some adults are found to have spondylolysis who have no symptoms whatsoever.

This disorder is essentially a stress fracture of part of the spine. When occurring at younger ages, it is often a source of low back pain. Most children with spondylolysis are

asymptomatic, but for those with symptoms, back pain is the most common. It is most commonly presented during the adolescent growth spurt. Occasionally, there is a history of trauma. Pain coming from the low back may refer to the hips or upper legs and be confused with sciatica. Unlike sciatica, it seldom reaches as low as the calves and never has weakness or sensation loss associated (as would nerve pressure from a ruptured disk). If such additional symptoms are present, then an additional problem has also occurred. One additional problem is that the cartilage segment gives way - cracks. It can also stretch, or stretch and then crack.

What are the Treatments?

If your child was incidentally found to have spondylolysis with no symptoms, there is no need to restrict his or her activities. The chance of an asymptomatic spondylolysis developing into what is called spondylolisthesis is not high enough to restrict activities.

Treatment is directed towards reducing back pain by use of anti-inflammatory medications like ibuprofen as well as stretching and strengthening exercises for the back and abdominal muscles. In more severe cases, a lumbosacral support may be ordered. The pain is usually better after one to two weeks of complete rest.

In the most severe cases where there is a trauma and muscle spasm, and there is indeed a fracture of the pars, it may be necessary to pace the child in a rigid lumbosacral orthosis. Sports will be curtailed for approximately three months.

What is a Spondylolisthesis?

A spondylolysis is the most common cause of a spondylolisthesis. A spondylolisthesis is when the stress fracture at the pars widens and the stability of the vertebra is weakened causing it to slip or slide. Other causes of spondylolisthesis in children are underdeveloped facet joints. More rarely, it may be caused by tumor or infection that may cause instability of the bony ring, including the facet joints.

In patients with spondylolisthesis, the treatment depends on several factors, depending on age, sex, and the severity of the slip. The younger child has a higher chance of developing further slip with growth. Girls are more prone than boys. Severity of slip is estimated on x-rays. For patients with spondylolisthesis, sports participation may or may not be allowed. Strenuous sports like gymnastics, weight lifting, and football should be avoided.

*The information provided is for information only and is not a substitute for the medical advice of a medical provider.