

Spondylolysis and Spondylolisthesis

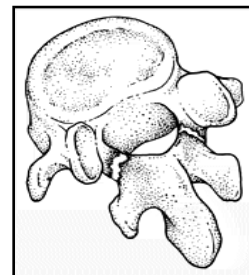
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Definition- Spondylolysis and listhesis are injuries in the back involving the pars interarticularis. This area of the back is situated between the lamina and the pedicle and is analogous to the scaffolding of a house, giving support to the vertebral column. “Lysis” refers to fractures of the pars, and “listhesis” refers to slippage forward of one vertebrae on another as a result of a pars defect. These conditions primarily occur in the lower back. Spondylolysis occurs with a prevalence of ~5% in the general population. This process can be present as a developmental condition without symptoms. In adolescents (especially athletic), these developmental lesions can become painful because of repetitive motions or an acute injury. Previously healthy athletes can also acquire a pars injury as an overuse injury or an acute traumatic injury. The condition is very common in football linemen, gymnast and cheerleaders, swimmers and divers, baseball pitchers, wrestlers, and weight lifters.

Clinical Symptoms- Most athletes present with low back pain. This may or may not occur after a known injury. The pain is typically worse with extension or twisting of the back.

Physical Exam- Most children have obvious pain with extension and variable tenderness around the lower back. Occasionally it may hurt to move in all directions and there may be some signs of nerve root irritation. They may have tight hamstrings and relative weakness about the core musculature.



Diagnostic Tests- XRs are poor screening tests for pars injuries (especially those in the early stages). At this time, the test of choice to diagnose a pars injury is a SPECT bone scan. If an “active” pars lesion is present, the SPECT scan will “light up” signaling increased bone activity. A limited CT may then be ordered to define the severity of the defect. Healing is generally followed with repeat SPECT and/or CT scans. MRI, in general, plays little role in the diagnosis or management of Spondylolysis.

Treatment- Options include (for a period of *at least* 12 weeks):

- Rest and activity modification, avoiding any activities that reproduce the pain
- Lumbar corset wear and activity modification
- A custom molded antilordotic TLSO brace and activity modification
- Bone stimulators may be added to lesions not healing well

Outcomes- There are many factors that influence pars injury healing (age of child, duration of symptoms, cause of the lesion, and compliance with treatment). Outcome measures include pain resolution, achieving bony healing, further slipping of one vertebra on the other, and chronic pain/arthritis in the future. One-sided lesions that occur after an acute injury tend to heal very well with excellent outcomes. Lesions occurring on both sides after an injury appear to do better than those involving chronic overuse and those with predisposing pars defects. Surgery is rarely necessary for the condition. Recurrent pain and early degenerative arthritis of the spine are possible with lesions that do not go on to bony healing.

Dr. Locke’s clinical care team

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