

SPONDYLOLISTHESIS

Definition:

Spondylolisthesis: One vertebrae slipping forward on another.

Spondylolysis: defect in the pars interarticularis

Spondyloptosis: Complete anterior displacement of one vertebra on another.

Classification: Wiltse, Newman & Macnab 1976.

Dysplastic: Congenital deficiency of the superior sacral or inferior fifth lumbar facets with gradual slipping of the fifth vertebrae.

Isthmic: Typical spondylolysis defect in the pars interarticularis permitting forward sliding of the fifth lumbar body. Three types

A Lytic fatigue fracture of the pars

B Elongated (attenuated) but intact pars

C Acute fracture

Degenerative: Degeneration of the joints allowing forward displacement, usually L4 on L5. Usually facet joint incompetence.

Traumatic: Acute fracture in areas other than the pars interarticularis i.e. pedicle, lamina or facet.

Pathologic: Attenuation of the pedicle secondary to structural weakness of the bone eg osteogenesis imperfecta, neurofibromatosis, malignancy.

Post-Operative

Plain Radiology:

The standing lateral will best demonstrate the slip. It may also show the aetiology with oblique views showing the pars defect or elongation. Degenerative changes may also be seen. In children there may be a marked change in the spondylolisthesis with varying body position thus sequential X-Rays must be in a uniform position.

There are two kinds of slipping in spondylolisthesis: **tangential** and **angular**.

In tangential slipping one vertebra slides forward on another. With angular slipping there is a kyphosis increasing the deformity.

Meyedering divided the sacrum in to quarters and classified the slip as:

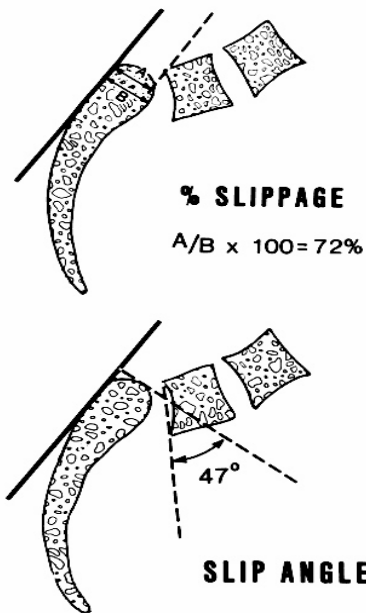
Grade 1 0 - 25%

Grade II 25 - 50%

Grade III 50 - 75%

Grade IV >75%

In angular slipping as the slip progresses the area of contact between L5 & S1 decreases and the body of L5 tilts forward on the sacrum. This is referred to as as sagittal rotation, angle of slipping, roll, L5/S1 kyphosis or gibbus. This angular change is not present in Grade 1 or II spondylolisthesis. Usually apparent with a 50% slip always with a 75%.



PROGRESSION RISK FACTORS:

Age: Progression occurs primarily in the growth years (10 - 15) and is uncommon in the adult. Earlier defect > risk.

Sex: Females are at greater risk of further slipping and more severe grades.

Symptoms: Children who have had an episode of back pain due to spondylolisthesis of any grade have a higher incidence of recurrence.

Type of slip: Dysplastic patients have a much higher incidence of progressive slip and persistent symptoms than isthmic types.

Instability: Those with a dome shaped vertical sacrum and trapezoidal vertebra have a greater propensity for further slip and symptoms. Whereas those who develop a sclerotic buttress on the anterior lip of the sacrum do not

Degree of slip: 50% or greater

Slip angle: 35° or greater.

Dynamic views: Standing/Supine & flexion/extension showing instability.

Treatment of Spondylolisthesis:

Treatment of spondylolisthesis depends on symptoms and the degree of the slip. In most instances, nonsurgical treatment is effective. Several studies have concluded that nonsurgical treatment of spondylolisthesis of **grade I or less can relieve pain in a majority of patients**. Once the patient is asymptomatic, normal activities, including contact sports, may be allowed, although bracing may be necessary.

Intractable pain and **neurologic compromise** in spite of an adequate trial of nonoperative treatment are the principal indications for surgery.

A relative indication may be a **severe, progressive slip.**

