Spondylolisthesis Treatment

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Definition

- *Spondylolisthesis is a Greek word in which “spondylos”*
- *means vertebrae and “oliothesis” refers to slippage or*
- *dislocation.[1] The term “Spondylolisthesis” was first*
- *used by Kilian in Lonstein*
- *The reported incidence of spondylolisthesis*
- *is 4% to 6% in children, with isthmic being the most*
- *common variety, occurring at L5-S1*
- *Degenerative spondylolisthesis is most commonly seen in the elderly,*
- *with an incidence up to 5–10%, and it occurs commonly*
- *at L4-L5 followed by L5-S1.*

Classification

- *Meyerding developed the first grading 1932 morphologic base*
- *Wiltse classification 1976*
- * Classification based on anatomic and etiology factors.*
- *Marchetti and Bartolozzi classification 1982*
- *classification to distinguish between the developmental(high and low dysplastic)*
- *and acquired (traumatic, degenerative, neoplastic, and postsurgical) form of spondylolisthesis*

Wiltse classification

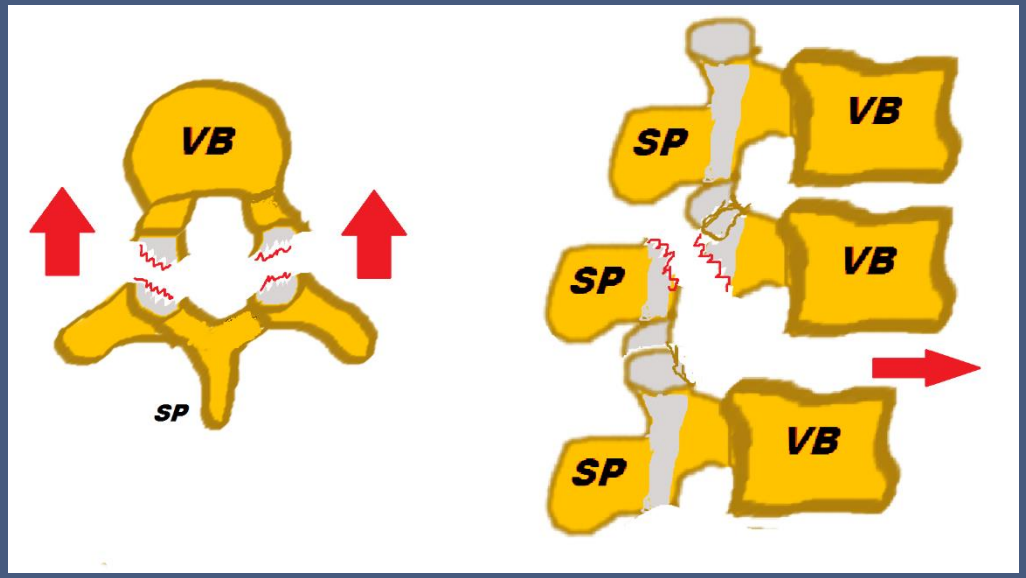
- *Dysplastic or congenital spondylolisthesis*
- *Isthmic spondylolisthesis*
- *Degenerative spondylolisthesis*
- *traumatic spondylolisthesis*
- *Pathologic spondylolisthesis*
- *Post surgical spondylolisthesis*

Non operative treatment

- *Always consider first……. Every time*
- *If back pain>leg pain……. Improvement likely*
- *Isthmic/degenerative with leg pain……. Improvement less likely*
- *Osteopenia…… Investigate/treat*

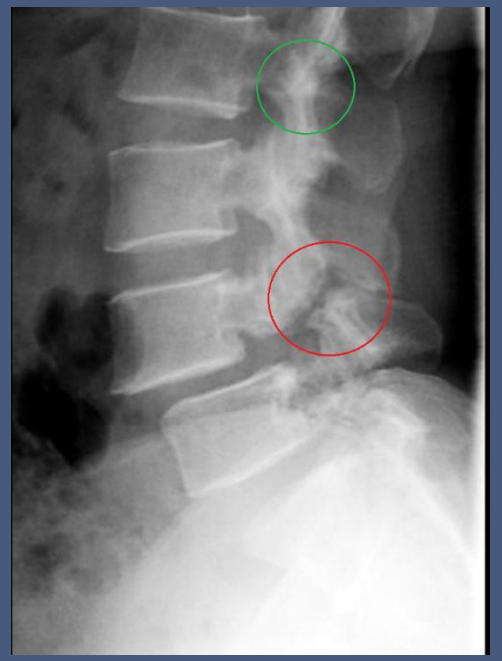
Natural History :genes

- *15-17% first degree relatives*
- *Lysis more common in boys*
- *Slips more common in girls*
- *Eskimos 25% arch defects*



Natural history of slip

- *15 % have had pars defects*
- *Accelerated at growth spurt*
- *Minimally changes are seen after 16 years old*
- *It is painless during progression*

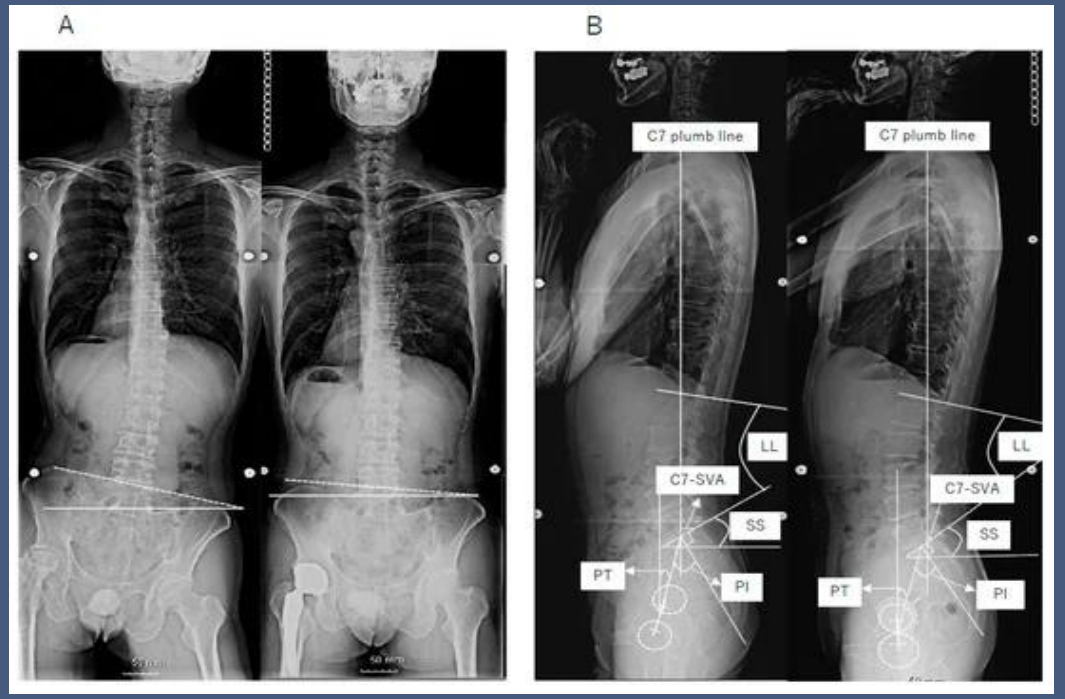


Purpose of imaging

Disc degeneration(MRI-CT)

Facet joint orientation tropism degeneration(MRI-CT)

Pelvic and spinal measures(Erect X rays)

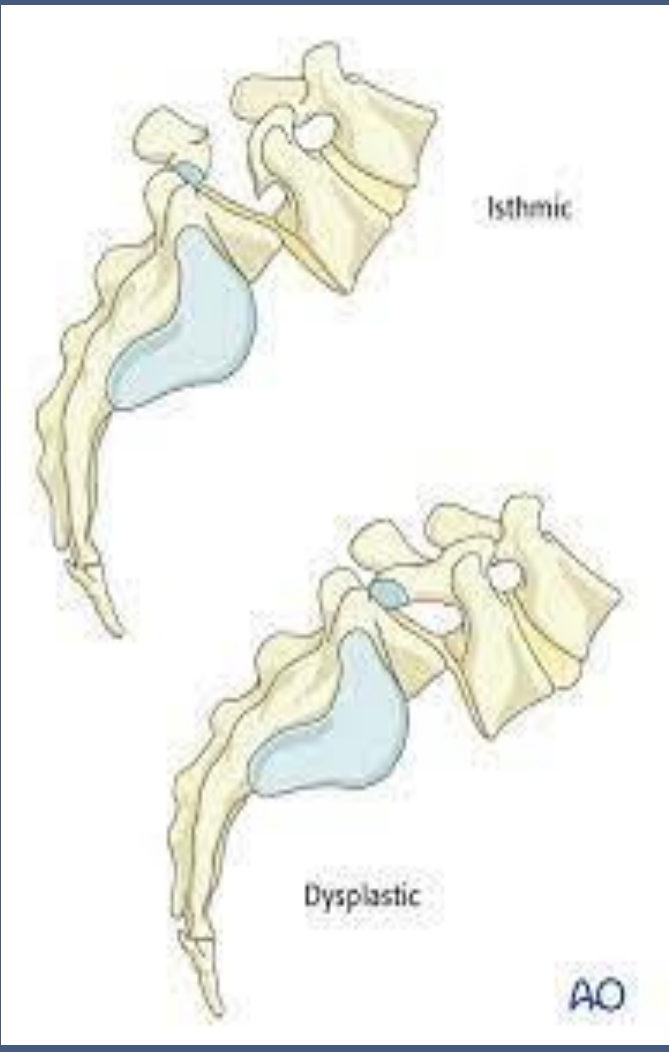


Risk progression

- *>20 years old less likely to progress more stable……..less symptomatic*
- *Association with LBP is weak*
- *higher levels disc degeneration in young adults ……. higher risk of progression*

Risk factors for slip progression in spondylolisthesis

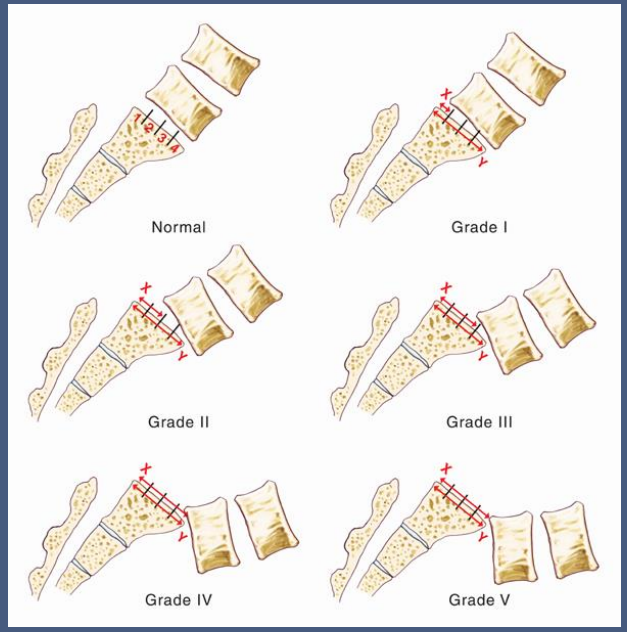
- *Clinical*
- *Growth years (9-15)*
- *Girls>Boys*
- *Back Pain*
- *Postural or gait abnormality*
- *Radiographic*
- *Type 1 (dysplastic)*
- *Vertical sacrum proximal sacral rounding*
- *>50% slip*
- *Increaseing slip angle*



Natural history of progression

- *Adolescents Grade III+ likely to progress*

- *Grade I & II after mild adolescence unlikely to progress*



Non operative treatment: pediatrics

- *Stop aggressive activities*
- *Gradual mobilization*
- *Trunk strengthening*
- *Period of bracing*

Non operative treatment: Adults

- *Exercises*
- *Aerobics*
- *NSAIDS*
- *Epidural steroids*

Management decisions

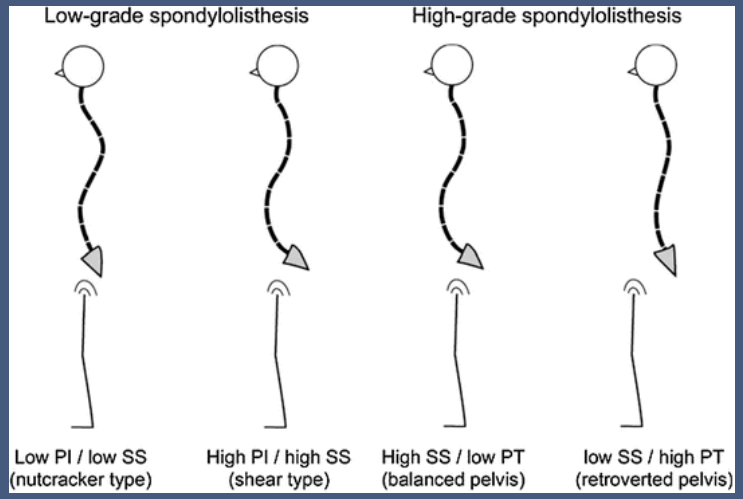
- *Individualized for each patient*
- *Thinks of natural history*
- *Severity and duration of symptoms*
- *Comorbidities*

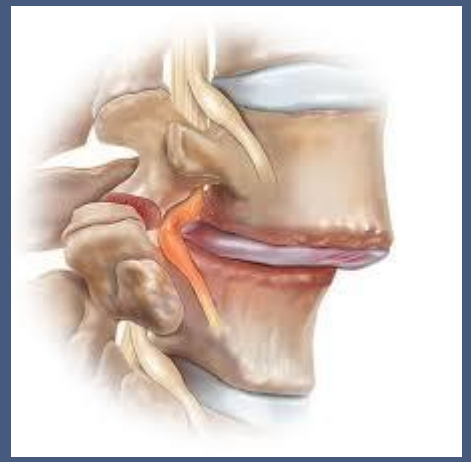
Surgical indications

- *Severe back and leg pain*
- *Failed conservative therapy*
- *Abnormal neurology*
- *Positive diagnostic injections*

Surgical goals

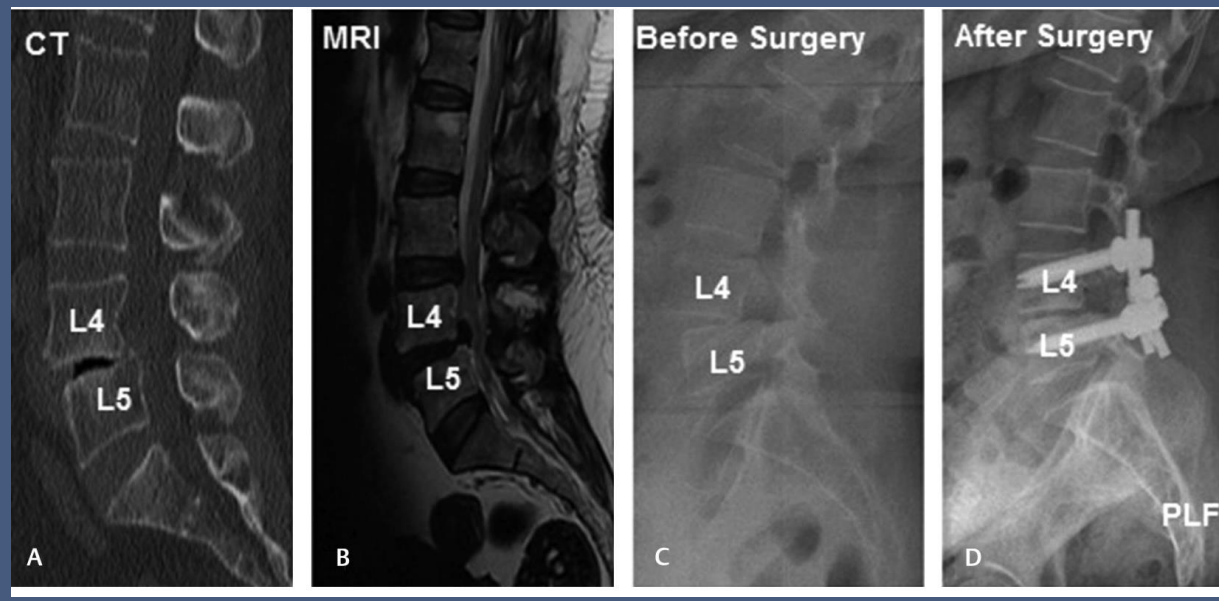
- *Address the pars defect & the rattler*
- *Decompress the Foraminal stenosis*
- *Address the degenerative disc/s*
- *Address the dynamic instability*
- *Adress the global balance*





Surgical options

- *Insitu posterolateral fusion*
- *Decompression + in situ posterolateral fusion*
- *Additional interbody fusion options*



Decompression :Absolute indication

- *Neurologic*
- *leg pain*
- *sphincter dysfunction*
- *claudication*

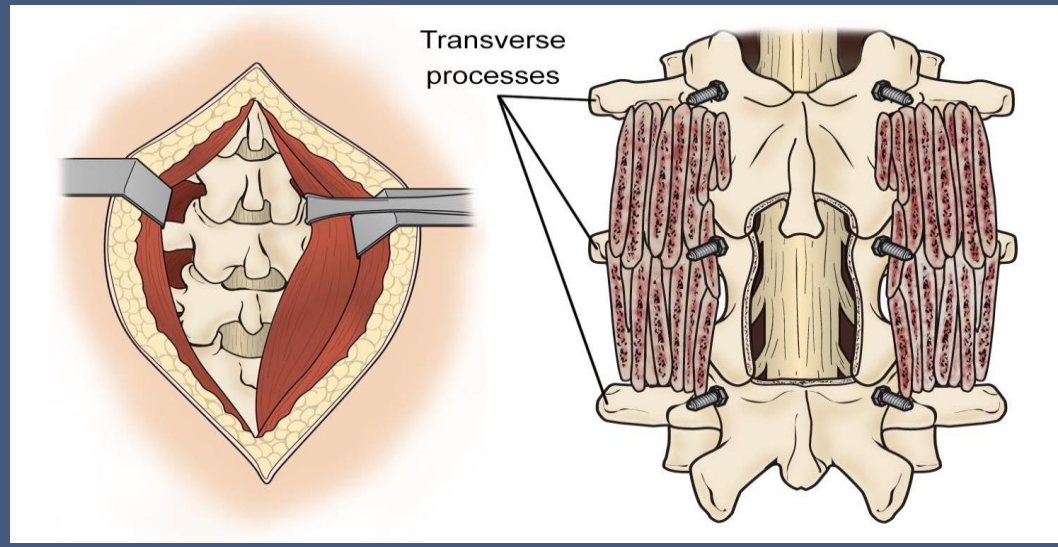
Decompression: extent

- *The Gill procedure: Removal of the loose laminar arch*
- *Foraminotomies + facetectomy*
- *Nerve in isolation*
- *Associated with high level psudoarthrosis rate*

In situ posterolateral fusion

- L5 S1 only

- Improvement in leg pain even when not decompressed



Posterior instrumentation

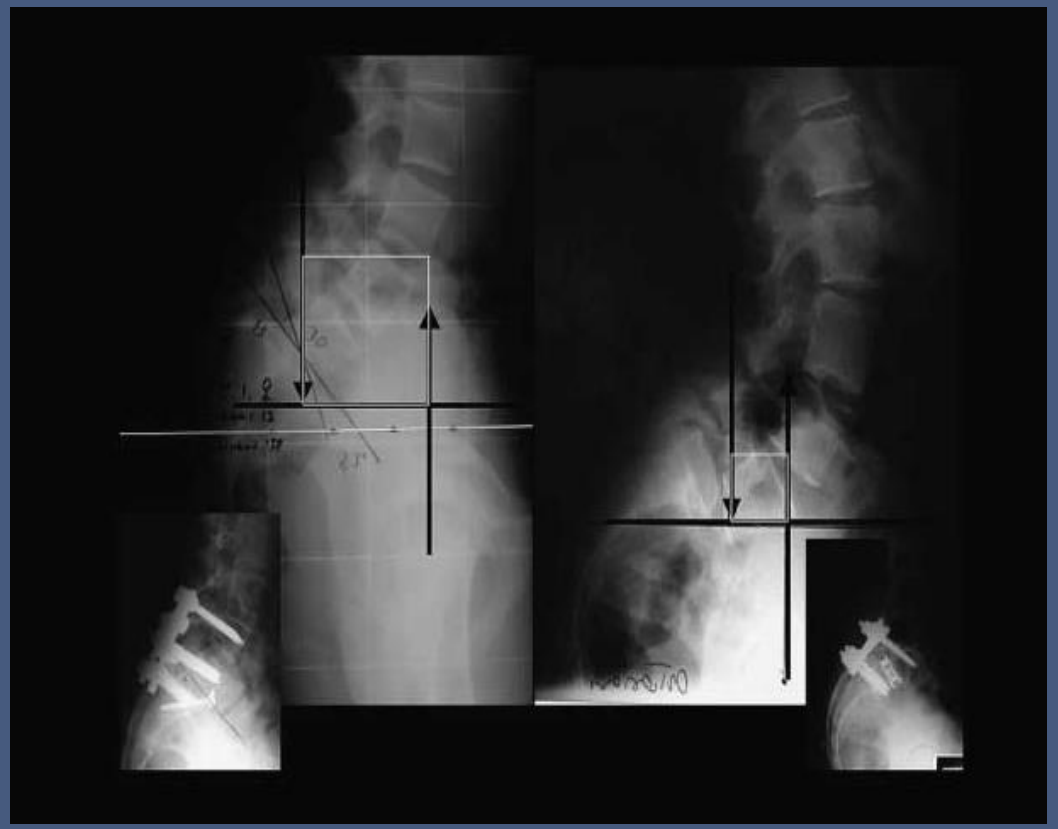
- Better fusion rate better clinical outcome

- Un instrumented better for osteoporotic bone

Levels to instrument

- Look at the changes at the levels above

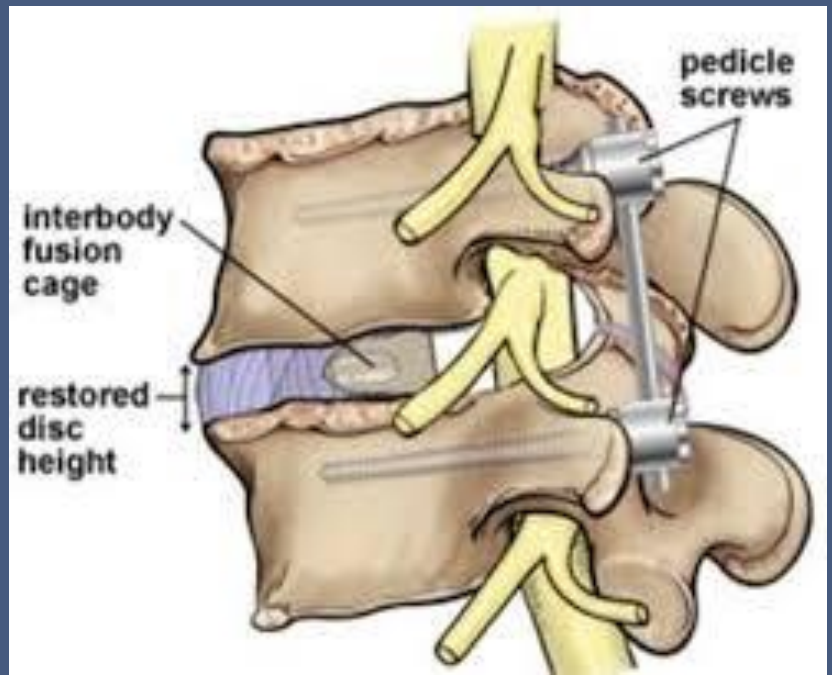
- Higher slip angle : listhesis above the slip



Inter body fusions : theoretical consideration

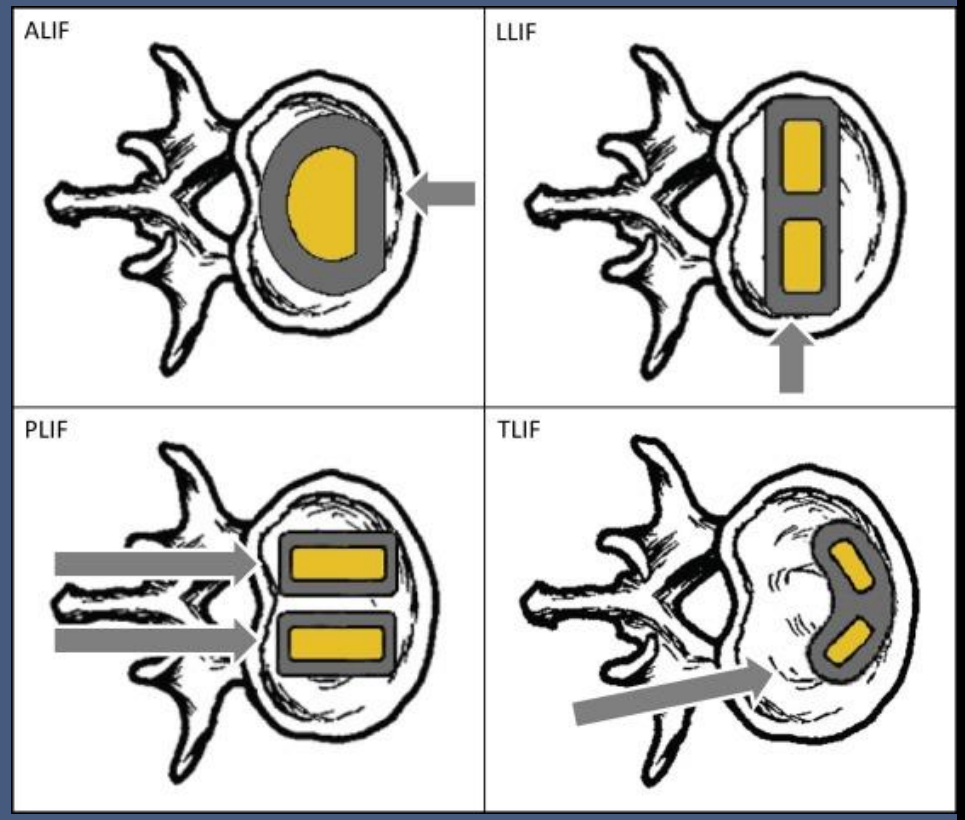
- *Anterior column support*
- *Biomechanically superior: Large area for fusion*
- *Grafts under compressive loads*
- *Degenerate disc removed:*
- *Consider disc height*
- *Build in the appropriated lordosis*

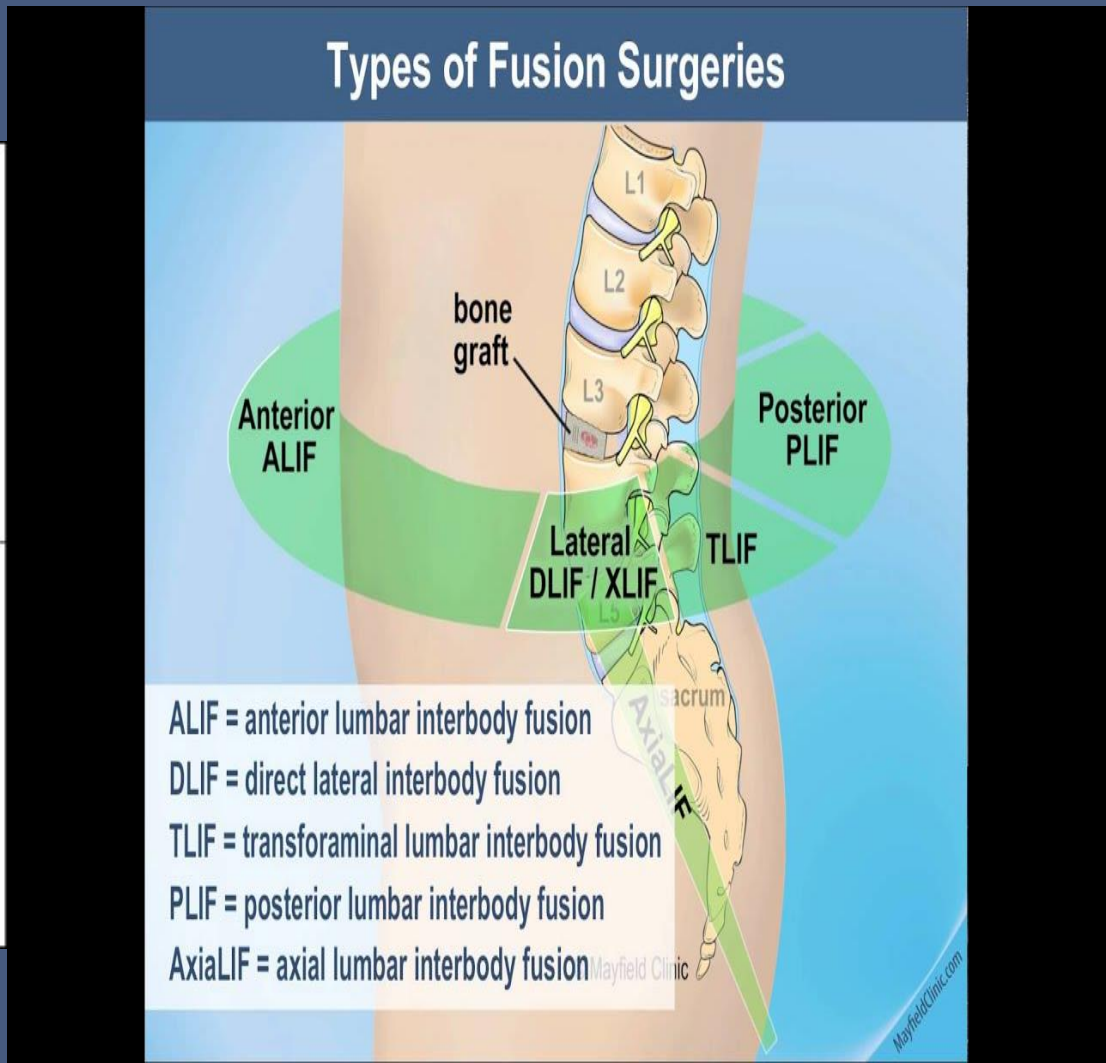
- *Indirect reduction*



Interbody fusions (.....LIF

- P LIF
- T LIF
- A LIF





Indications for surgery: children

- *Low grade slip/ lysis …. Non op measures effective*
- *Progression beyond Gr II*
- *At presentation : > Gr III*
- *Persisting pain neurological deficit*
- *Progressive postural deformity/ gait abnormalities*

Surgery pediatric adolescent

- *Lysis*
- *Intact disc on MRI G1 slip*
- *Direct repair of defect*

- *Grade I*
- *Asymptomatic ……. No surgery*

- *Grade II .III*
- *One level bilateral lateral fusion*
- *Rarely decompression*
- *Documented progression back pain*

Surgery pediatric adolescent

- *Grade III*
- *Asymptomatic : 2 level Insitu …. L4-S1*
- *Slip angle <55 good fusion rate*
- *Post op Hyperextension cast+ thigh extension*
- *Slip angle>55 degree add anterior fusion*
- *Post op: recumbent during healing*
- *Severe slips*
- *Extensive body(Gaines procedure)*
- *L4-S1 fusion*

Indication for surgery adults

- *Non responsive to conservative therapy*

- *Results better for leg than for back pain*
- *Isthmic/ degenerative ……. Persistent neurology*
- *Radicular symptoms*

- *Back pain alone …… decompression & stabilize*

Degenerative slip

- *Claudel +facet injections*
- *Decompress stenosis*
- *Non instrumented Or instrumented fusion*

recommendations

- *Have a look to the natural history*
- *Look at each patient and analyze the problem*
- *Individualize the treatment plan*
- *If surgery is the last resort ……..*


Thank you