

Spondylolysis & Spondylolisthesis in the adult

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Outline

- . Classification
- . Patho-anatomy
- . Clinical features / physical examination
- . Investigation
- . Treatment

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Classification*

Patho-anatomical

- . Congenital / dysplastic
- . Isthmic
 - Acute (fatigue #) pars
 - Chronically elongated, attenuated pars
 - Acute pars #
- Degenerative
- Traumatic
- Pathologic
- (iatrogenic)

* Newman J BJS[Br] 1963

Classification

Degree of slippage*

- . Grade I 0-25%
- . Grade II 25-50%
- . Grade III 50-75%
- . Grade IV >75%
- . (Grade V >100%)
(spondyloptosis)

* Meyerding, Surg Gyn Obs 1932

Patho-anatomy – Degenerative spondylolisthesis

- . Typically L4/5
 - . Sagittal orientation facets
 - . Disc degeneration
- . Spinal stenosis
 - . Central
 - . Lateral recess (L5)
 - . Foraminal (L4)
- . Sagittal imbalance

Patho-anatomy – Spondylolytic spondylolisthesis

- . L5/S1 85%; L4/5 11% (but any level)
- . Association with spina bifida occulta 25%
- . Stress #
 - . Repetitive extension
 - . L4 inferior articular process
- . Instability & foraminal stenosis

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Frequency

- Isthmic spondylolisthesis
 - 6-7% population
 - 5% 5-7 years old . 7% 18 years old
 - Young athletes (11% gymnasts, 20% weight lifters, 30% ballet dancers)
 - Genetic predisposition- Alaskan Eskimos
- Degenerative spondylolisthesis
 - Increases with age (>40 years)
 - Greater female prevalence

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Clinical features - symptoms


- Back pain dominant symptom
- Isthmic spondylolisthesis
 - Extension pain ; exertion related
 - Radicular pain
 - Cauda equina rare
- Degenerative spondylolisthesis
 - Back pain & buttock pain - central stenosis
 - Neurogenic claudication
 - Radiculopathy . lateral recess stenosis




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Clinical features – Physical examination

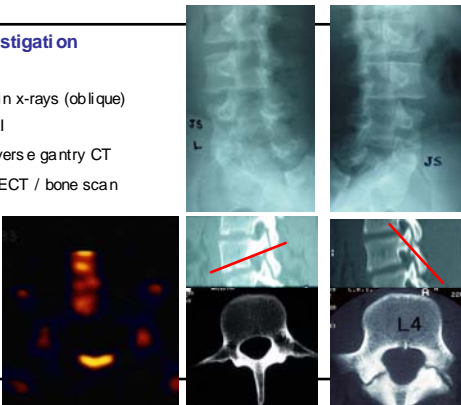
- Tight hamstrings
- Muscle spasm; palpable step
- Dermatome numbness etc
- Minimal signs (degenerative spondylolisthesis)



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Investigation



- Plain x-rays (oblique)
- MRI
- Reverse gantry CT
- SPECT / bone scan



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Treatment – Isthmic spondylolisthesis

- Physiotherapy - Core stability exercises
- Selective nerve root block
- Lysis block*
- ~~Banding~~


* Diagnostic test

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Treatment – Isthmic spondylolisthesis

Surgery

- Buck's repair
 - Minimal displacement <5mm gap, no > Gd . Islip
 - No disc degeneration
 - Adequate bone dimensions



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Treatment – Buck's repair

DK 24 M 24.10.00

DK 7.1 DK 26 M 7.11.00

Treatment – Isthmic spondylolisthesis

Surgery

- Spinal fusion
 - Presence of disc degeneration (+ve Discogram . Annular tear)
 - Significant facet arthrosis
 - > Grade II slip
 - Older than 30 years
- Types of fusion
 - Postero-lateral (+/- instrumentation)
 - Posterior Lumbar Interbody Fusion (PLIF)
 - Anterior Lumbar Interbody Fusion (ALIF)

Treatment – Degenerative spondylolisthesis

- Reassurance; wait & see
 - Benign prognosis
 - 70% same level at 5 years
- Selective nerve root block
- Lumbar epidural injection
- Interspinous spacer devices

coflex™
interspinous ligament

Treatment – Degenerative spondylolisthesis

Surgery

- Decompression (Laminotomy / Laminectomy)
- ? Role of adjuvant fusion
- ? +/- Instrumentation

Laminae removed

Summary

- Classification
 - Isthmic spondylolisthesis
 - Degenerative spondylolisthesis
- Patho-anatomy
- Clinical features / physical examination
- Investigation (MRI, CT, SPECT)
- Treatment
 - Conservative
 - Surgery (Buck's repair, Fusion, Decompression)