

## Lumbar spinal stenosis and degenerative spondylolisthesis

SPINECLASS 2010, Formby Hall Golf Club 25<sup>th</sup> March  
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## Lumbar Spinal Stenosis

- Verbiest 1976 "developmental stenosis"
- Common at L3/4 and L4/5, rare at L5/S1
- Generalised or Segmental disorder
- Clinical presentation of claudication, backache, reduced spinal extension, no root tension signs

## Lumbar Spinal Stenosis

- Presents as claudication or radicular pain
- Differential diagnosis includes Vascular insufficiency, OA Hip, Prolapsed disc

## Lumbar Spinal Stenosis

- Congenital (achondroplasia)
- Segmental in Degenerative listhesis
- Central, lateral recess or foraminal in degenerative lumbar disc disease with facet hypertrophy

## Lateral recess stenosis



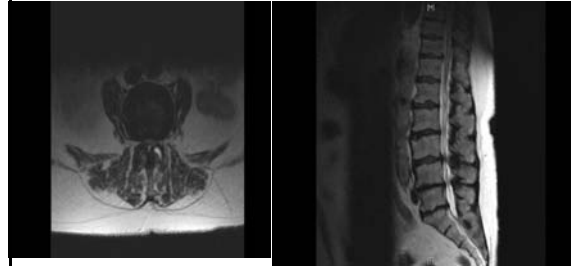
## Degenerative disease can lead to facet hypertrophy



## Lumbar Spinal Stenosis myelography



## Lumbar Spinal Stenosis - MR scan



## Lumbar stenosis - Management

- Conservative ?limited benefit
- Surgical
  - Decompression - enlarge spinal canal at site of stenosis (flavectomy, facet undercutting, laminotomy, laminectomy). Preserve 50% facet joint rule. consider stabilisation (?soft or fusion)
  - Interspinous devices alone

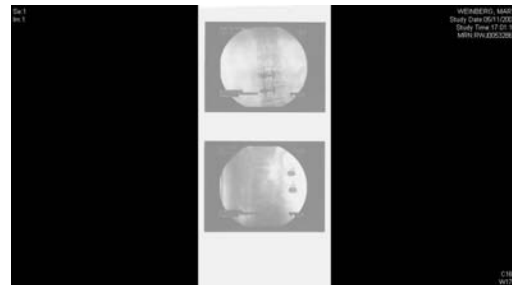
## Case 1

- 74 yr old female
- 3-4 yr history increasing back pain
- Last 12 months increasing claudicant leg pain
- Good lumbar flexibility except reduced extension
- No neurological signs
- Otherwise fit and well

## Case 1 - MR scan



## X stop device insertion



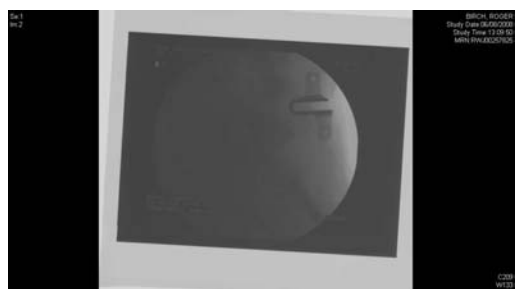
## interspinous -X STOP



## CoFlex interspinous device for claudicant leg pain



## CoFlex for spinal stenosis



## Interspinous devices for claudicant leg pain



## Surgical Outcomes

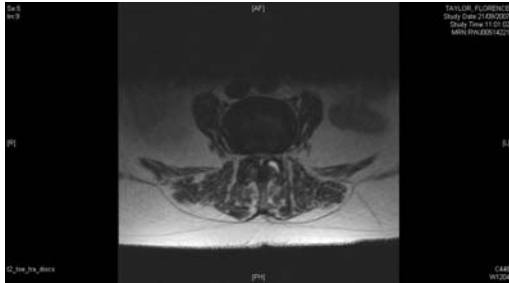
Zucherman JF et al. Spine 30(12):1351-8 (2005)  
RCT of X-stop use for claudicant leg pain +/-  
back pain.

At 2 year FU	Symptoms	Physical function
Surgical group (88)	45% improvement	44% improvement
Conservative group (68)	7% improvement	0.4% deterioration

## NICE Guidance

- Interventional Procedure Guideline 165 (March 2006) 'Interspinous distraction procedures for lumbar spinal stenosis causing neurogenic claudication'
- Procedures should be undertaken in the context of special arrangements for consent, audit and research. The procedure is not curative and that further surgery may be needed.
- Publication of long term efficacy data will be useful

## Severe Lumbar Stenosis ? Formal decompression required



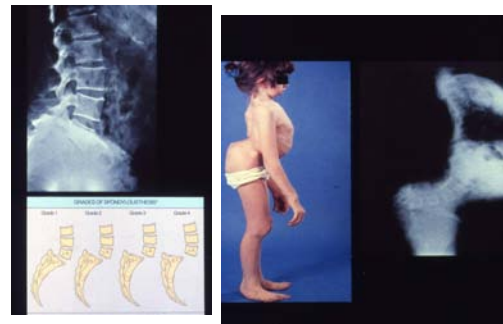
## Surgical Outcome

Sport trial NEJM Feb 2008  
Surgery versus Nonsurgical therapy for the treatment of lumbar spinal stenosis – 2 year results  
Weinstein et al NEJM Feb 2008  
Significant improvement in both primary outcome measures at 2 years for surgical group (ODI, SF-36)

## Lumbar Spondylolisthesis- classification

- Dysplastic
- Isthmic
- Degenerative
- Traumatic
- Pathological
- Newman 1963
- Wiltse, Newman & McNab 1973

## Dysplastic Spondylolisthesis



## Lytic Spondylolisthesis



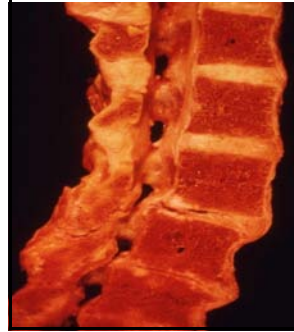
## Degenerative spondylolisthesis



## Degenerative Spondylolisthesis

- Junghanns 1929 "pseudospondylolisthesis"
- Progressive remodelling of facet joints with arthritic change. Superior facet of lower vertebra moves ventrally on the pedicle towards the body
- ? Facets more sagittally orientated
- Slip maximum 20% as joint remodelling stopped by back of body
- L5 root caught as it runs medially past the L5 pedicle in L4/5 listhesis

## Degenerate spondylolisthesis



- M:F =1:6
- L3/4 and L4/5 levels commonest
- Similar presentation to stenotics
- Diff diagnosis of hip OA, vascular claudication

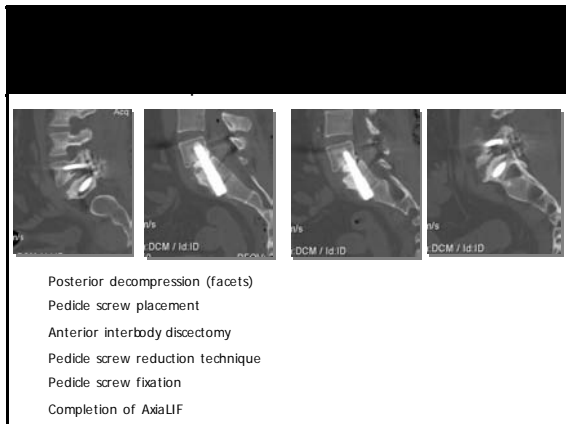
## Degenerative Spondylolisthesis- Management

- Consider age, comorbidities, symptom complex, degree of disc narrowing
- Conservative versus Surgical
- Surgical
  - Unilateral or Bilateral root decompression
  - ? Accompanying fusion
  - ? Accompanying soft stabilisation
  - Fusion alone



## Lumbar Interbody fusion and Pedicle screw system





### Surgical Outcomes

- SPORT study. Surgical outcomes in prolapsed intervertebral disc, degenerative spondylolisthesis and spinal stenosis.
- Surgical Compared with Nonoperative Treatment for Lumbar Degenerative Spondylolisthesis. Four year results in the Spine Patient Outcomes Research Trial (SPORT) Randomized and Observational Cohorts. Weinstein et al JBJS June 2009.

### Surgical Outcomes

SPORT study 'as treated' analysis combining randomized and observational groups.

Clinically relevant advantages of surgery reported at 2 years were maintained at 4 years. (bodily pain, physical function, ODI scores)

### SPORT study

- Patient selection – those who 'needed' surgery were immediately excluded
- Pre 2002 surgical treatments – no BMP products available. Minimal access spinal technologies in infancy
- Conservative arm listed 42 different treatment options and 50 medications
- 'Intention to treat' analysis. Failed conservative treatment patients who had surgery have results attributed to conservative treatment

- Spineclass 2010

Thankyou