

Spine Pathoanatomy –

“Correlation” to symptoms!



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Reykjavík



Spinal Instructional Course, *Monday, June 11th*,

Faculty:

Anna Lena Robinson, Uppsala Sweden

Peter Försth, Uppsala, Sweden

Björn Zoëga, Stockholm, Sweden

Helena Brisby, Gothenburg, Sweden

Christian Hellum, Oslo, Norway

F C Öner, Utrecht, Netherlands

Halldór Jónsson jr, Reykjavik, Iceland

Hildur Einarsdóttir, Reykjavík, Iceland

Bjarni Valtýsson, Reykjavík, Iceland

Kristjan G. Guðmundsson, Reykjavik Iceland

Magnús Ólason, Reykjavik, Iceland

Moderators: Ragnar Jónsson, Halldór Jónsson jr., Peter Försth

YESTERDAY!

17:00-17:30 Introduction. Diagnostic tests. Applied anatomy. - Halldór Jónsson Jr

17:30-18:00 Spinal imaging. Principles and pitfalls. - Hildur Einarsdóttir

18:00-18:30 Pathophysiology of spinal & nerve root pain - Helena Brisby

18:30-19:00 Spinal Pain: Epidemiology & life style factors - Kristján G. Guðmundsson

19:30- *Dinner - Vox, Hilton Reykjavík Nordica*



Spinal Instructional Course, Tuesday, June 12th,

- 08:00-08:30** *Clinical investigations, correlation with symptoms & imaging - Halldór Jónsson Jr*
08:30-09:00 *Nonoperative treatment of chronic cervical and lumbar pain - Magnus Ólason*
09:00-09:30 *Acute and chronic cervical axial and nerve root pain, herniated disc of the cervical spine. Diagnosis and treatment - Anna Lena Robinsson*
09:30-10:00 *Lumbar spinal stenosis. Diagnosis, and state of the art for surgery. - Peter Försth*

10:00-10:20 **COFFEE**

- 10:20-10:50** *Herniated disc of the lumbar spine. Diagn, treatm and state of the art for surgery. - Christian Hellum*
10:50-11:20 *Spondylolisthesis. Classification, Etiology, Epidemiology. Diagnosis and treatment. - Peter Försth*
11:20-11:50 *EB treatment and MI modalites of chronic lumbar and cervical pain. - Bjarni Valtýsson*

11:50-12:30 **LUNCH**

- 12:30-13:00** *Lumbar and thoracic spinal injuries. Conservative and operative treatment. - Halldór Jónson Jr*
13:00-13:30 *Cervical injuries. Conservative and operative treatment. - Anna Lena Robinsson*
13:30-14:00 *Surgery for chronic lumbar pain. - Christian Hellum*
14:00-14:30 *Surgical complications, postoperative infection and neurological complications. How to avoid, diagnose and treat. - F. Cumar Öner*
14:30-15:00 *Patients with spinal problems. When is a referral to a spinal surgeon indicated. - Helena Brisby*

15:00-15:20 **COFFEE**

- 15:20-16:40** *Clinical cases and imaging - Smaller groups, one faculty member/group.*
16:40-17:00 *Take home message. Closing remarks. Course evaluation formula. - Ragnar Jónsson/Peter Försth*

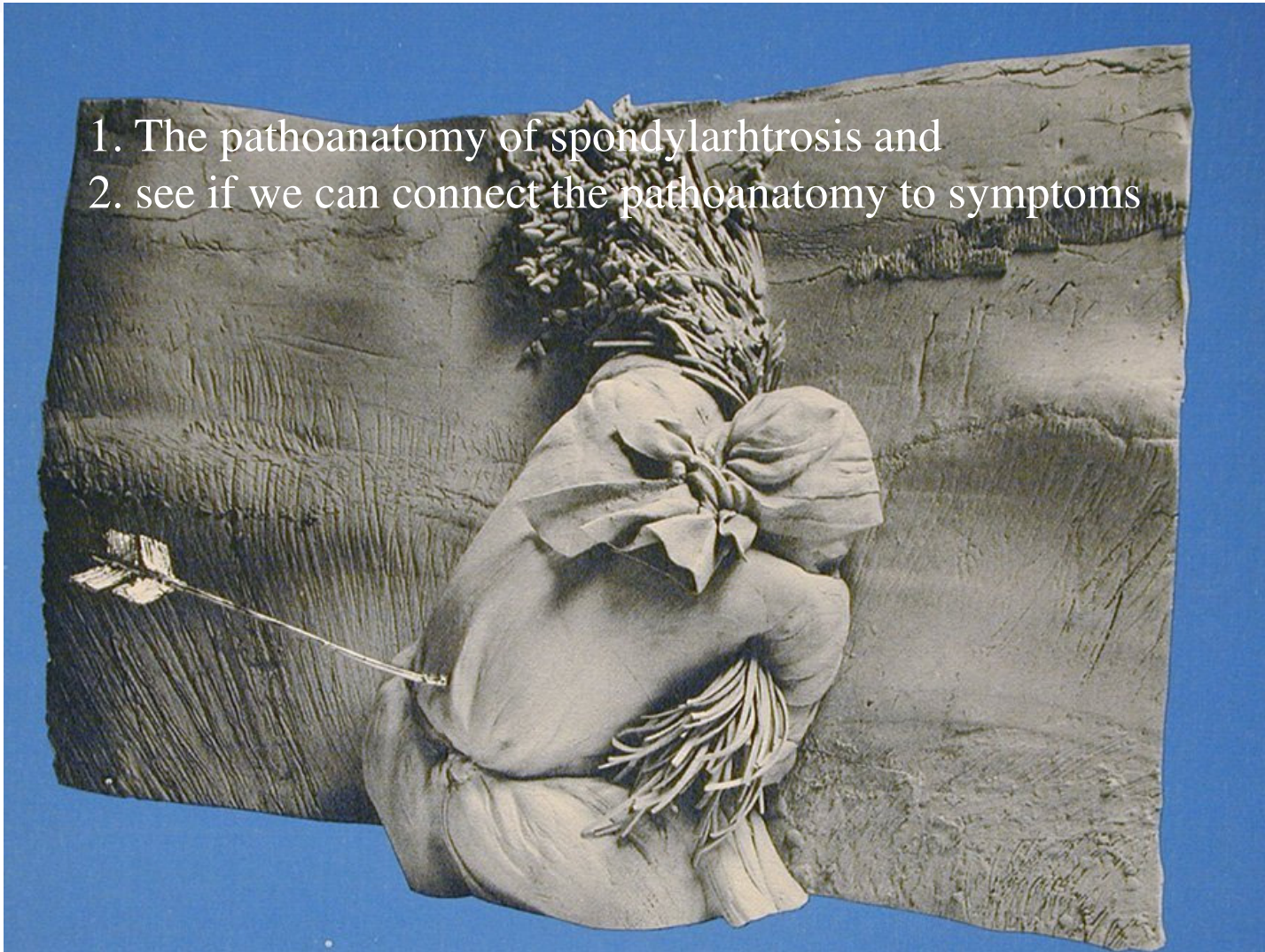
Are the “symptoms” real or imagination?



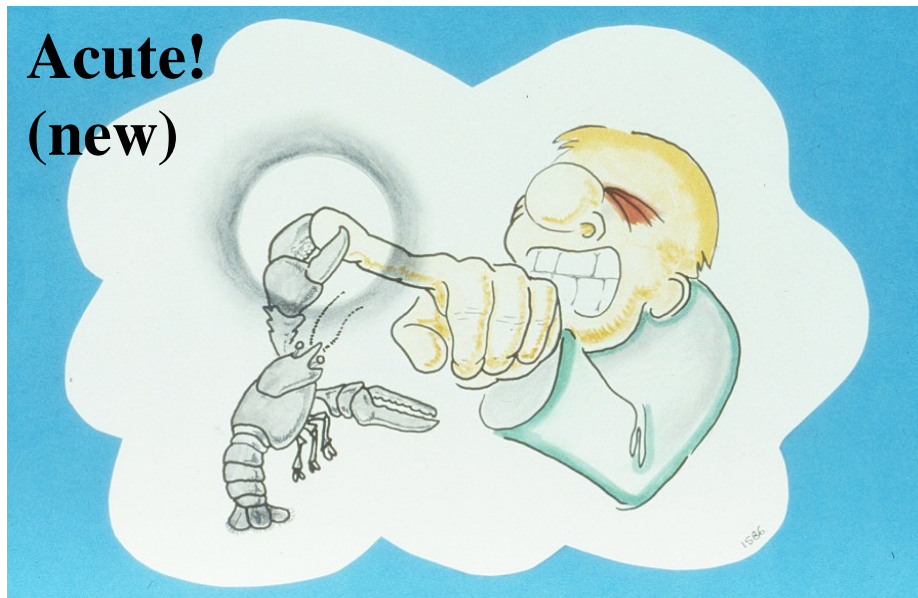
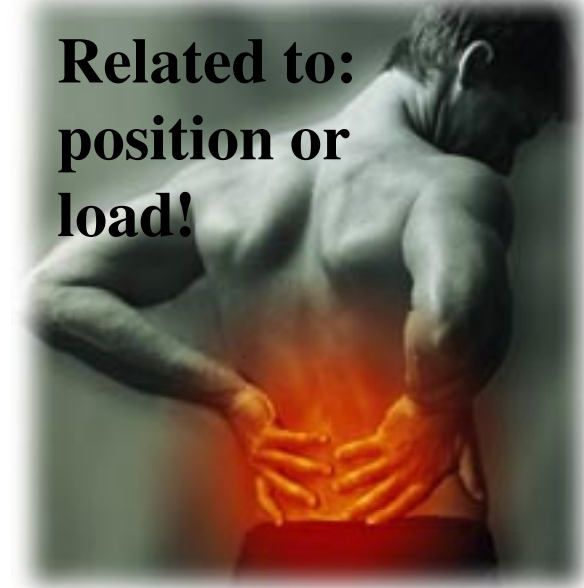
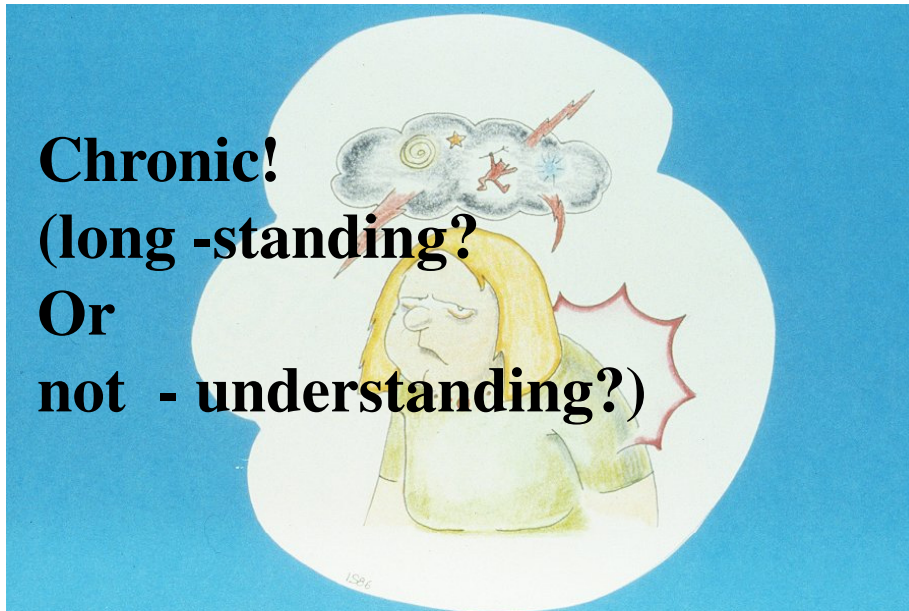
No conflict of interest

My aim is to teach you:

1. The pathoanatomy of spondylarhtrosis and
2. see if we can connect the pathoanatomy to symptoms



First: Are the “symptoms” local/ and or radiating



10.16 Common spinal problems

- Mechanical back pain
- Prolapsed intervertebral disc
- Spinal stenosis
- [Redacted]
- Spinal instability (e.g. spondylolisthesis)

Are the “symptoms” related to deformity

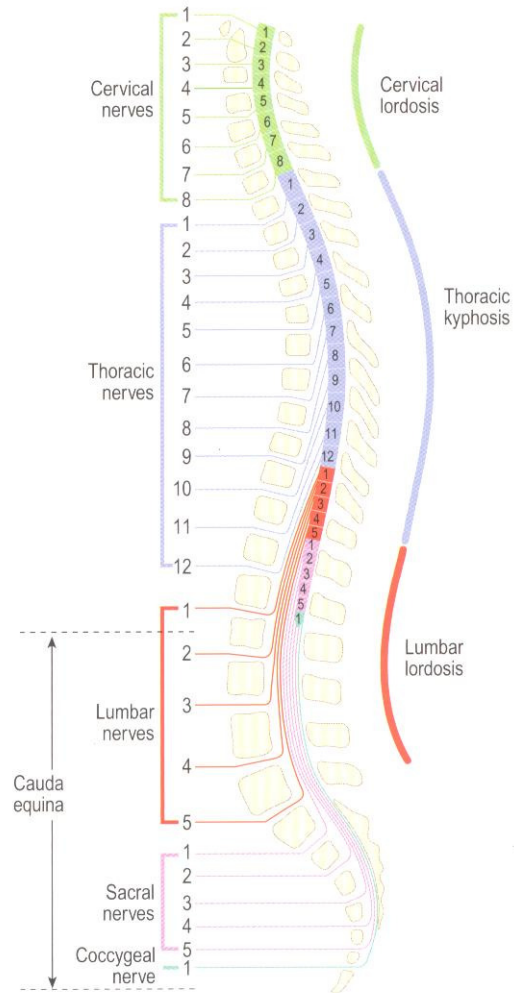


Fig. 10.19 The normal spinal curves.

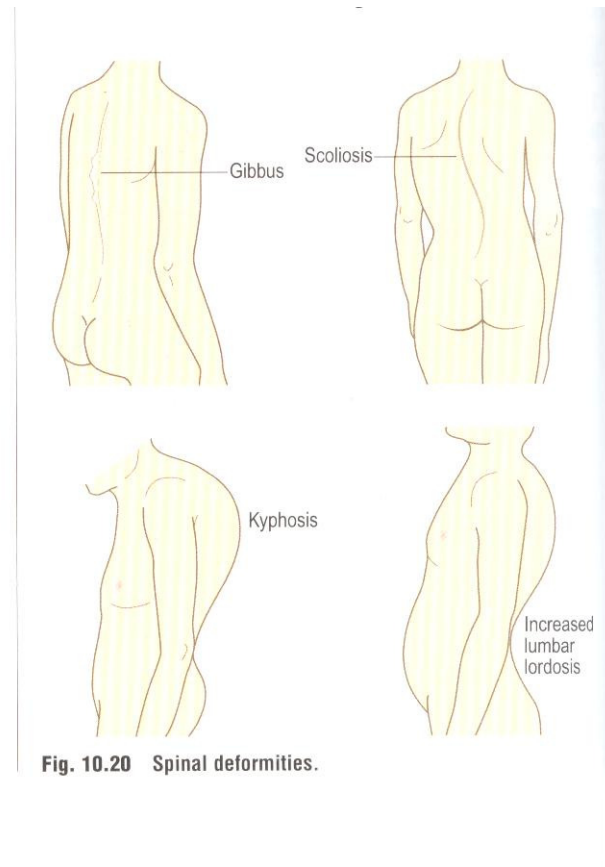
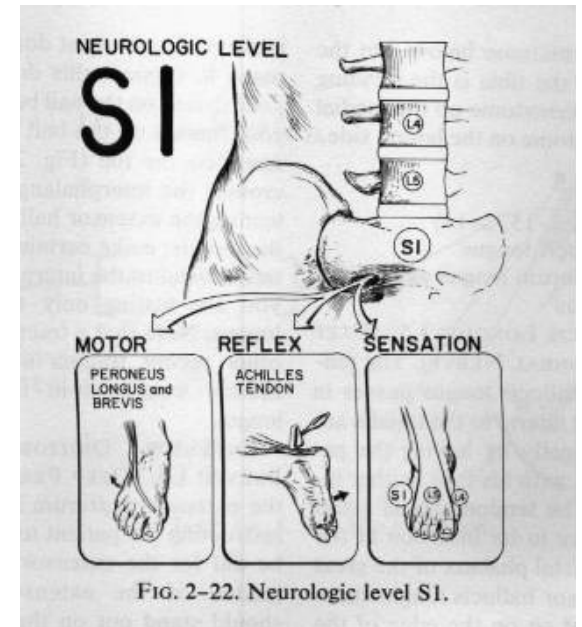
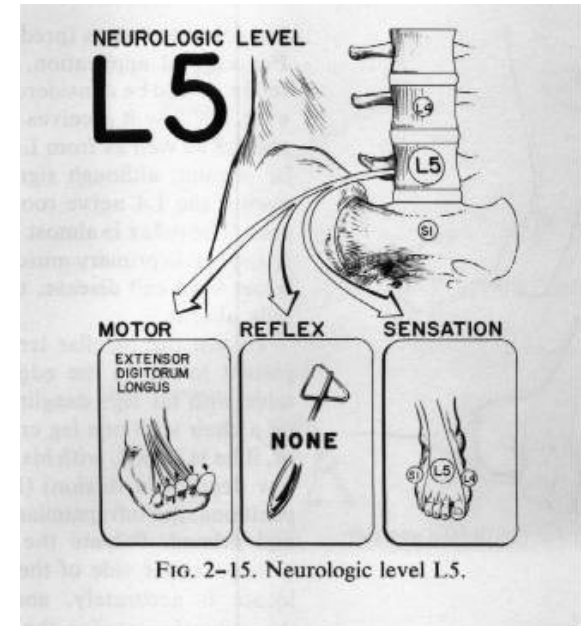
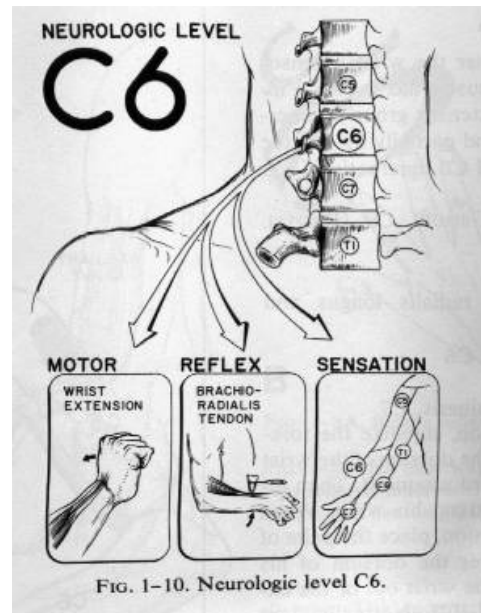
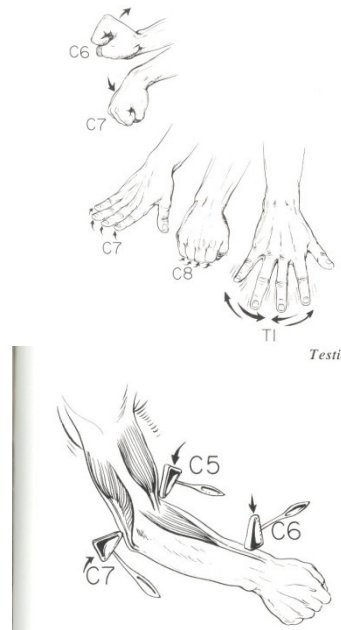
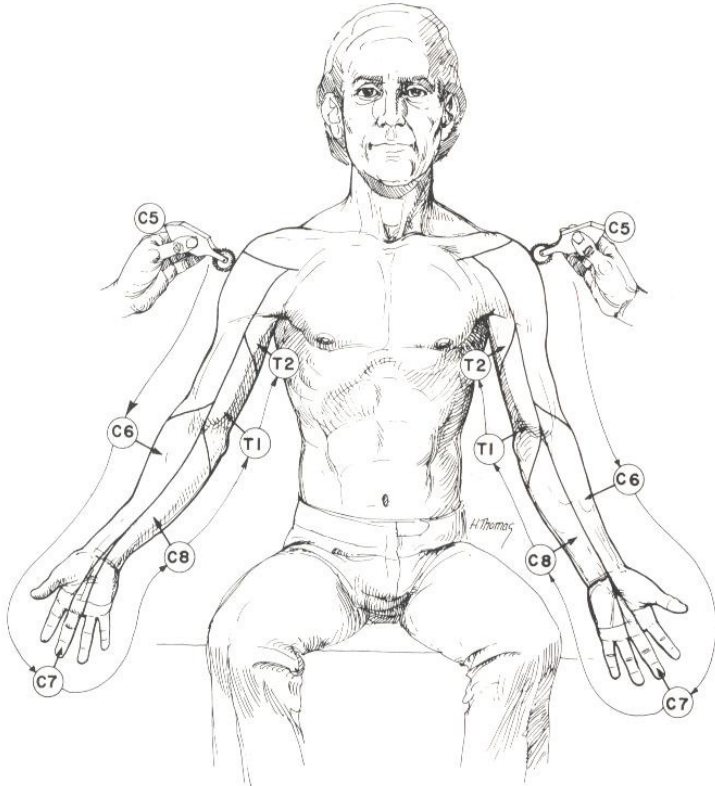
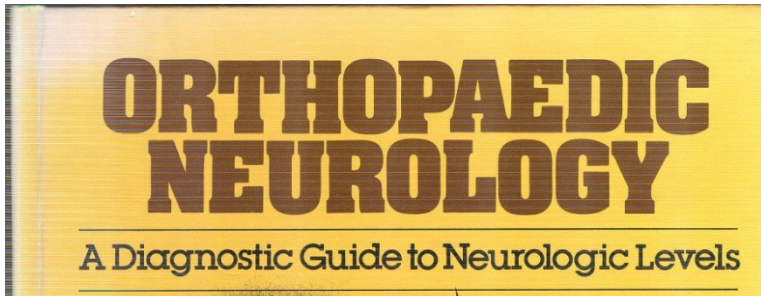
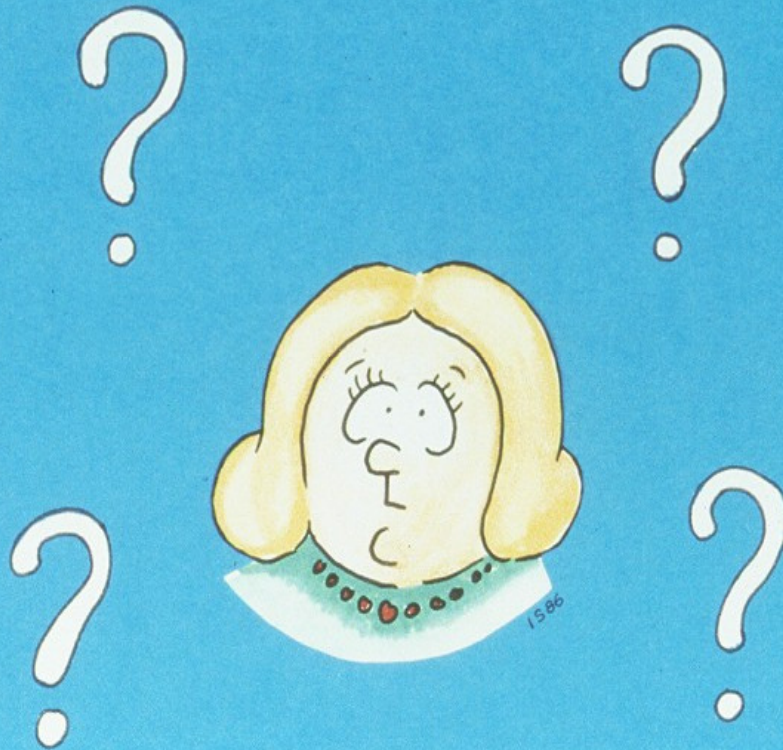


Fig. 10.20 Spinal deformities.

Are the “symptoms” related to abnormal neurology



Are the “symptoms” related to biomechanical failure as in arthrosis!



Arthrosis most common in:

Cervical spine: 36%, thoracal spine: 2%, **lumbar spine: 62%**

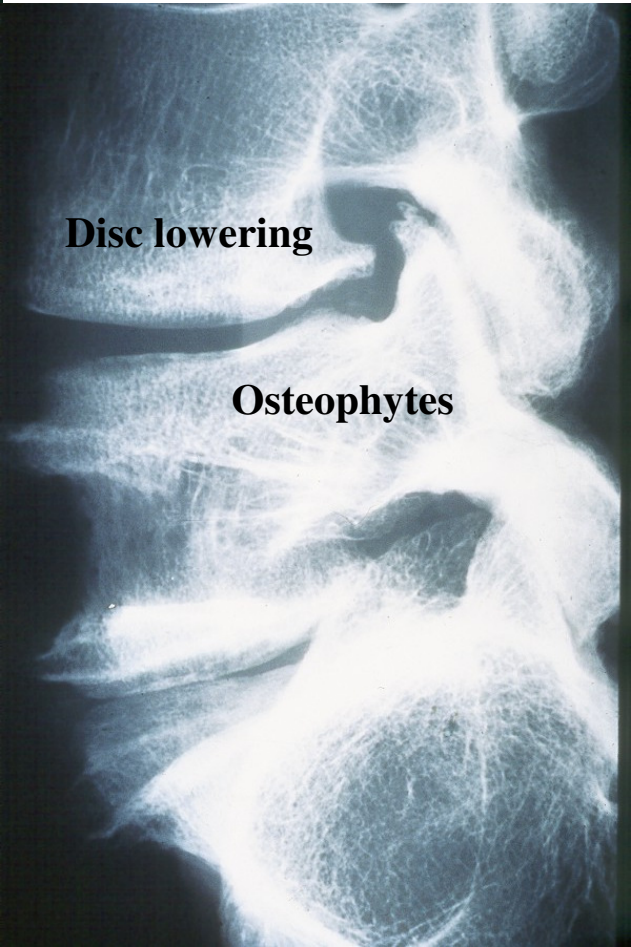
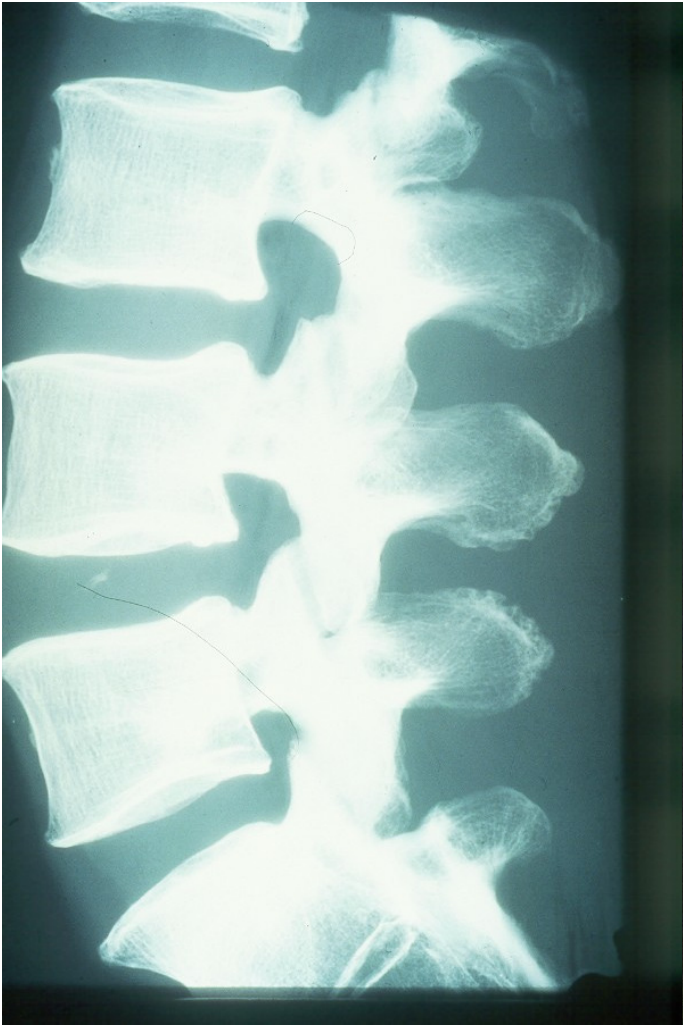
Spinal arthrosis; disc degeneration!



Disc dehydration

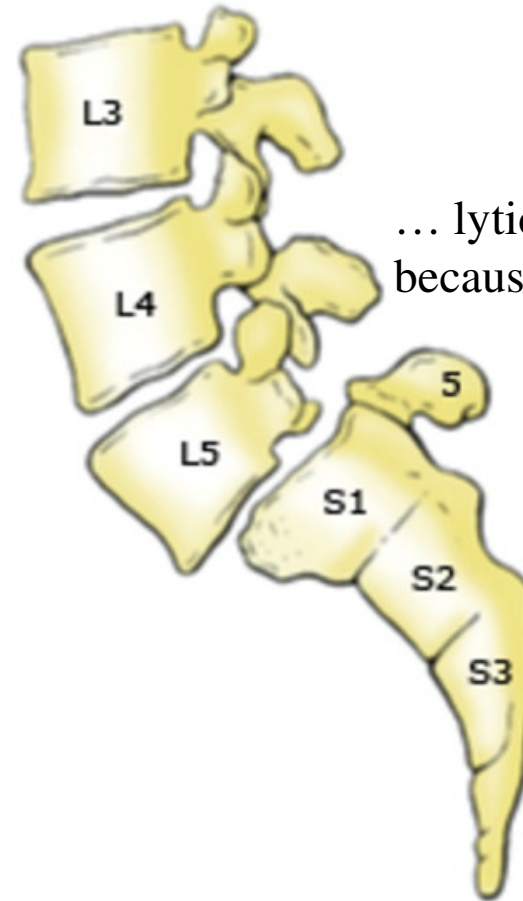
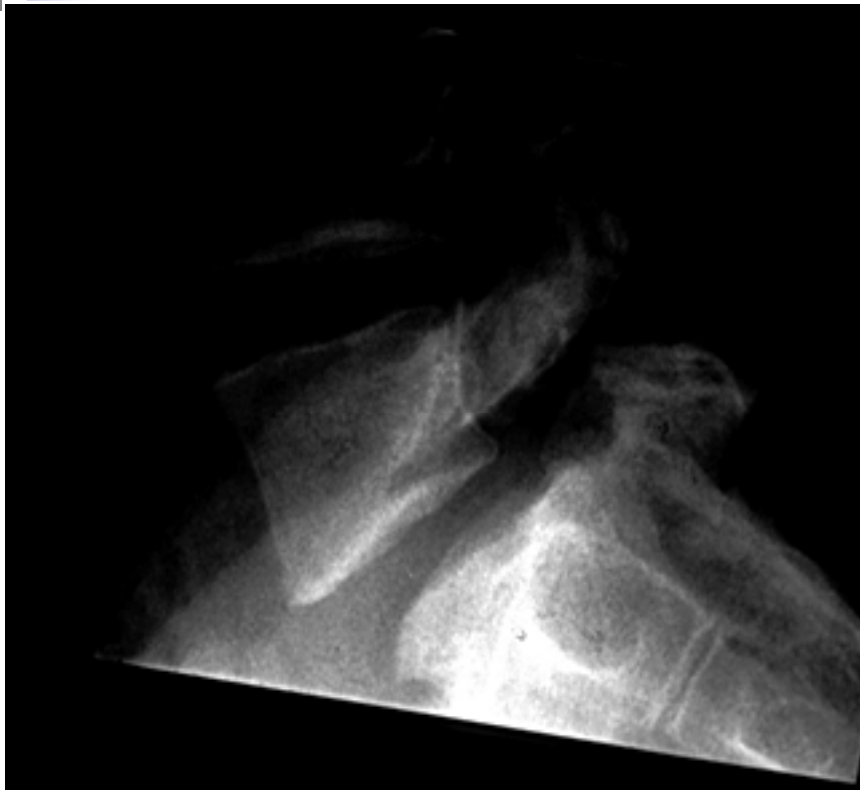
Spinal arthrosis; segmental derangement!

Normal lumbar segments



Facet subluxation

Spinal arthrosis; derangement with vertebral subluxation in



... lytic olisthesis;
because of disc fatigue!

Spinal arthrosis; vertebral subluxation can continue into

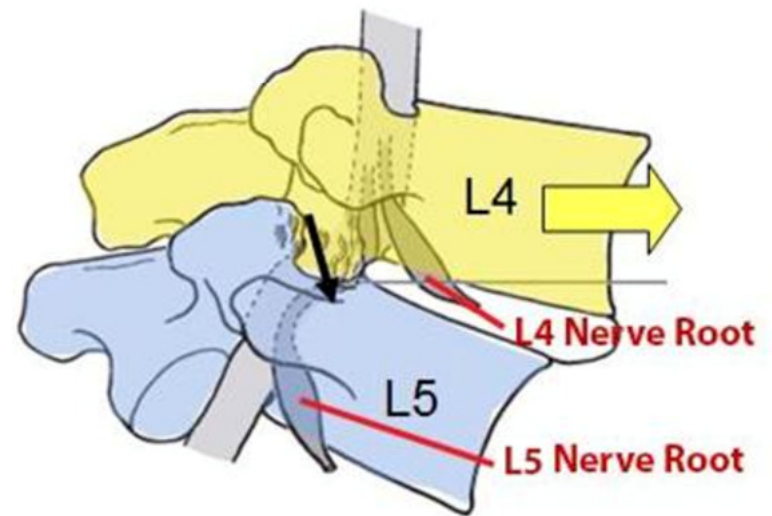


..... dislocation!
(spondyl-optosis)

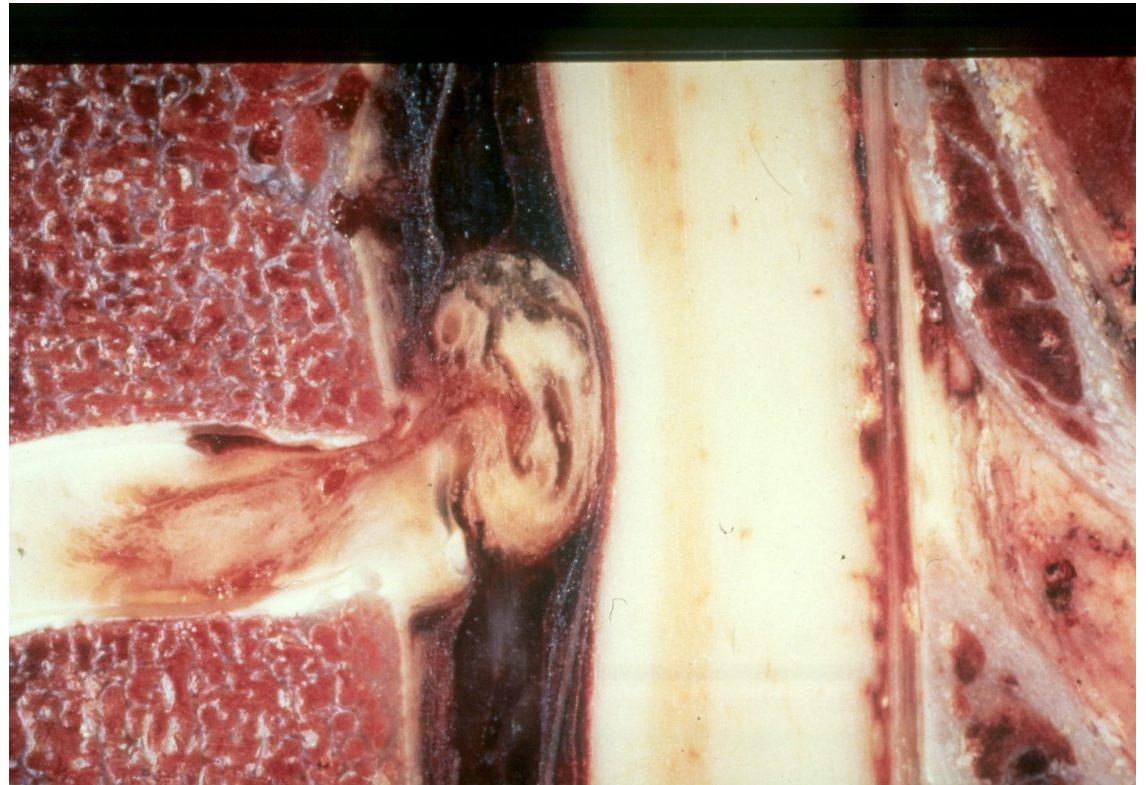
In spinal arthrosis; derangement with segmental subluxation in



.... degenerative olisthesis;
because of disc and facet joint fatigue!

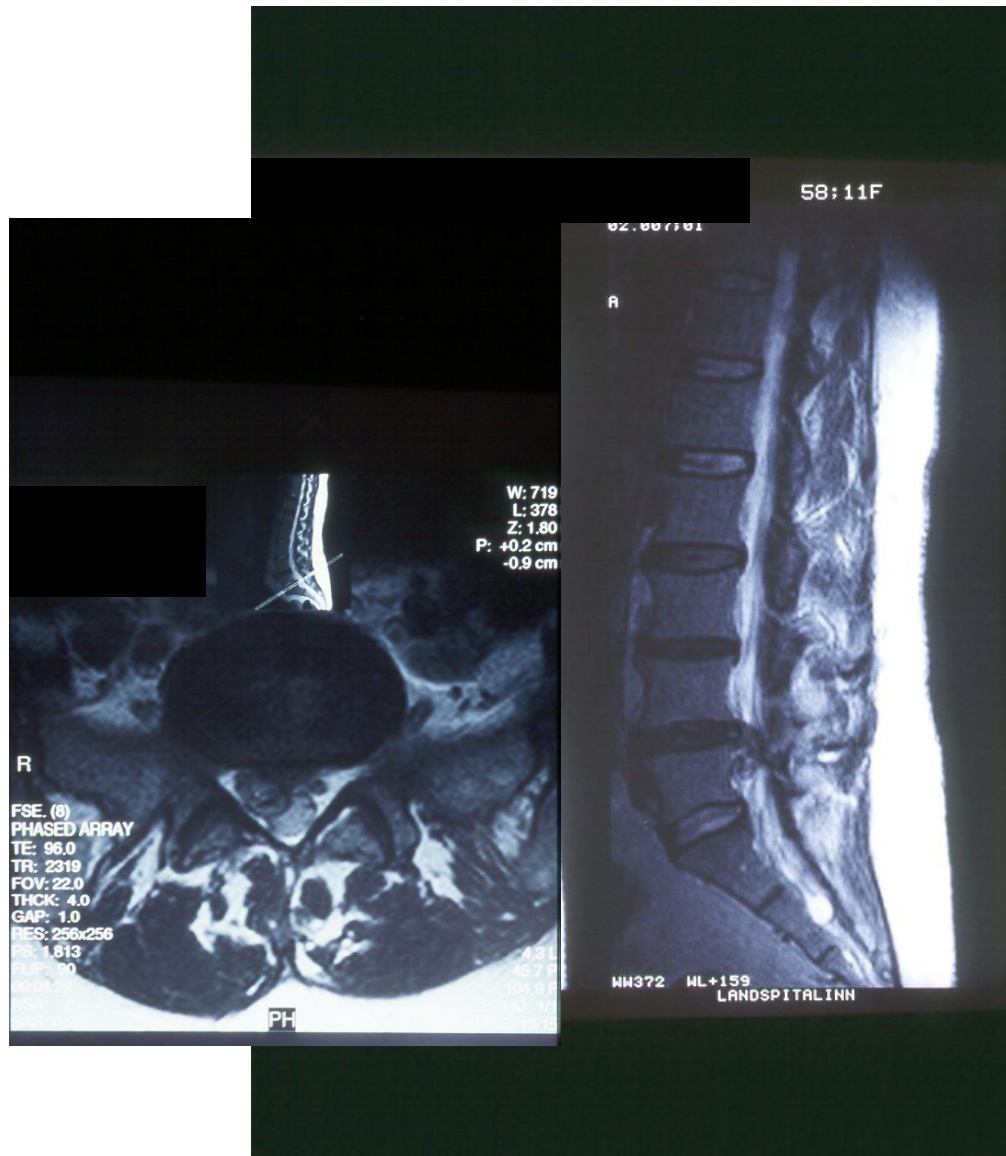


Spinal arthrosis; derangement due to central disc prolapse



Discmaterial compressing spinal cord
or
Herniated Nucleus Pulposus = HNP

Spinal arthrosis; derangement due to postero-lateral disc prolapse



Discmaterial compressing nerve root

Spinal arthrosis; derangement due to posterior (disc) bulging



Remember: posterior annulus is sensory innervated



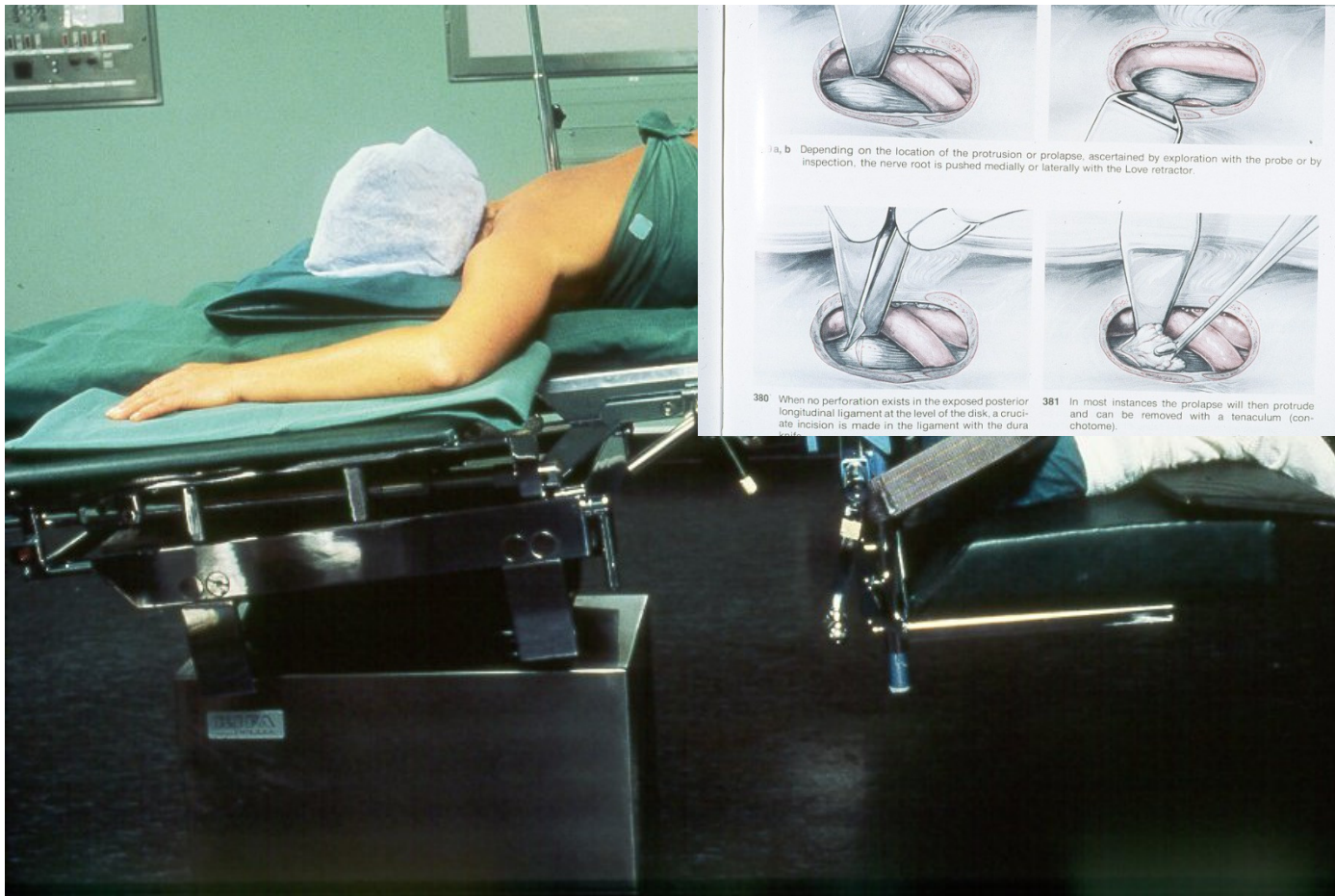
Spinal arthrosis; derangement due to posterior bulging and infolding flavum = stenosis



Compression of nerves and vessels causing “compartment syndrome”

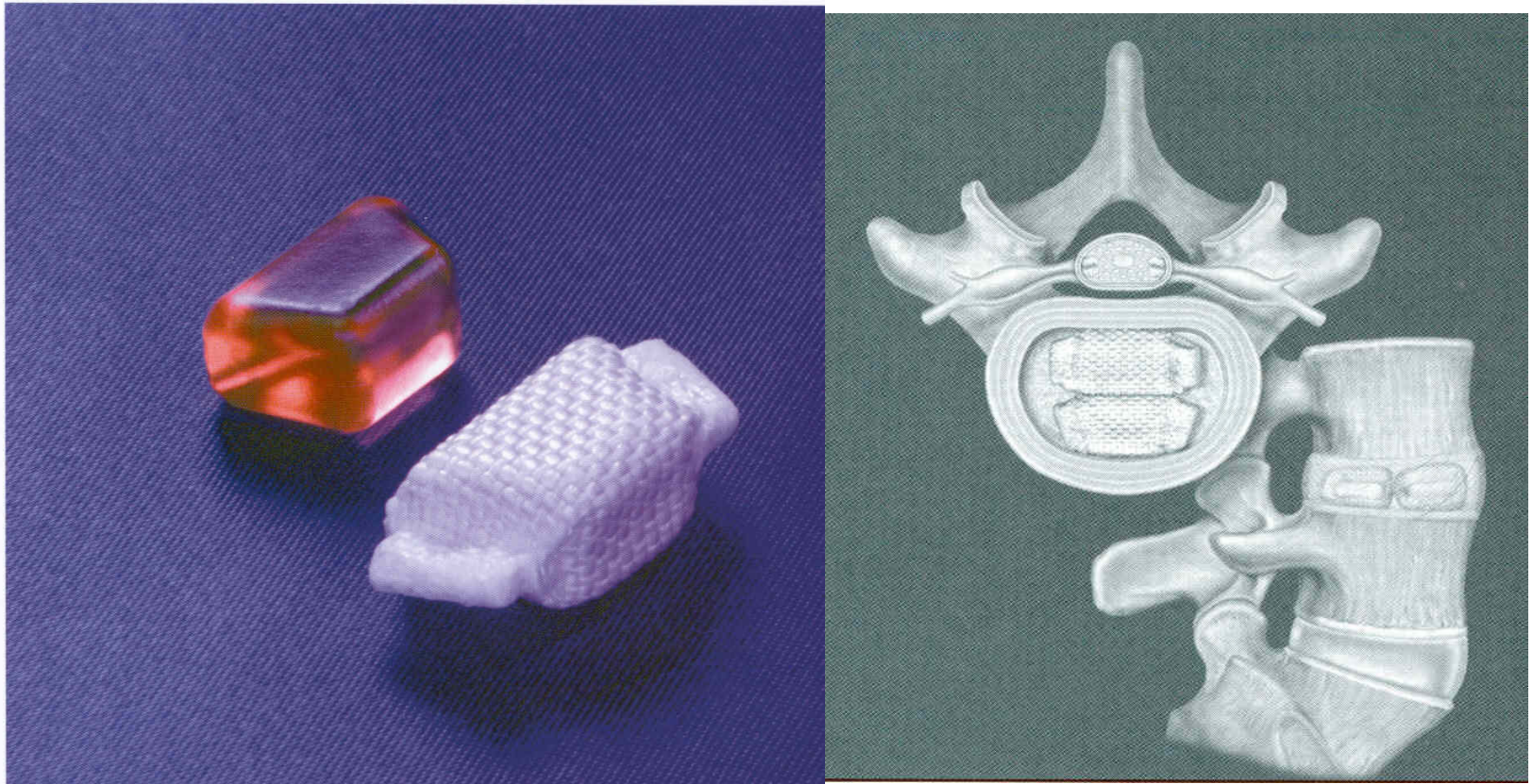
Direct treatment

Extraction / evacuation of disc material

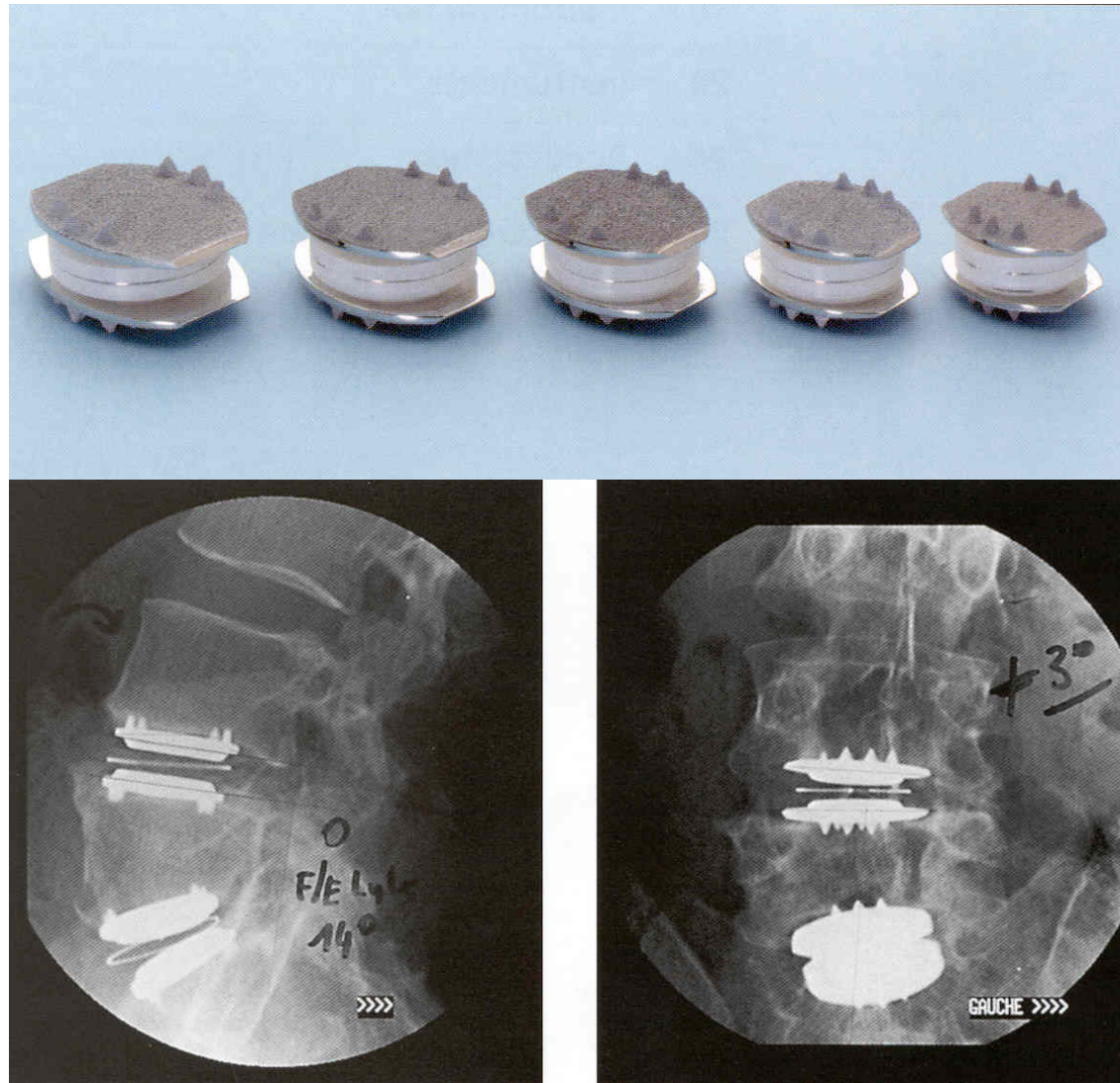


Anterior segmental restoration; the nucleus, non-fusion

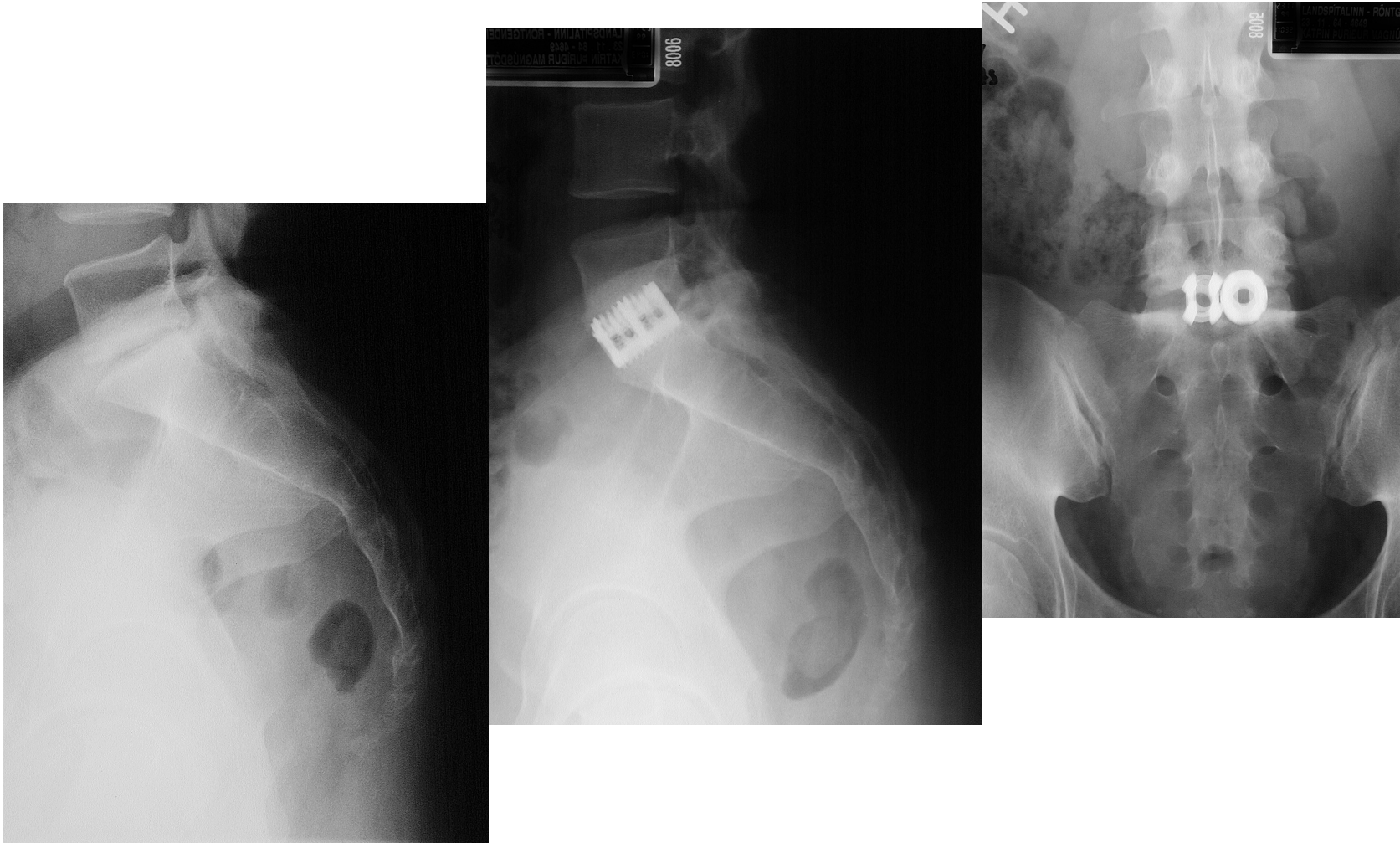
THE PDN[®] PROSTHETIC DISC NUCLEUS



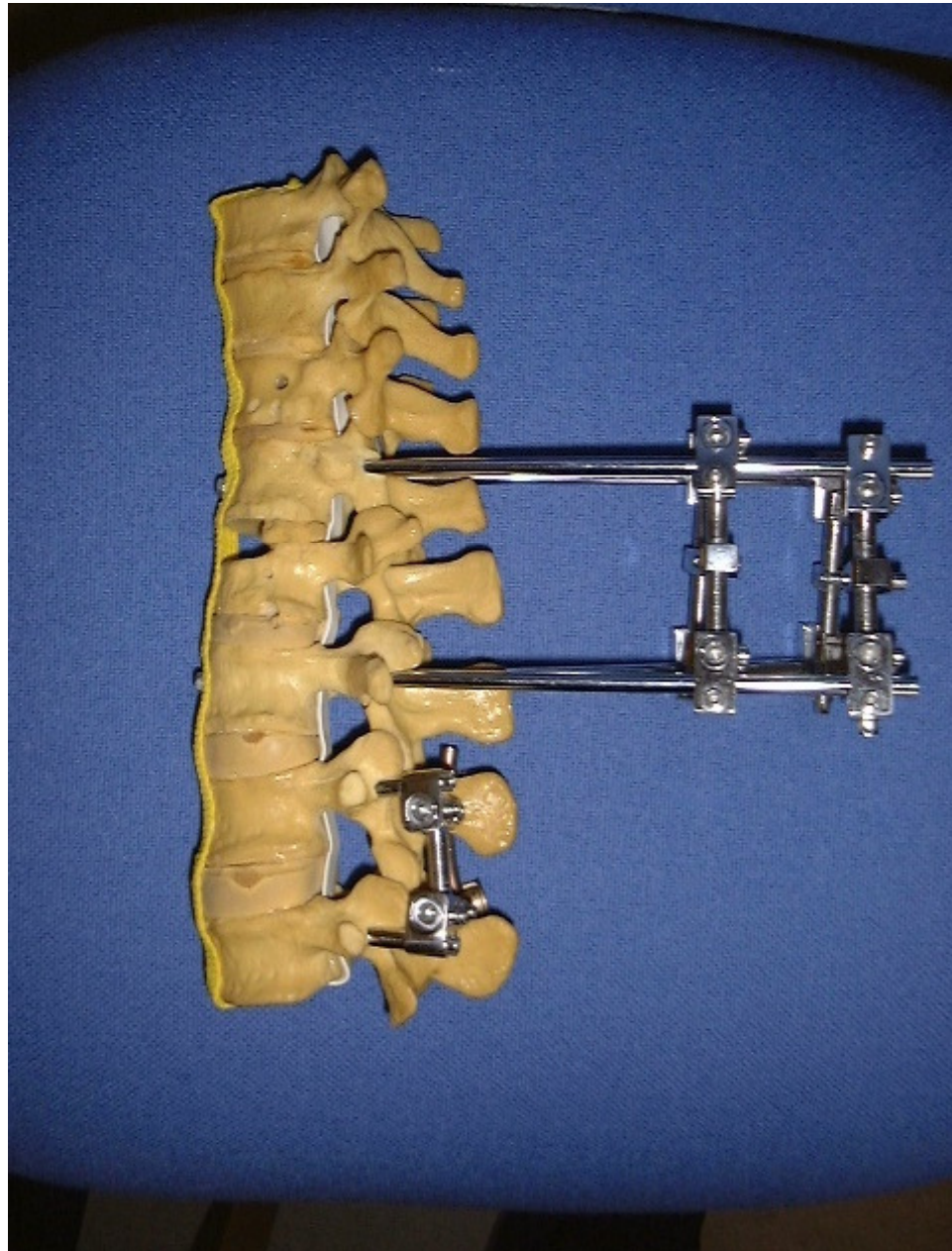
Anterior segmental restoration; the disc, non-fusion



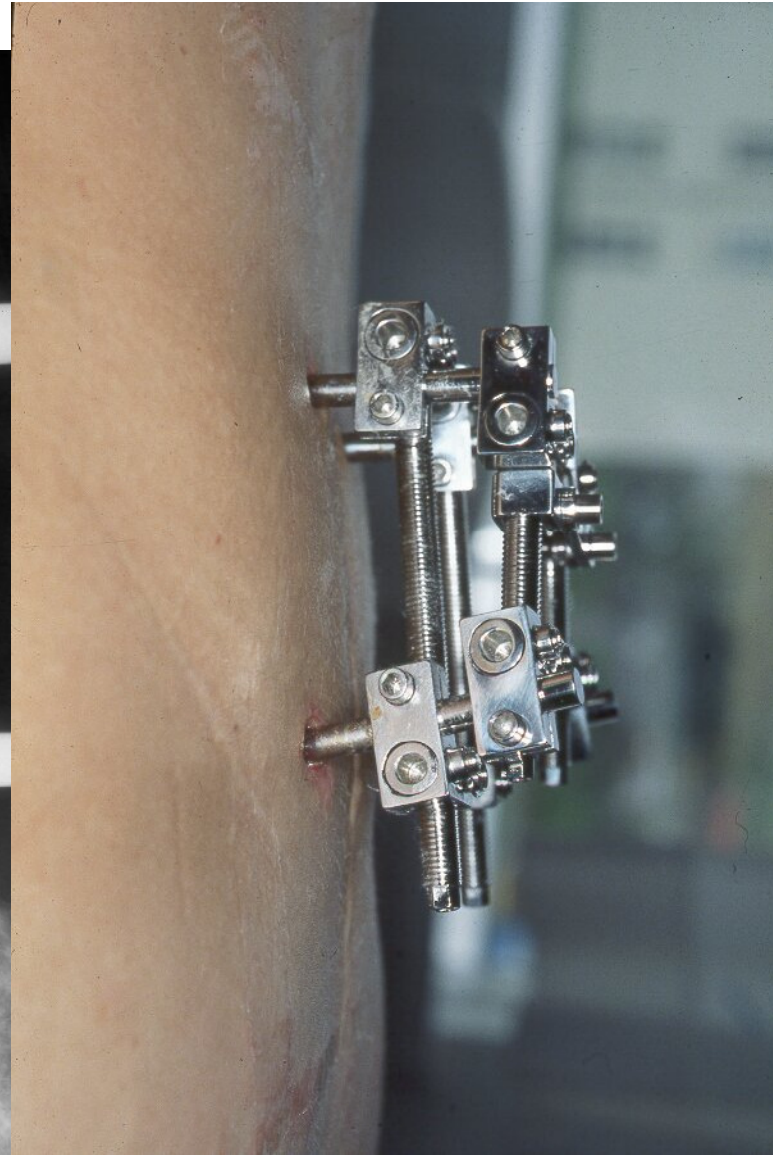
Anterior segmental restoration; cages, anterior fusion



Indirect test: with fixation – can be distracted

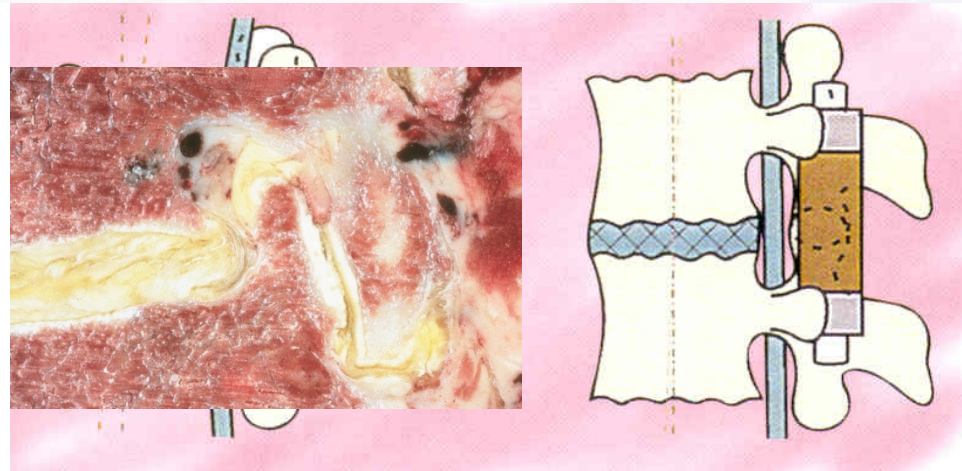


Posterior segmental restorationwith distraction; and can stop!



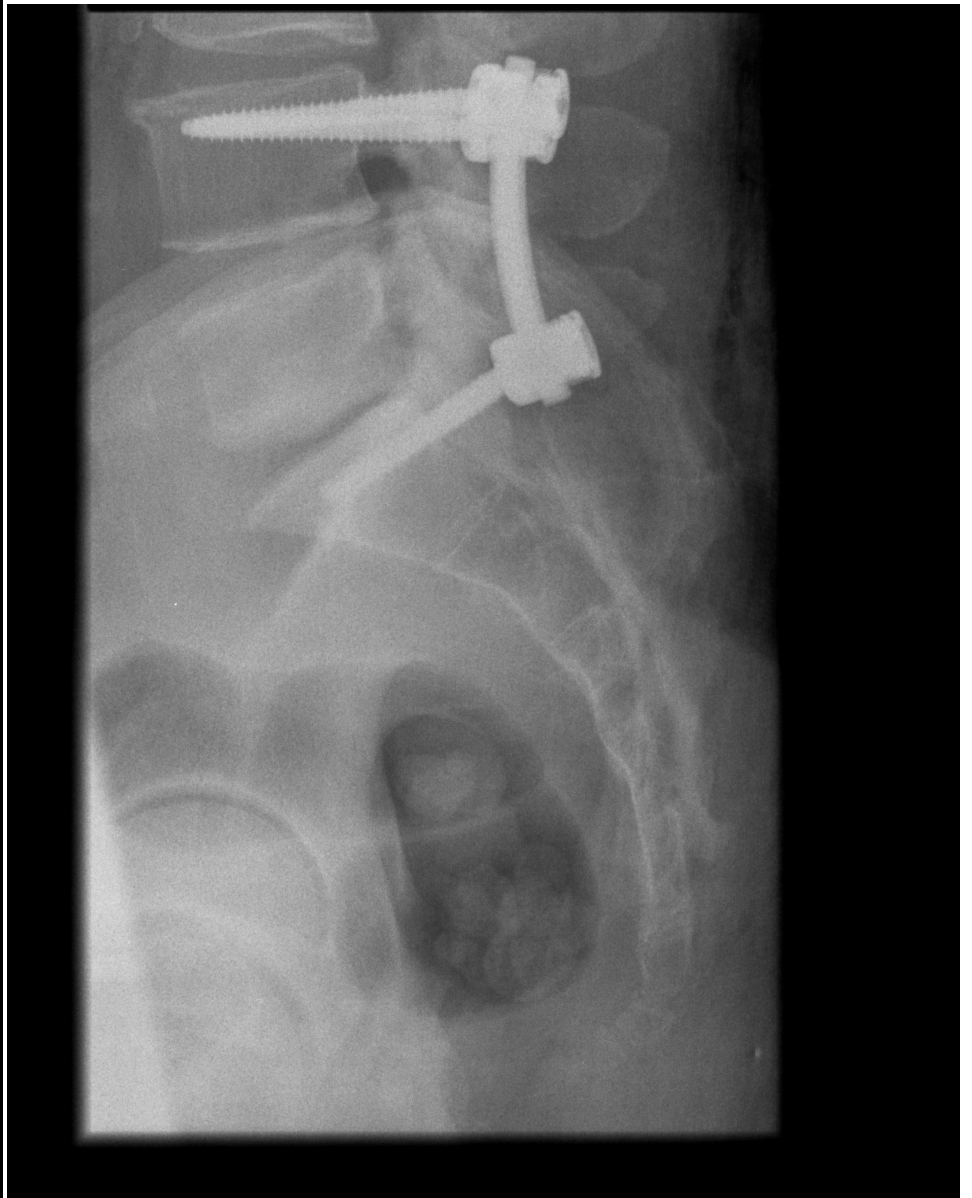
Posterior segmental restoration; distractive fixation, non-fusion

Dynamic Re-stabilization of Spinal Segments



.....foraminal widening!

Posterior segmental restoration; distractive fixation, PL-fusion



THANK YOU!

