

POSSIBILITIES OF SURGICAL MANAGEMENT OF DEGENERATIVE DISORDERS OF THORACIC AND LUMBAR SPINE



Degenerative disorders of discs (osteocondrosis)

- stadium of dysfunction 15 - 35 yrs
- stadium of instability 35 – 55 yrs - herniae
- stadium of stabilisation from 55 yrs - stenoses



Back pain

- Bones, joints, ligaments, muscles, tendons
- Mechano-
- Chemoreceptors
- Dorsal root ganglion – neuropeptides
- Lig longit post – the most sensitive of all lumbar spine ligaments

Radicular pain

- Due to compression
- Chemical irritation
- Irritation of dorsal root ganglion - DRG
 - electrical impulses
 - neuropeptides synthesis – VIP (vasoactive intestinal peptid, substance P)

Levels of evaluation

- anamnesis,
- subjective - VAS score 0-10
- objective,
- imaging methods, X-ray, MRI
- laboratory,
- internal exam
- neurological exam – level of lesion, EMG

Pain

- Acute – chronic (>3 months)
- **Nociceptive** – injury, degen arthritis, inflammation
- **Neuropatic** – damage of neural system (brain, spinal cord, nerve roots, perif nerves)
- **Mixed** – low back pain with nerve compression
- Damage: functional – structural - mixed
- Simulation - dissimulation

Risk factors of pain

- Older age
- Bad physical and psychic condition
- psychic stress
- genetic disposition
- obesity
- hypokinesia
- abuse of alcohol and smoking
- Sedentary work
- Heavy physical work

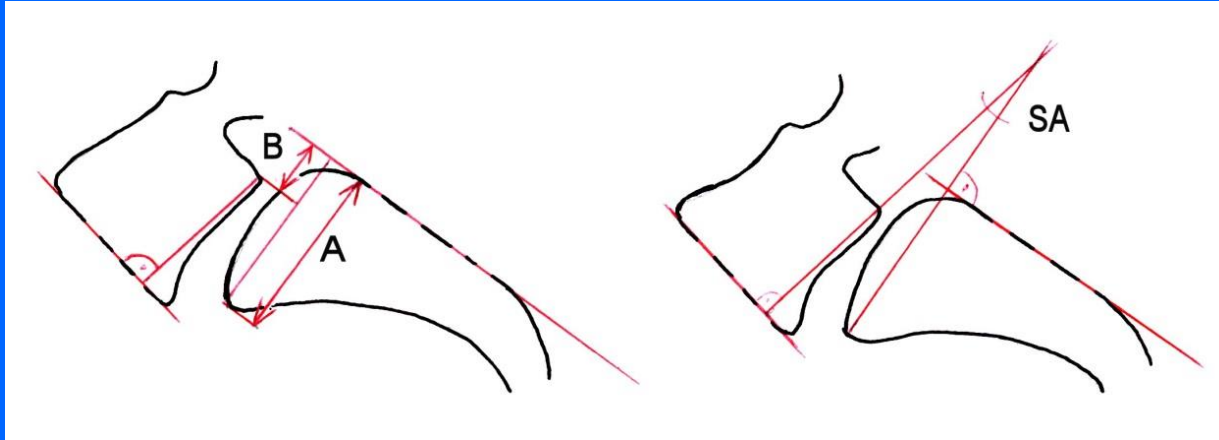
Etiology due to damage tissue

- discogenic,
- vertebrogenic,
- myogenic,
- neurogenic, **B Neuropathic**
- vascular - vasogenic
- viscerogenic – from internal organs,
- psychogenic,

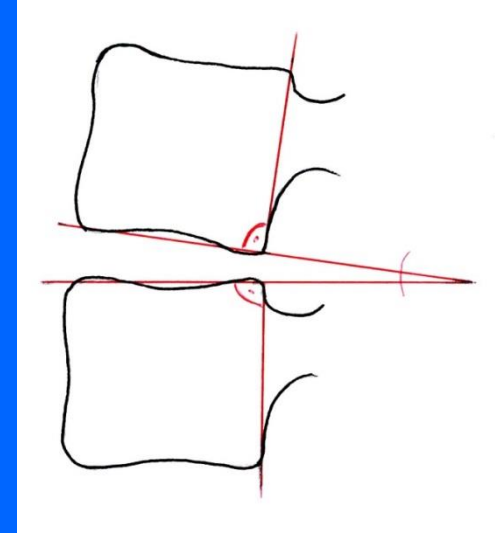
Evaluation

- Structural
- X-ray, standing,
- functional
- MRI
- Psychological
- will
- cooperation
- Functional
- Social
- Neurological - EMG

Method of Wiltse a Winter



Dupuis et al.

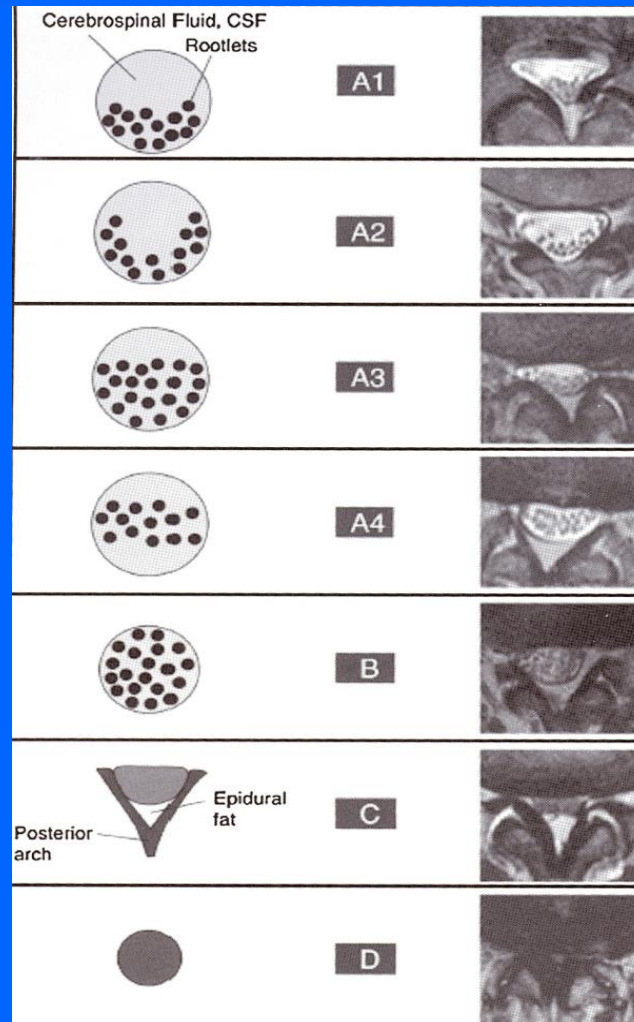


Instability: flexion/extension

- translational $\geq 8\%$ Wood et al. 1994
- rotatory $> 11^\circ$ Louis 1985
- Wood et al. 1994

Schizas et al. Spine 2010, 35, 21, 1919-1924

Classification of lumbar spinal stenosis



Surgery: C, D

Conservative tx and tx after surgery

- Regime measures – changing of positions, ergonomics
- Limitation of stress – no carrying and lifting of loads/weights
- physiotherapy – isometry + strengthening of muscles, correct posture, respiratory physiotherapy, .. – effect after 3 months
- Exercises daily, permanently
- Temporary use of orthoses

Indication of surgical tx

Depletion of conservative tx of

- - deformities (spondylolisthesis)
- - spinal stenosis
- - instabilities
- - worsening of neural deficit (herniae, stenosis)
- - clear origine of pain
- - corresponding clinical + radiological finding

Correlation

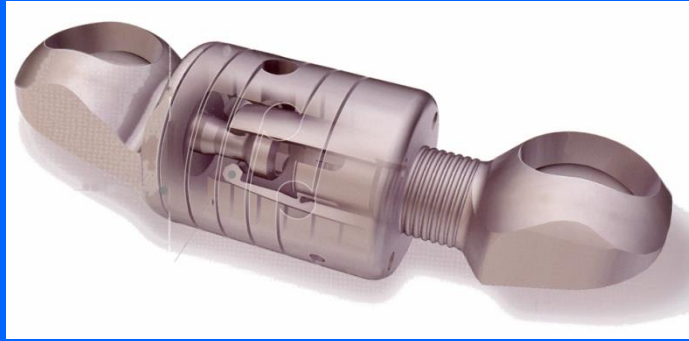
- Subjective difficulties
- Clinical finding
- Neurological examination
- Imaging methods – X-ray, MRI
- Psychological condition

Possibilities of surgical tx

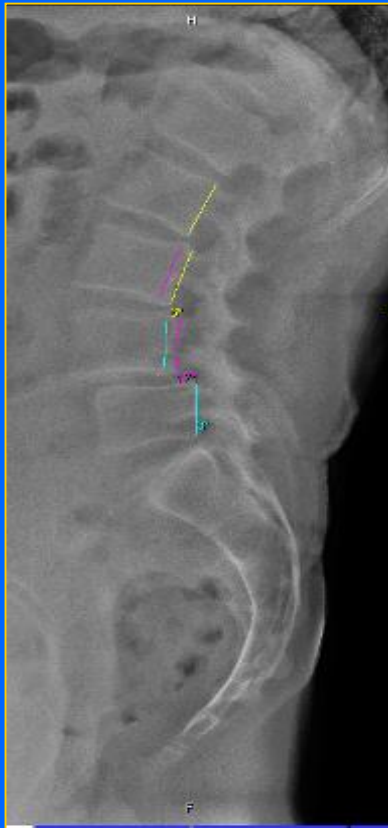
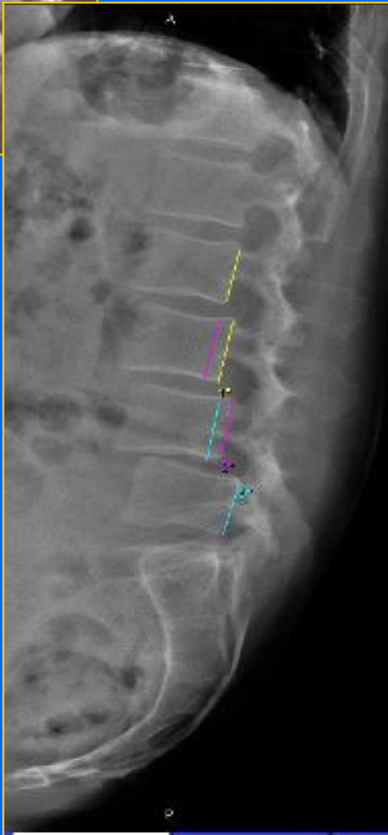
- Decompression
- Decompression + dynamic stabilisation
- Dynamic stabilisation – posterior – (anterior)
- Posterolateral fusion + transpedicular instrumentation
- 360° fusion + transpedicular fixation with deformities correction – special cages for PLIF, TLIF, (ELIF, ALIF)
- (Anterior - ALIF - special cages)

ALIF - anterior lumbar interbody fusion, special cages

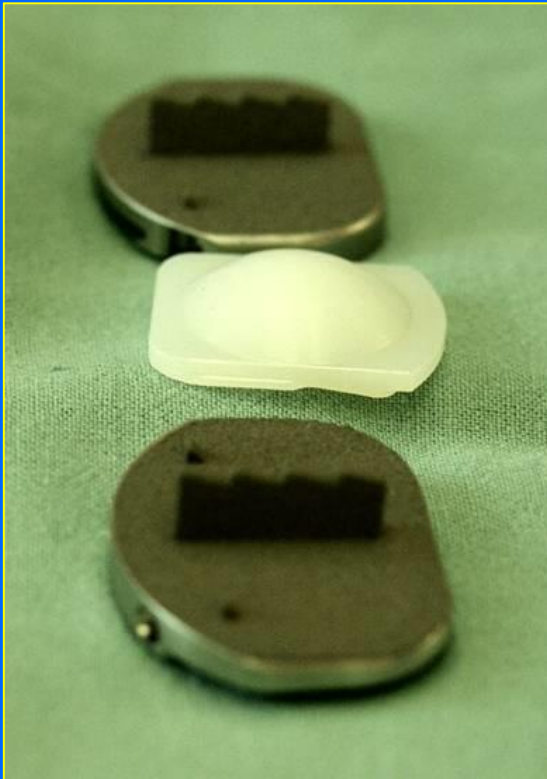
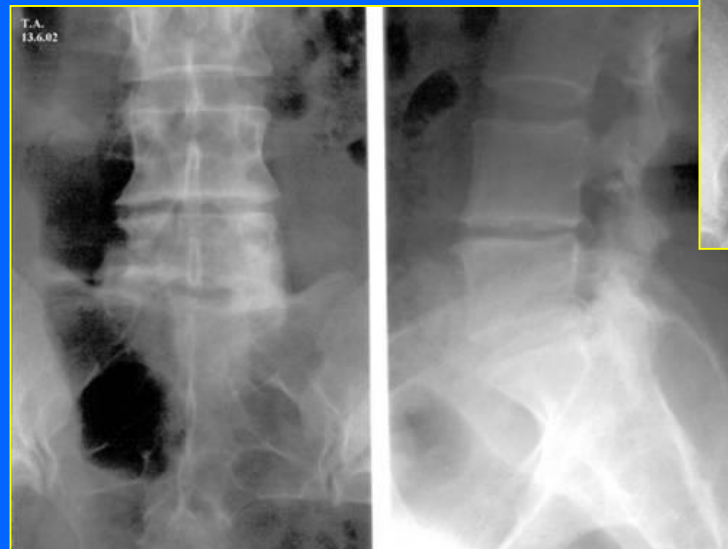
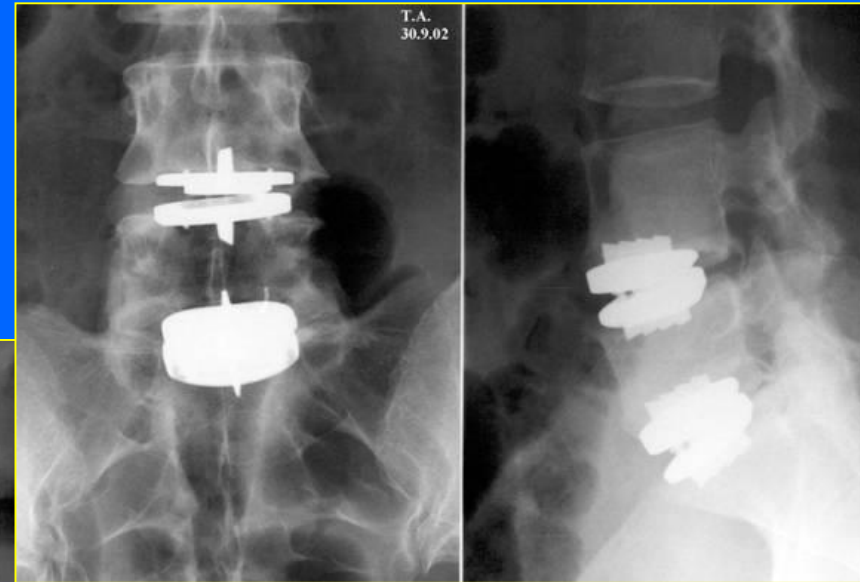




Dynamic stabilisation – posterior



Mobile disc prosthesis - endoprosthesis, limited use

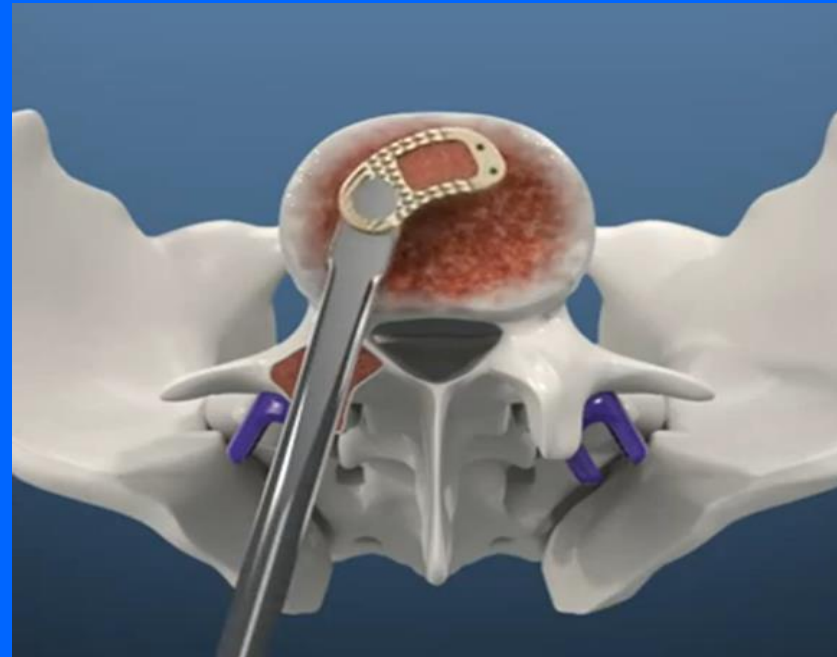
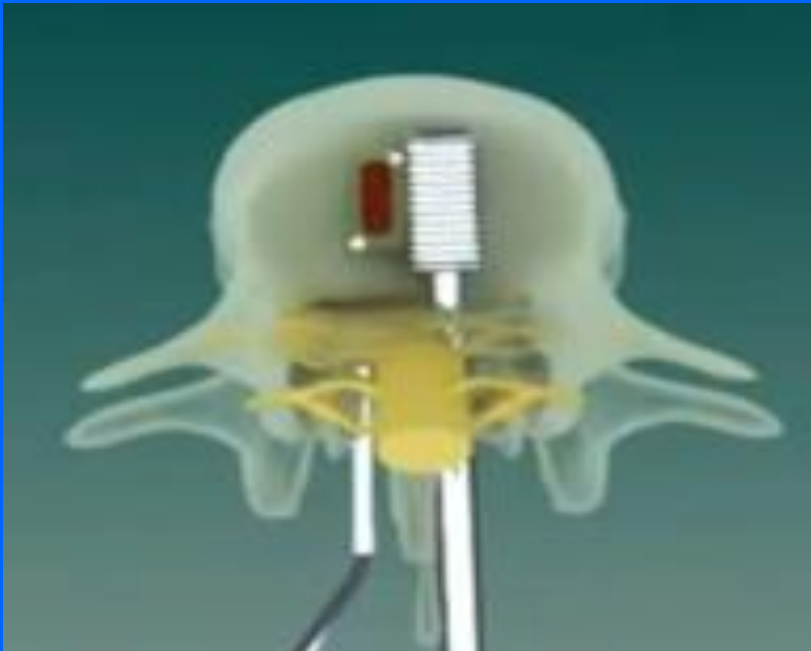


360° fusion – PosteroLateral fusion- bone grafts, transpedicular fixation +

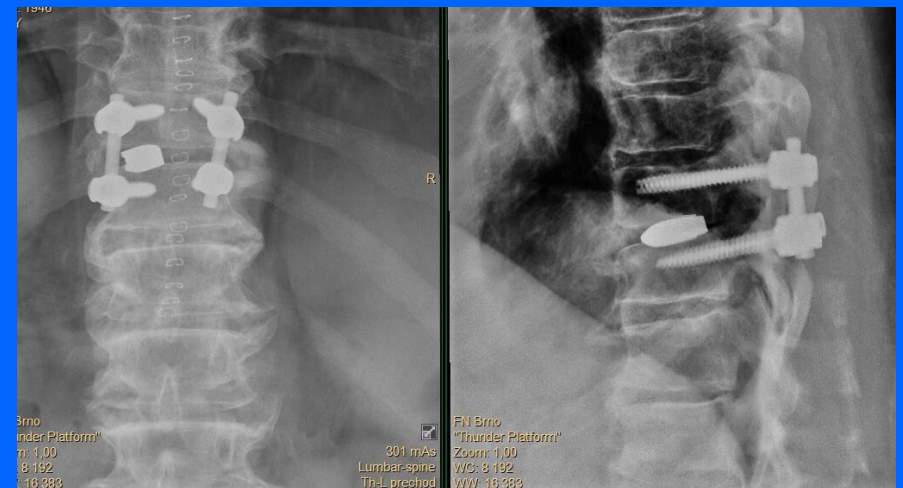
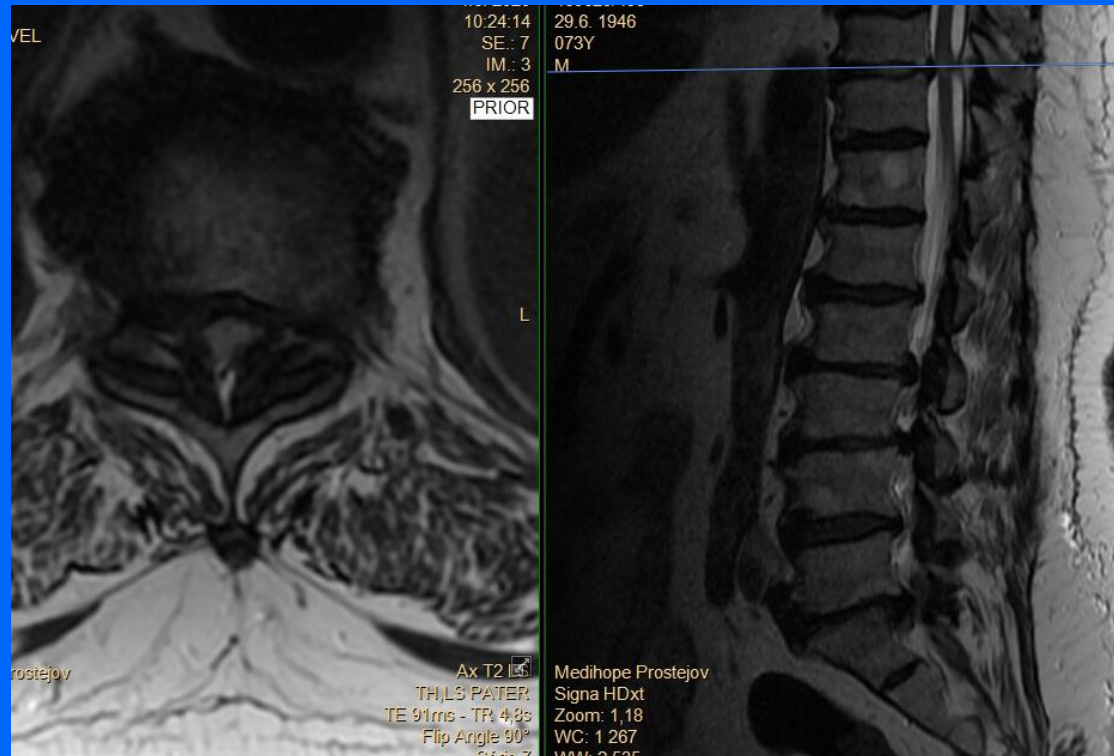
PLIF

TLIF

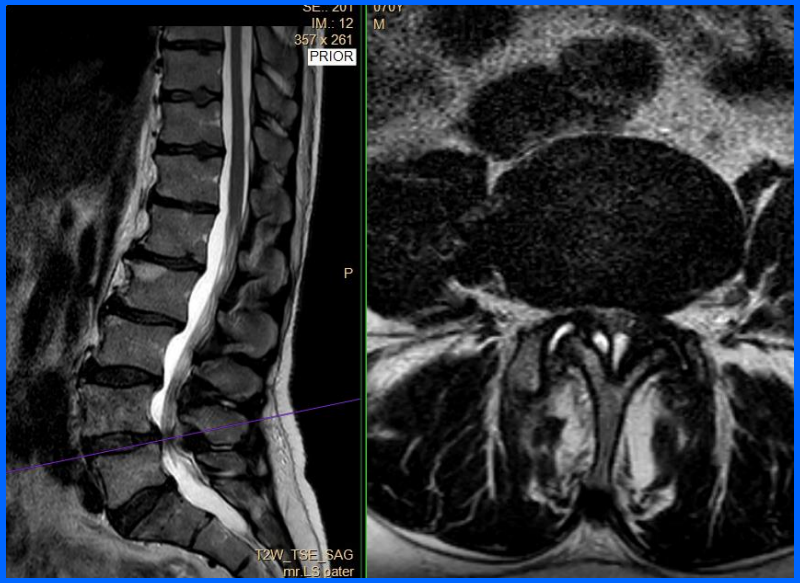
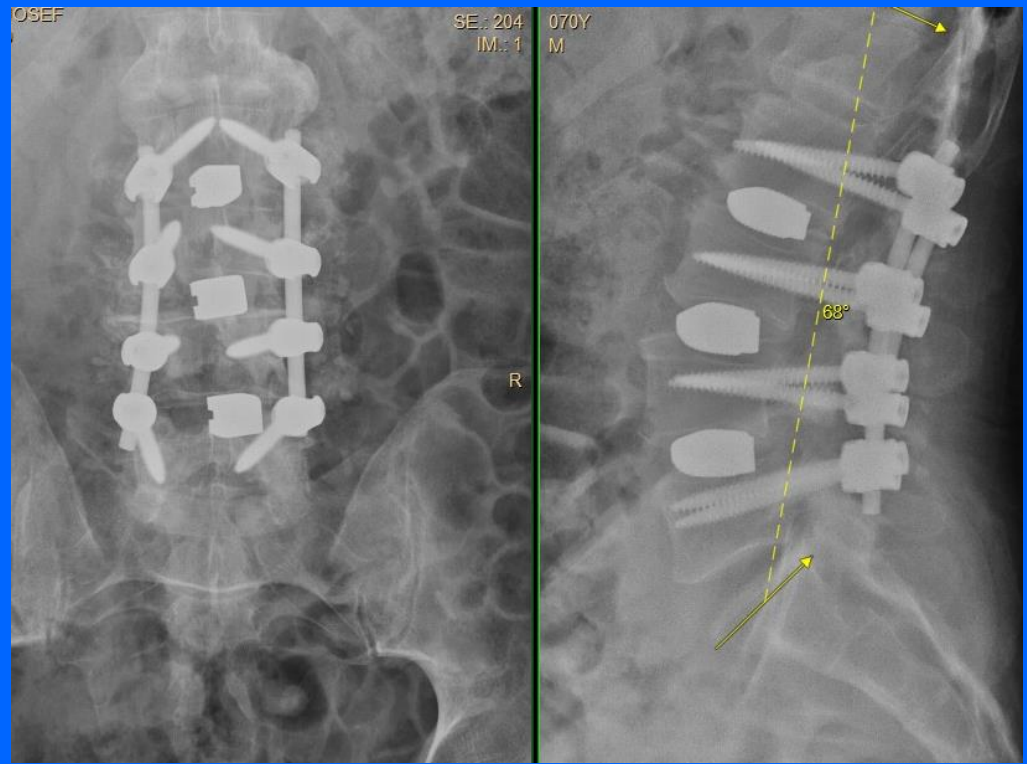
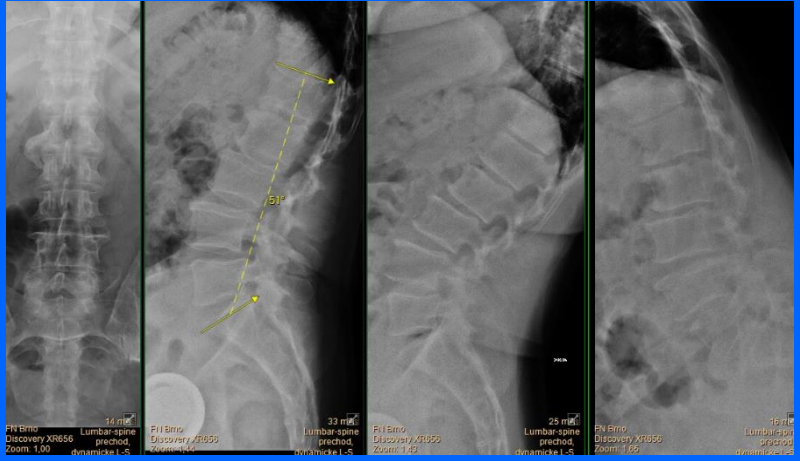
Posterior lumbar... transforaminal lumbar
interbody fusion – special cages



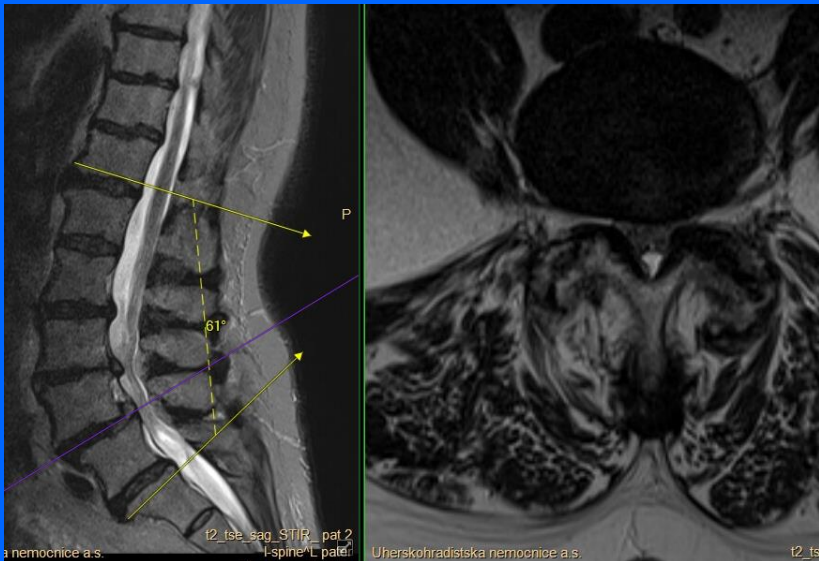
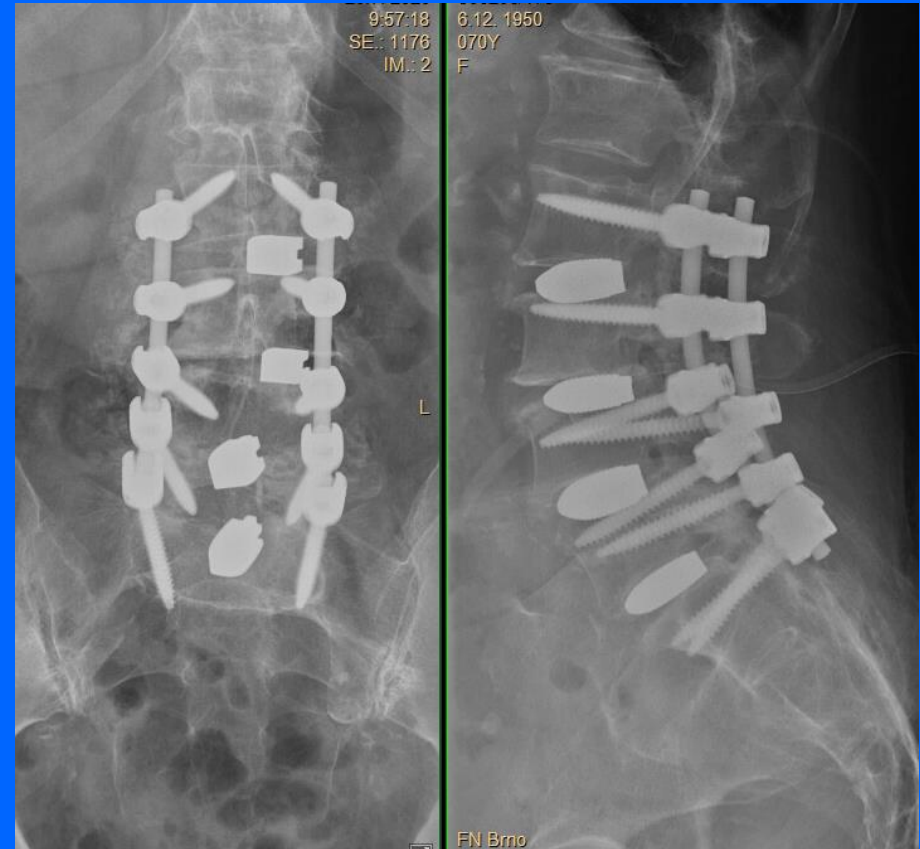
M 73 yrs, gait disturbance, Lumbar Spinal Stenosis T10-11 – 360° fusion, TLIF



M70 yrs, pain, gait disturbance, radicular S1 pain – 360° fusion + TLIF L2-5



F 70 yrs, neurogenic claudications, radiculopathy L4, slip L4, L5 – sagittal imbalance, L2-S1 360° fusion with cages



Conclusion – surgical tx

After depletion of conservative tx:

- - deformities (spondylolisthesis)
- - stenosis
- - instability
- - worsening of neural deficit (herniae, stenoses)
- - clear origine of pain
- - corresponding clinical + radiological finding