



LPB - Low Back Pain

Martin Repko, Richard Chaloupka





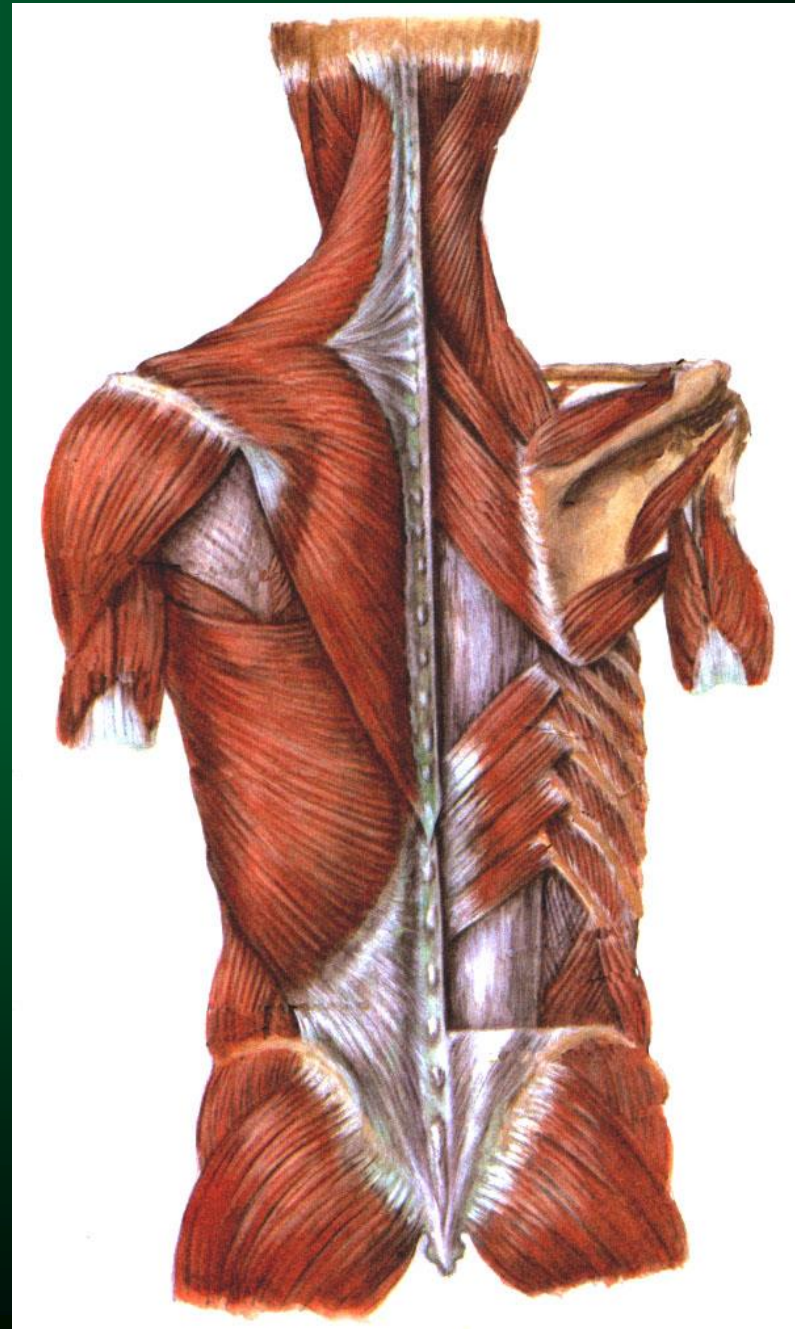
Definition:

It is tiredness, dyscomfort or pain in lower part of back with or without irradiation to one or both lower extremities.

- ◆ **Acute 24 hours - 3 month**
- ◆ **Chronical over 3 months**
- ◆



Anatomy





Pathogenesis

1. Primary functional

→ **secondary structural**

2. Primary structural



Pathogenesis

- ◆ **vertebrogenic**
- ◆ **discogenic**
- ◆ **neurogenic**
- ◆ **vasogenic**
- ◆ **myogenic**
- ◆ **viscerogenic**
- ◆ **psychogenic**



Pathogenesis

- ◆ **degeneration**
- ◆ **inflammation**
- ◆ **tumours**
- ◆ **fractures**
- ◆ **Congenital deformities**
- ◆ **Metabolic diseases**



Inflammations

- ◆ ***specific***

 - tbc spondylitis

- ◆ ***non-specific***

 - spondylogenic osteomyelitis

- ◆ ***reumatic***

 - M.Bechtereev, reumatoid arthritis



Tbc spondylitis

- ◆ **Spondylitis ant.**
 - profunda
 - superficialis
- ◆ **Spondylitis posterior**



X-ray stages of tbc spondylitis

- ◆ **inicial**

 - porosis and decreasing of iv spaces

- ◆ **florid**

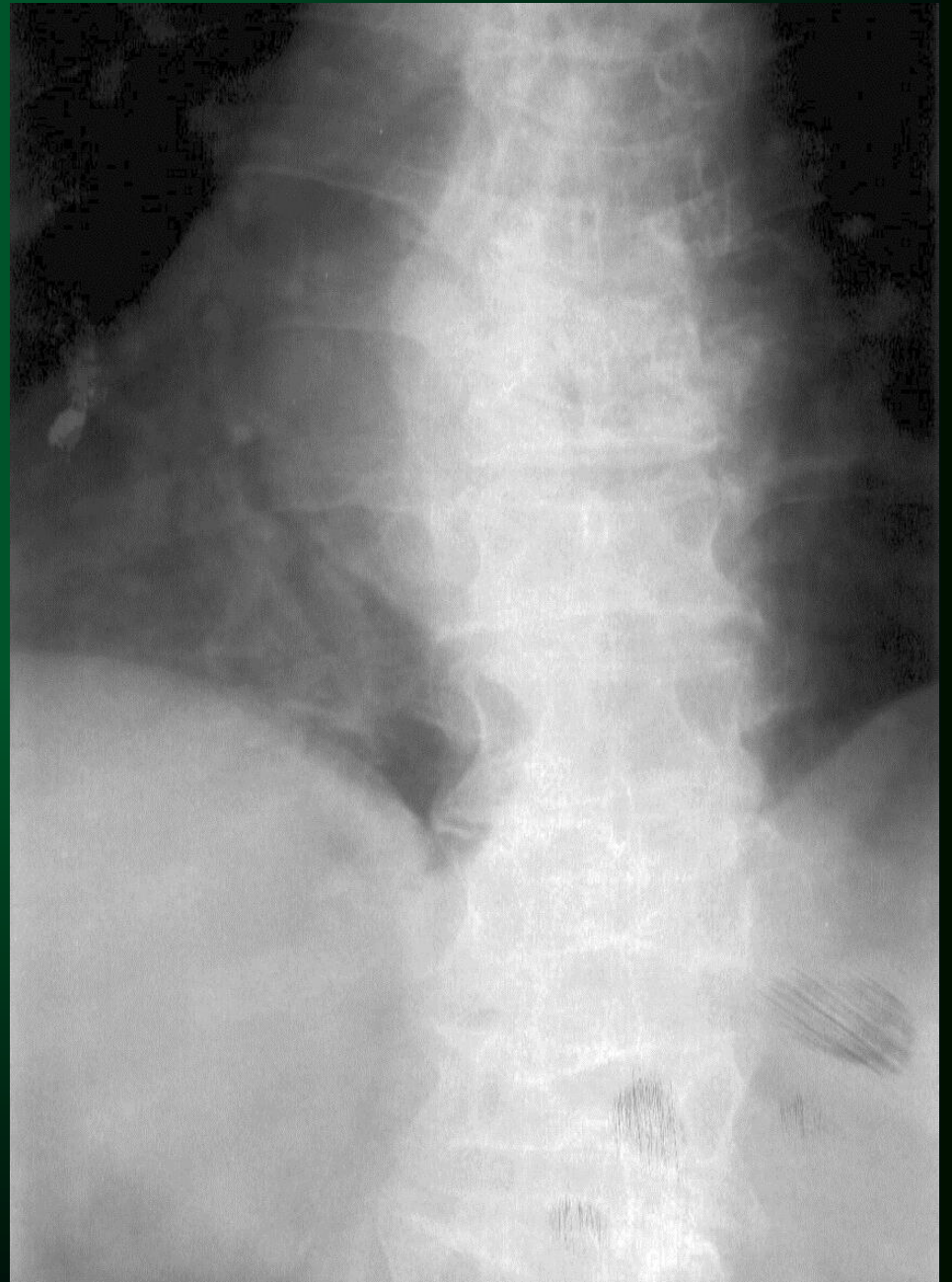
 - destruction and vertebral sekvestration

- ◆ **reparative**

 - sklerotisation and loosening of iv spaces

- ◆ **definitive**

 - synostosis



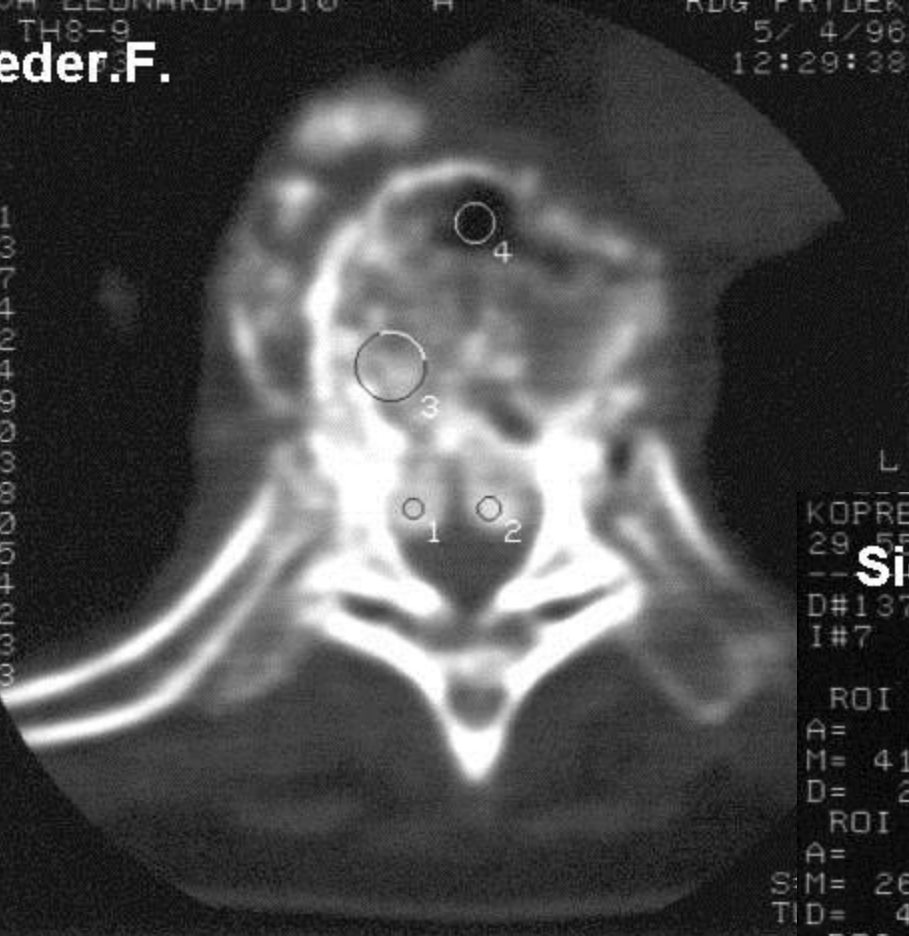
SIEDERERDA LEONARDA DTC RDG FRIDEX
KOPRESE TH8-9 5/ 4/96
29 55 10 / 493 12:29:38

Sieder.F.

D#13761
I#8

ROI - 1
A= 3
M= 435.7
D= 17.4
ROI - 2
A= 4
M= 467.9
D= 26.0
ROI - 3
A= 38
M= 338.0
D= 79.5
ROI - 4
A= 12
M=-245.3
D= 76.3
X= 4
Y= 26
R= 2

Level
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KOPRESE TH8-9 RDG FRIDEX
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12:29:23

Sieder.F.

D#13761
I#7

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M= 412.0
D= 28.3
ROI - 2
A= 23
S: M= 265.8
T: D= 46.1
ROI - 3
A= 4
M= 372.2
D= 18.5

X= 8
Y= -3
R= 1

Level
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Width
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S#4
TL-4
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SIEDEROVA F. -M.
2955104930
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466303.0

VITKOVICE HOSPITAL
OSTEOPOROZA
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Sieder.F.

No. = 1
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No. = 2
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No. = 3
= 3.7
No. = 4
= 6.1

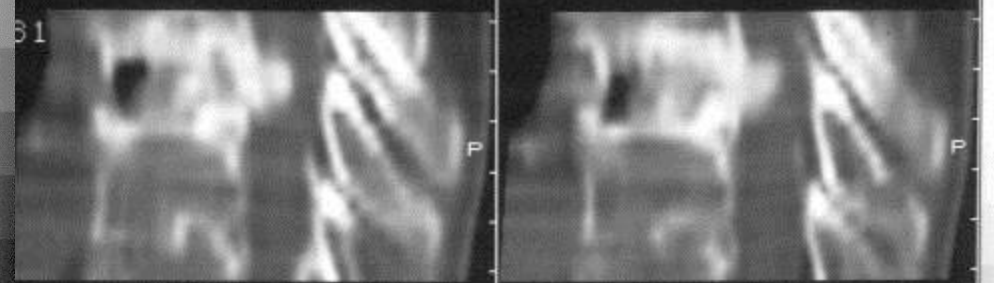
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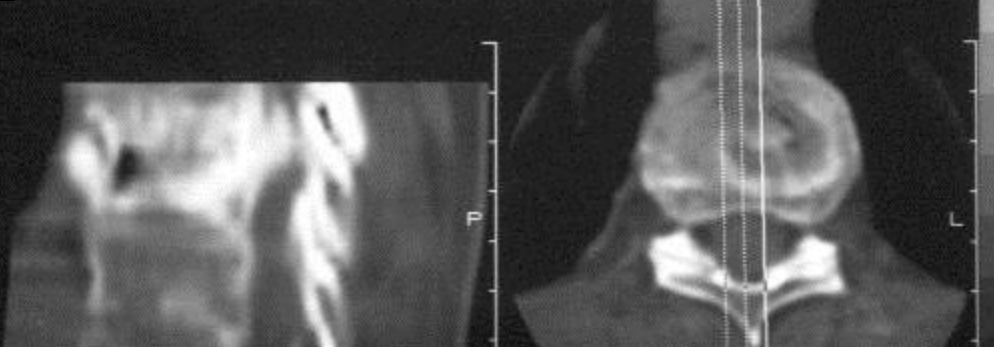
C.S. = 1.2mm



ROVA LEONARDA DT0
SE TH8-9
Sieder.F.
2023
MDG FRYDEK



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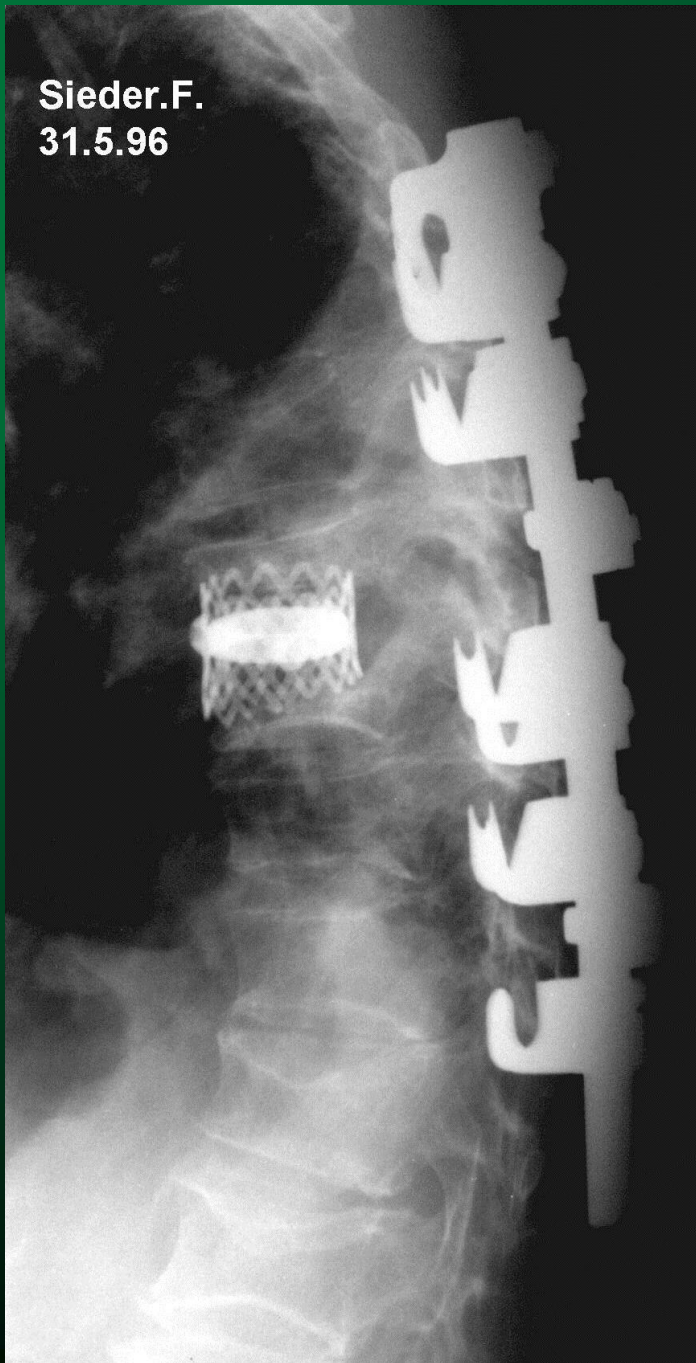


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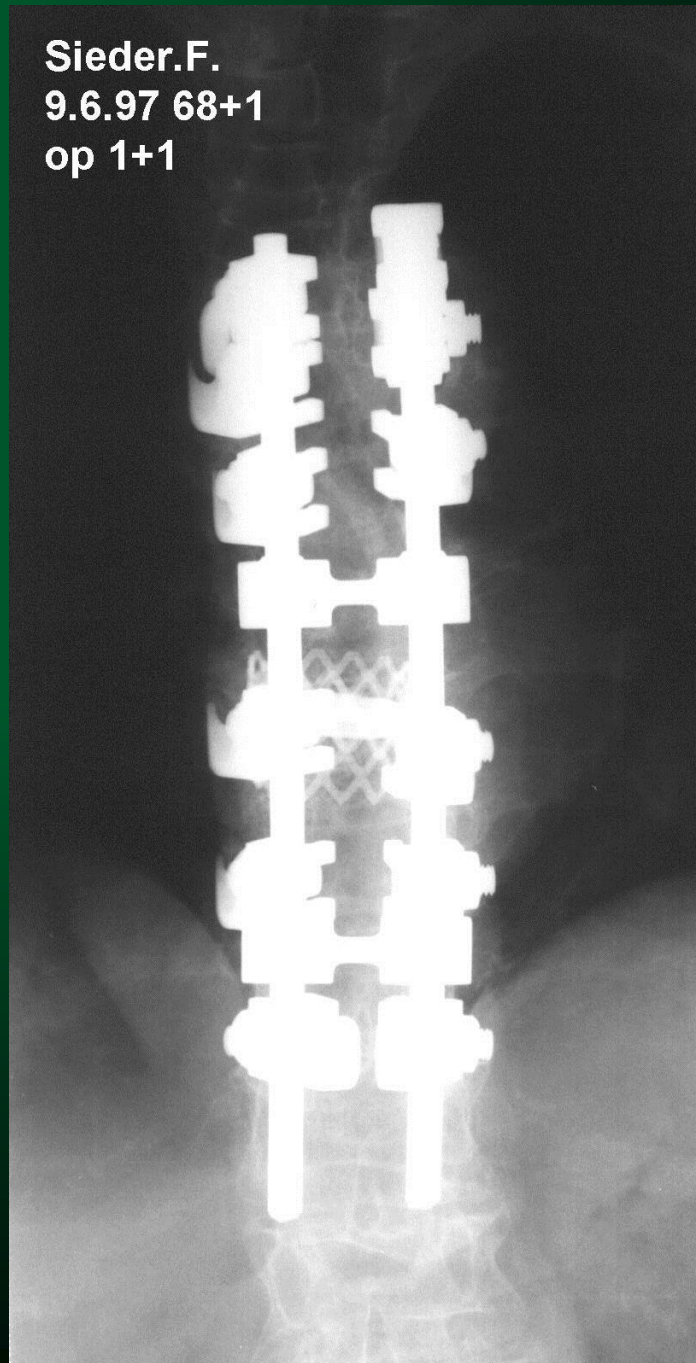
OB#8

SH17
TI:4

Sieder.F.
31.5.96



Sieder.F.
9.6.97 68+1
op 1+1





Complications of tbc spondylitis

- ◆ absces
- ◆ kyphosis
- ◆ paraplegia

Therapy of tbc spondylitis

- antituberculoitics (9-12 month)
- external fixation (brace, orthosis)
- surgical therapy



Diff.dg. of tbc spondylitis

- ◆ **spondylogenic osteomyelitis**
- ◆ **typhoid and paratyphoid spondylitis**
- ◆ **Bang´s spondylitis**
- ◆ **M.Bechtereev**
- ◆ **systematic bone illnesses**
- ◆ **spondylitis brucellosis**
- ◆ **M.Paget**
- ◆ **posttraumatic spinal deformities**
- ◆ **tumours and metastases**
- ◆ **spinal gumma**



Differential diagnosis

Tbc spondylitis

- ◆ **Slow progression**
- ◆ **No pain in quiet position**
- ◆ **Extensive osteoporosis**
- ◆ **extensive destruction**
- ◆ **Big paravertebral absces**
- ◆ **No osteoplastic reaction**

Osteomyelitis

- ◆ **Heavy and rapid progression**
- ◆ **Pain in quiet position**
- ◆ **Border osteoprosis only**
- ◆ **Minimal destruction**
- ◆ **Minimal absces**
- ◆ **Heavy osteoplastic reaction**



Spinal osteomyelitis

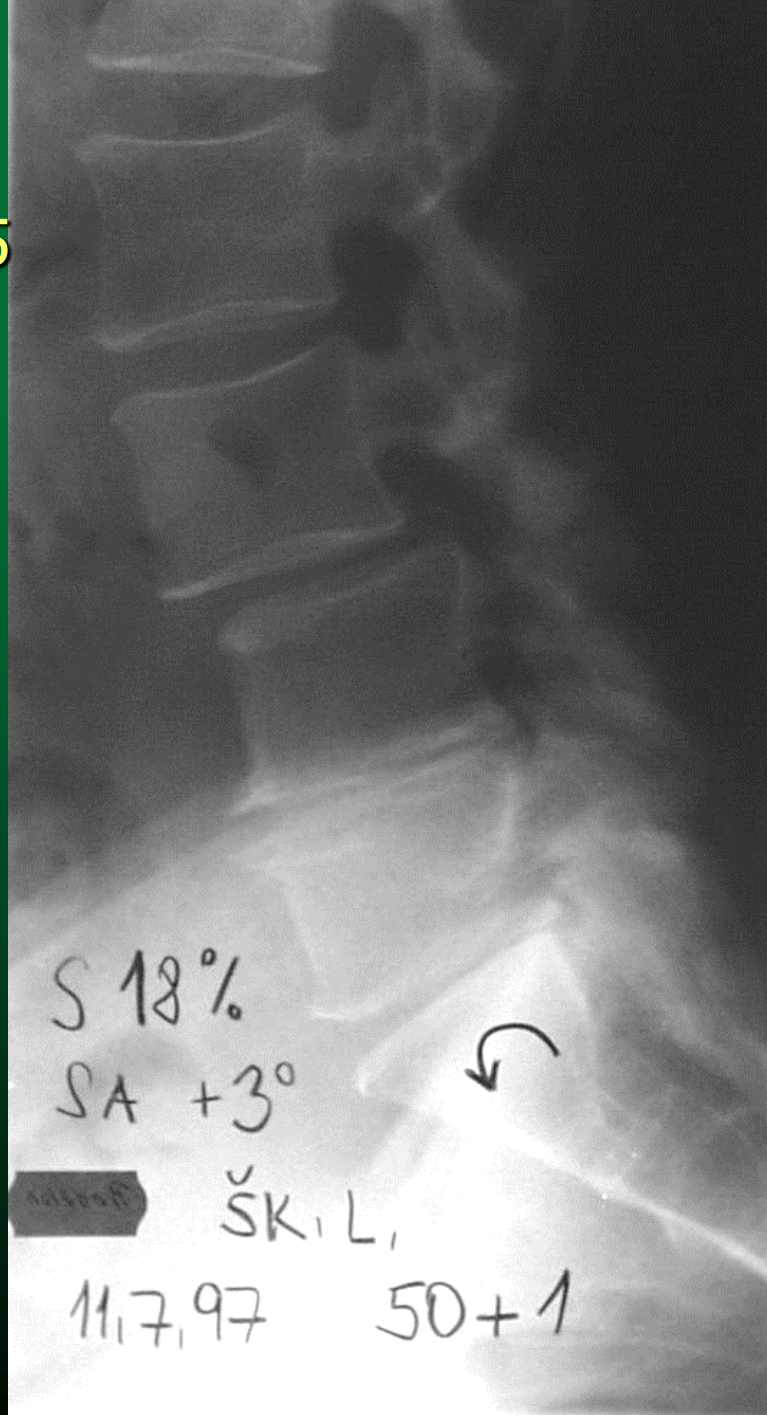
Clinical signs:

- ◆ rapid start
- ◆ fever
- ◆ neurological signs

Evaluation:

- ◆ laboratory (leucocytes, ESR, CRP)
- ◆ cultivation
- ◆ X-ray, bone scan, CT, MRI

osteomyelitis L4/5







Therapy of spondylogenic osteomyelitis

- ◆ **atb – double or multiple combination (initially intravenous aplic.)**
(long-term-several months)
- ◆ **Bed rest**
- ◆ **External fixation (brace)**
- ◆ **Biopsy: -craig needle disc. aspiration**
-open (CT econtroled)
- ◆ **Surgical treatment**

Mb. Bechtereev



Spinal tumours

◆ *primary*

- **spinal:**
 - extradural
 - intradural
- **vertebral:**
 - benign (osteoid osteoma, hemangioma)
 - malignant (myeloma)

◆ *metastatic*

- **osteoblastic** (prostatic)
- **osteolytic** (lungs, breast, Grawitz, thyroid)



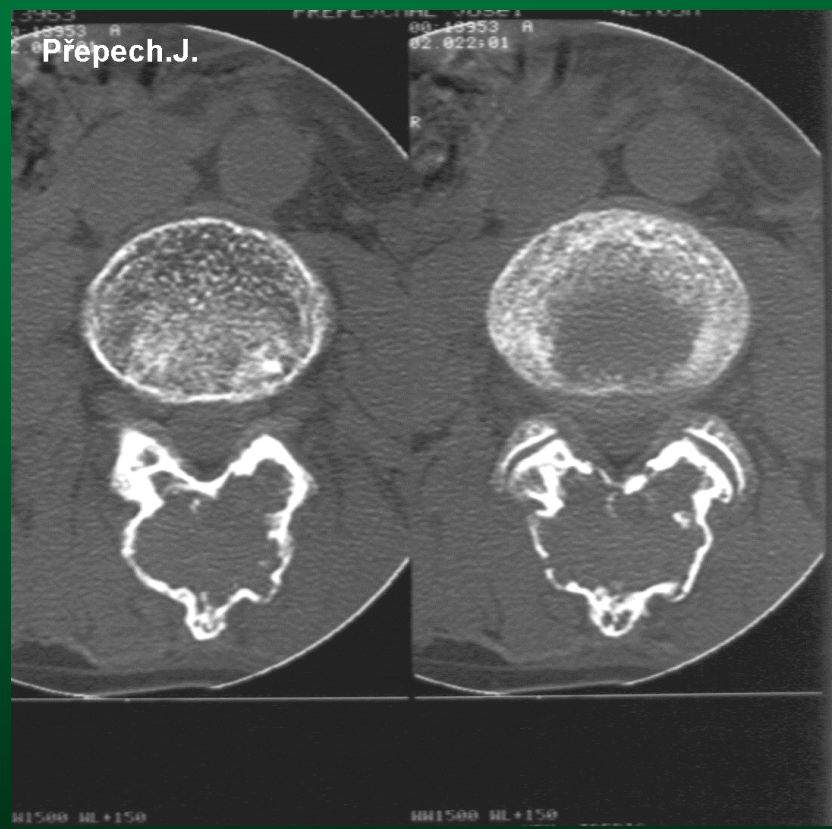
Spinal tumours -evaluation methods

◆ Imaging methods

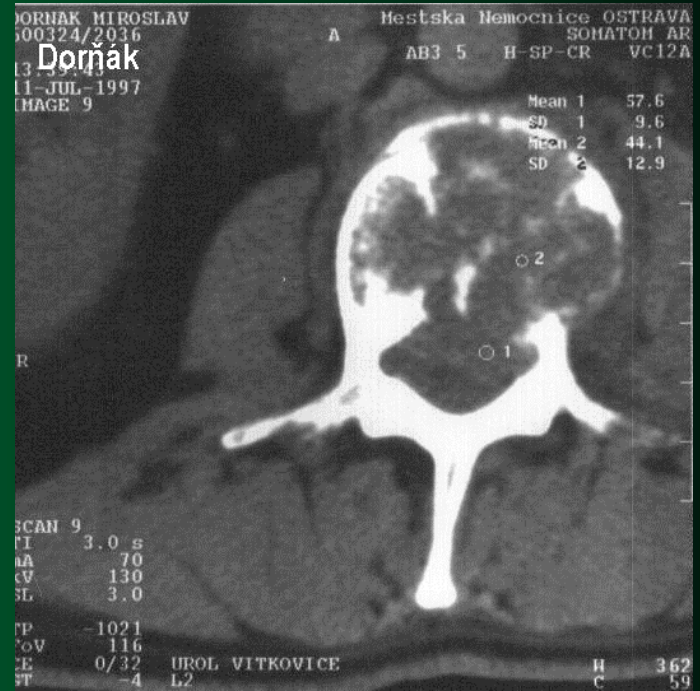
- X-ray
- CT, MRI
- bone scan
- (Contrast-PMG)

◆ Laboratory

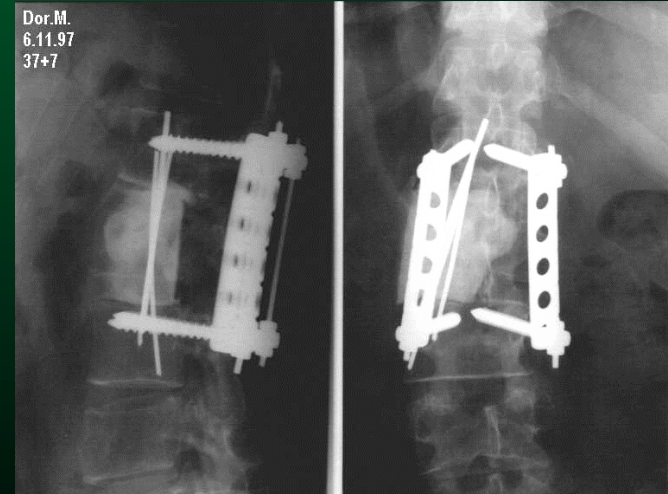
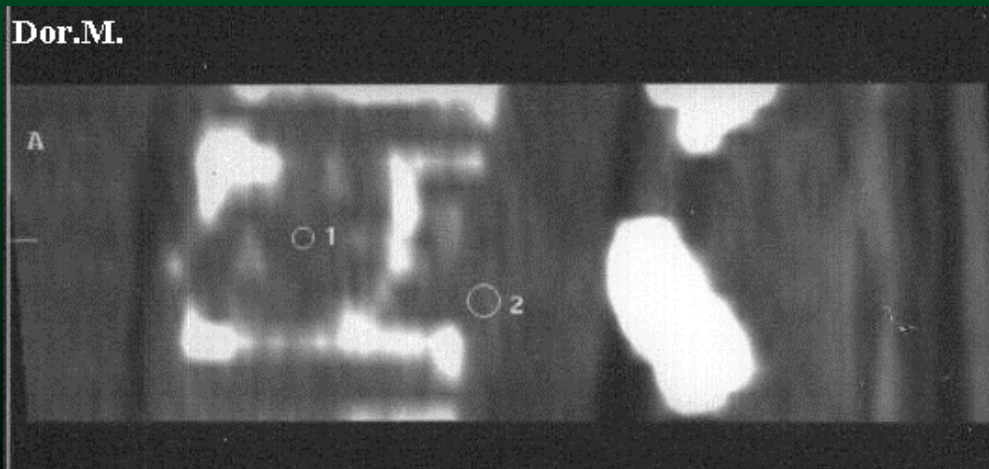
- ESR, CRP, BP
- PSA, Bence-Jones, ALP

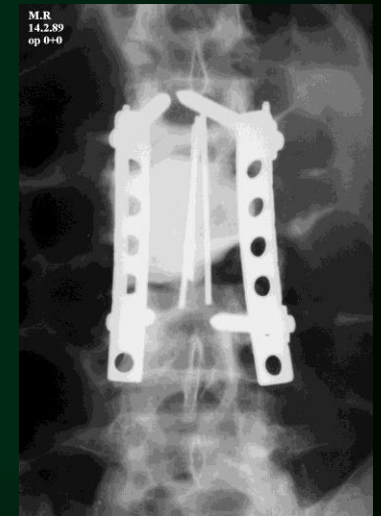
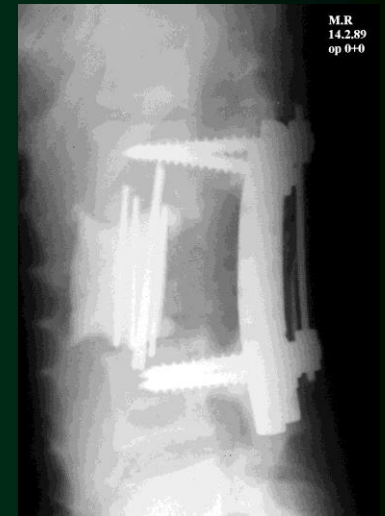


Dor.M.
28.7.97
37+3



Dor.M.





Metastasis of teratoma testis



Metastasis of ca cervicis uteri



Therapy of spinal tumours

◆ **Paliative**

- surgical decompression
- chemo- and radiotherapy

◆ **Causal**

- surgical resection and stabilisation
- sanation of primary tumours in metastasis



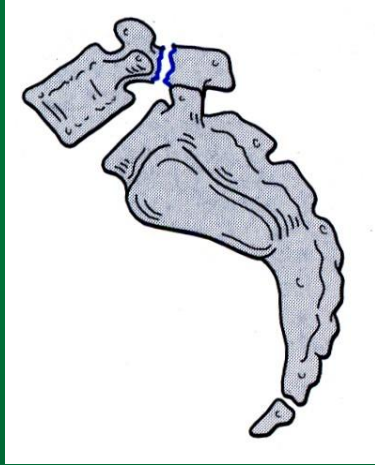
Congenital diseases

- ◆ **lumbalisation of S1**
- ◆ **sacralisation of L5**
- ◆ **Bertolotti's syndrome**

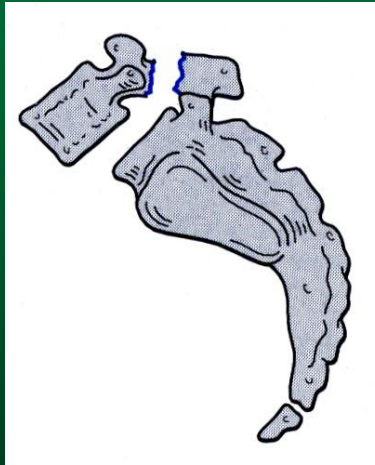
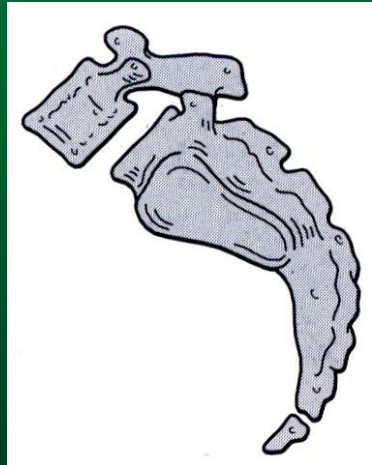


Spondylolisthesis

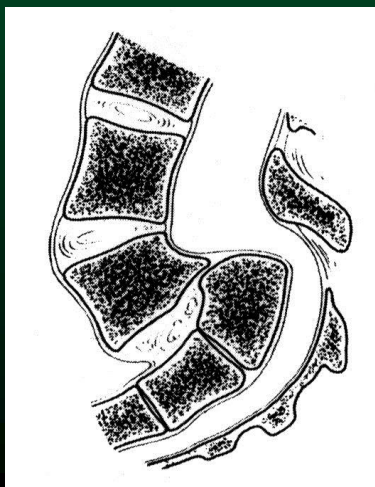
- ◆ **spondylolysis**
= interruption of arcus in pars interarticularis
- ◆ **spondylolisthesis**
= bilateral spondylolysis and vertebral body slipping
- ◆ **spondyloptosis**
= slip over 100%
- ◆ **pseudoolisthesis**
= dislocation of whole vertebral body without spondylolysis



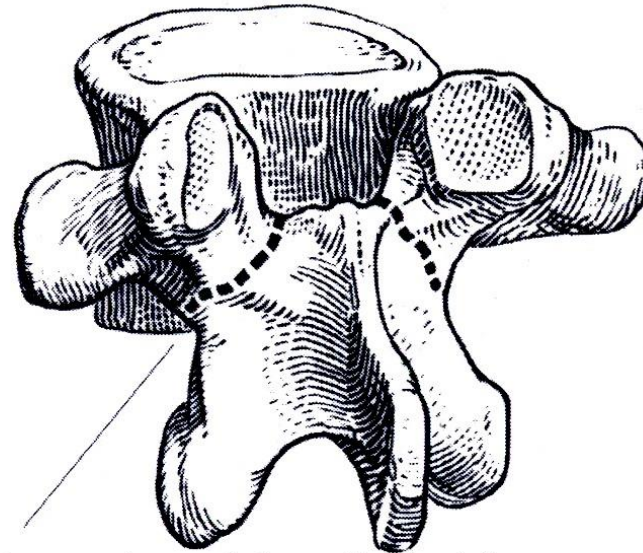
Spondylolysis



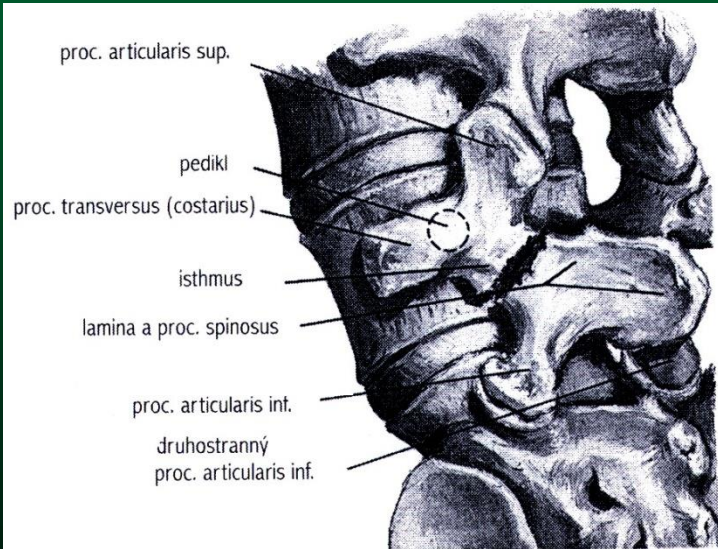
Spondylolisthesis



Spondyloptosis



Isthmus (pars interarticularis)





Spondylolisthesis classification

1. Etiological (Wiltse+Newman+MacNab)

- dysplastic
- istmic
- degenerative
- traumatic
- pathological

2. According to X-ray measurement (Meyerding)

- I.gr. Slip to 25%
- II.gr. Slip 25 - 50%
- III.gr. Slip 50 - 75%
- IV.gr. Slip 75 - 100%

X-ray evaluation

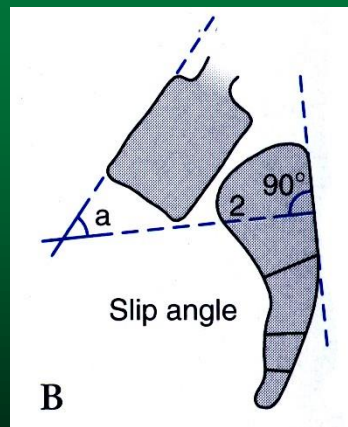
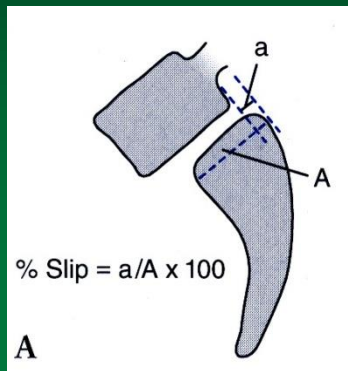
◆ Slip -percentage of slip

grades according to Meyerding:

1. 0-25%
2. 25-50%
3. 50-75%
4. 75-100%
5. more than 100% =

spondyloptosis

◆ Slip angle



B.D.
4.6.97 34+6

S-29%

SA-8°





Evaluation of spondylolisthesis

- ◆ clinical + neurological
- ◆ imaging

- 1.X-ray (AP, lateral, oblique, bending)
- 2.bone scan
- 3.SPECT
- 4.CT (native, revers, contrast)
- 5.MRI
- 6.(Contrast – PMG)



Conservative treatment

Indication:

- low pain
- low slip
- no neurological signs

- ◆ Short bed rest
- ◆ Brace
- ◆ physiotherapy
- ◆ NSAID



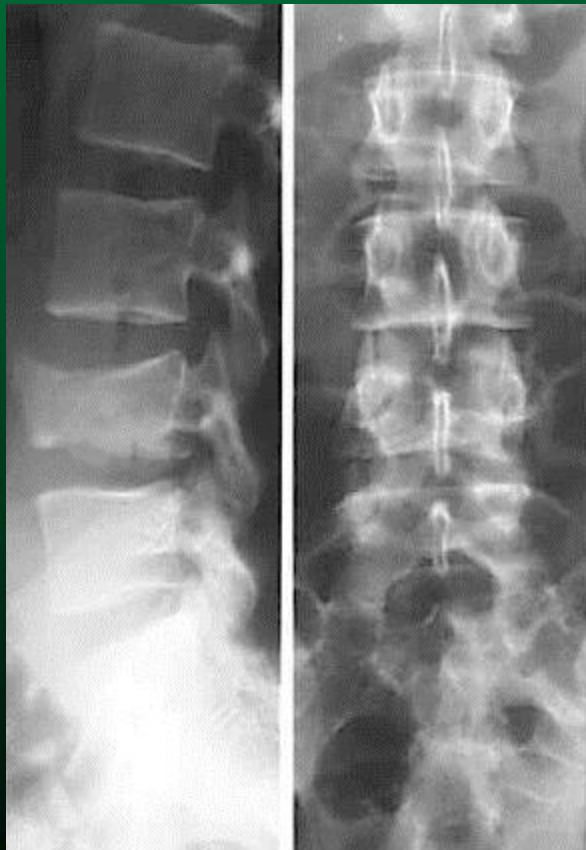
Indications for surgical therapy

1. severe slip
2. Progressive slip
3. Serious pain
4. Neurological signs



Traumatology of lumbar spine

- ◆ Mostly in TL junction





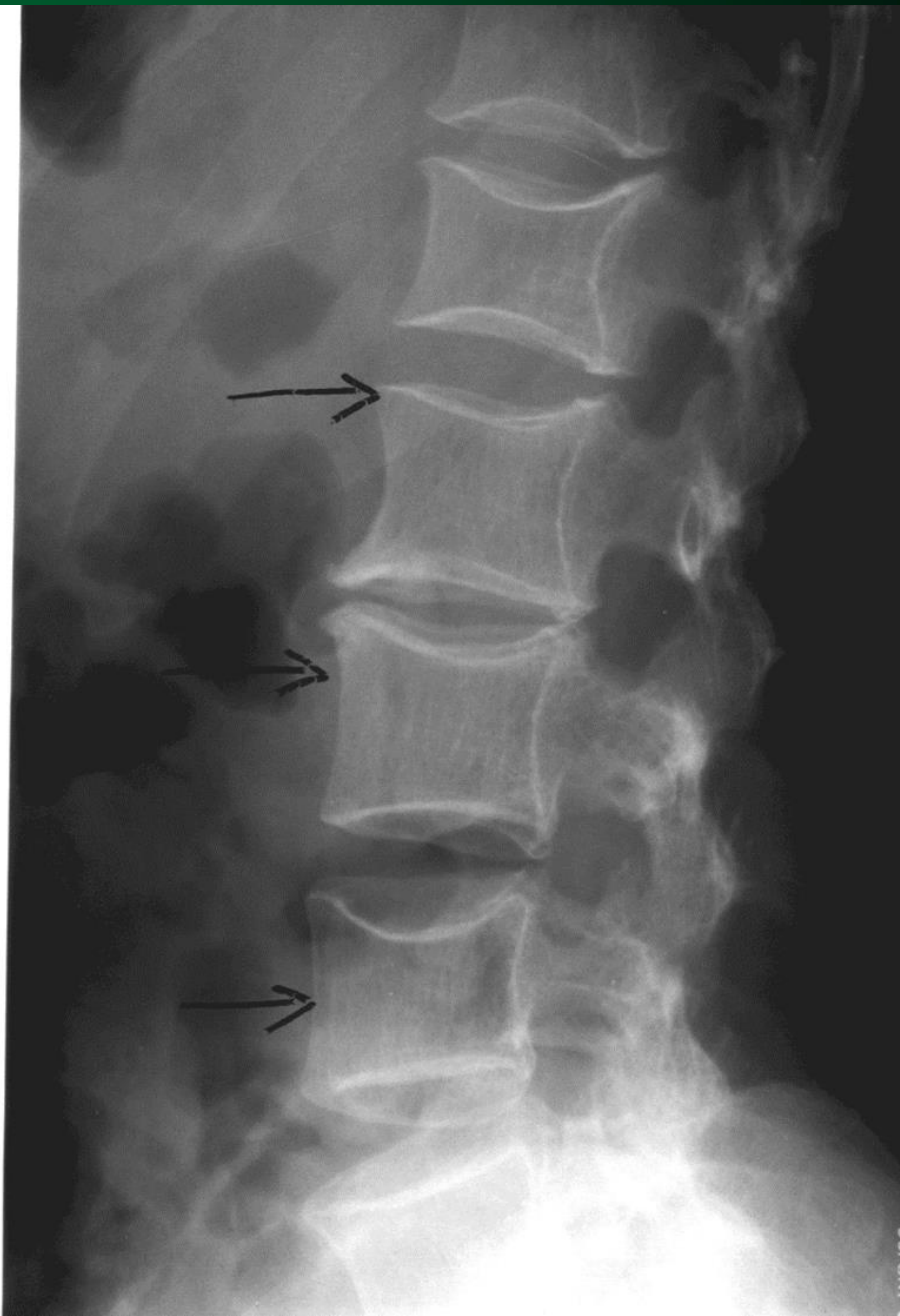
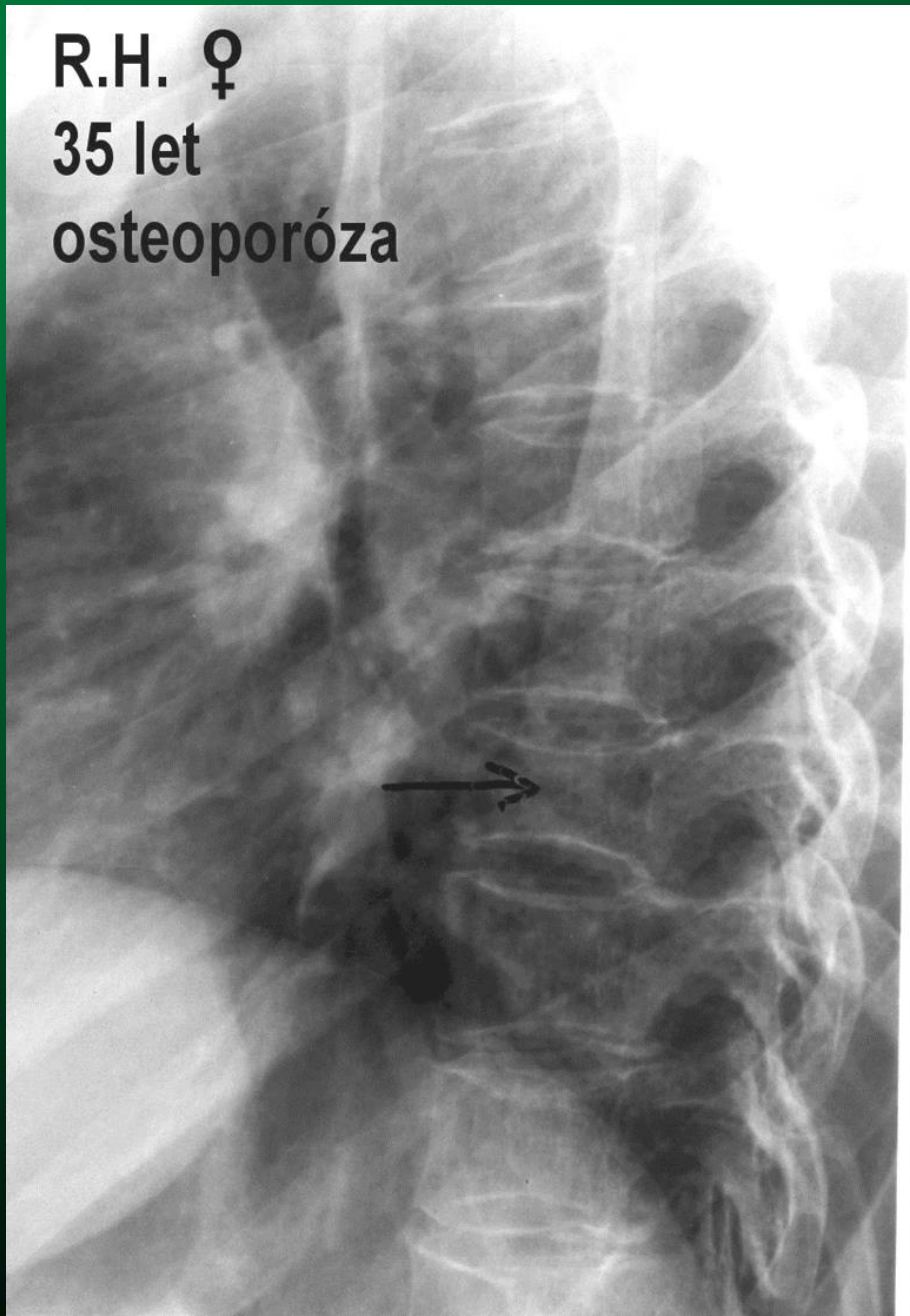
Osteoporosis

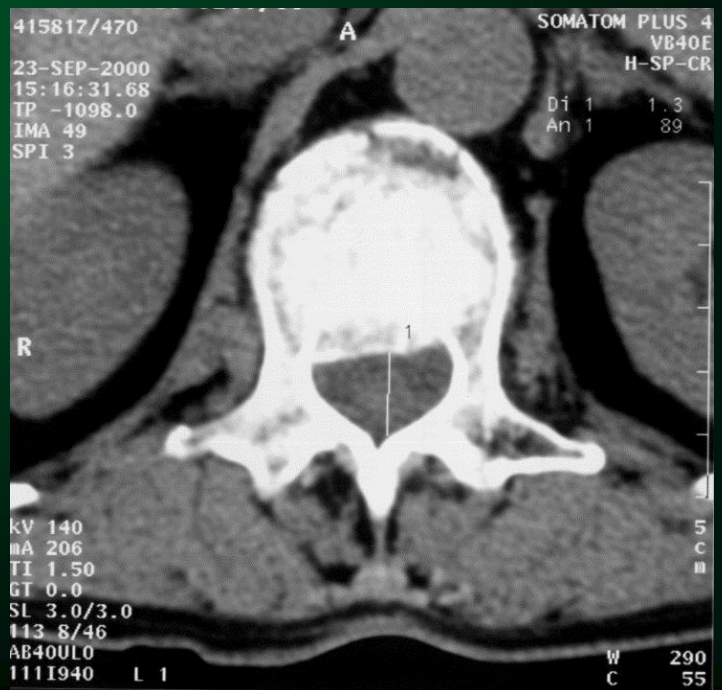
- ◆ **typ I - postmenopausal**
- ◆ **typ II - senile**

Most common causes:

- long-term immobilisation**
- diets + abusus**
- medicaments (glukocorticoids)**

R.H. ♀
35 let
osteoporóza





Fr. L1 burst (A type) v.s.
osteoporosis



Degenerative spinal diseases

◆ **Acute lumbago**

- hernia of discus
- blocage of intervertebral joint

◆ **Chronical lumbalgia**

- paravertebral spasmus
- irritation of proprioceptors

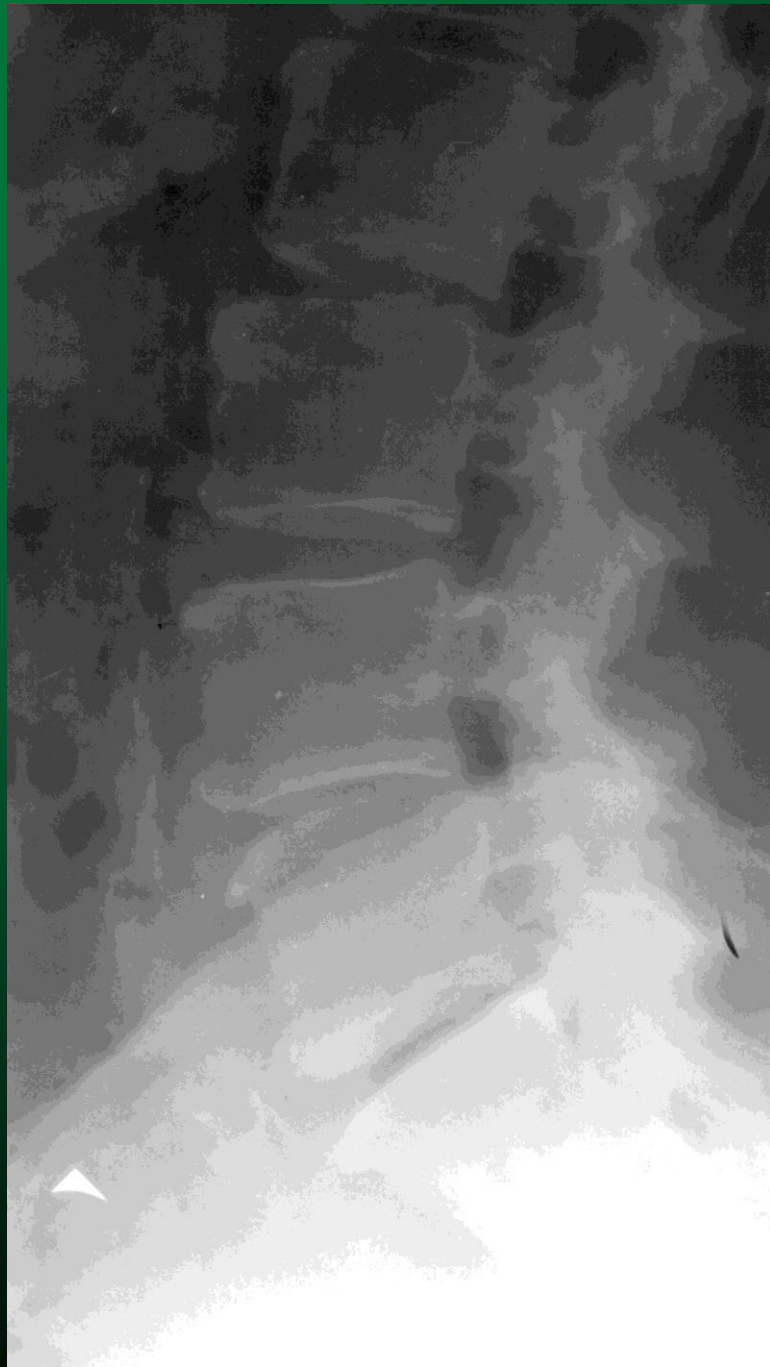
◆ **Lumboischialgia**

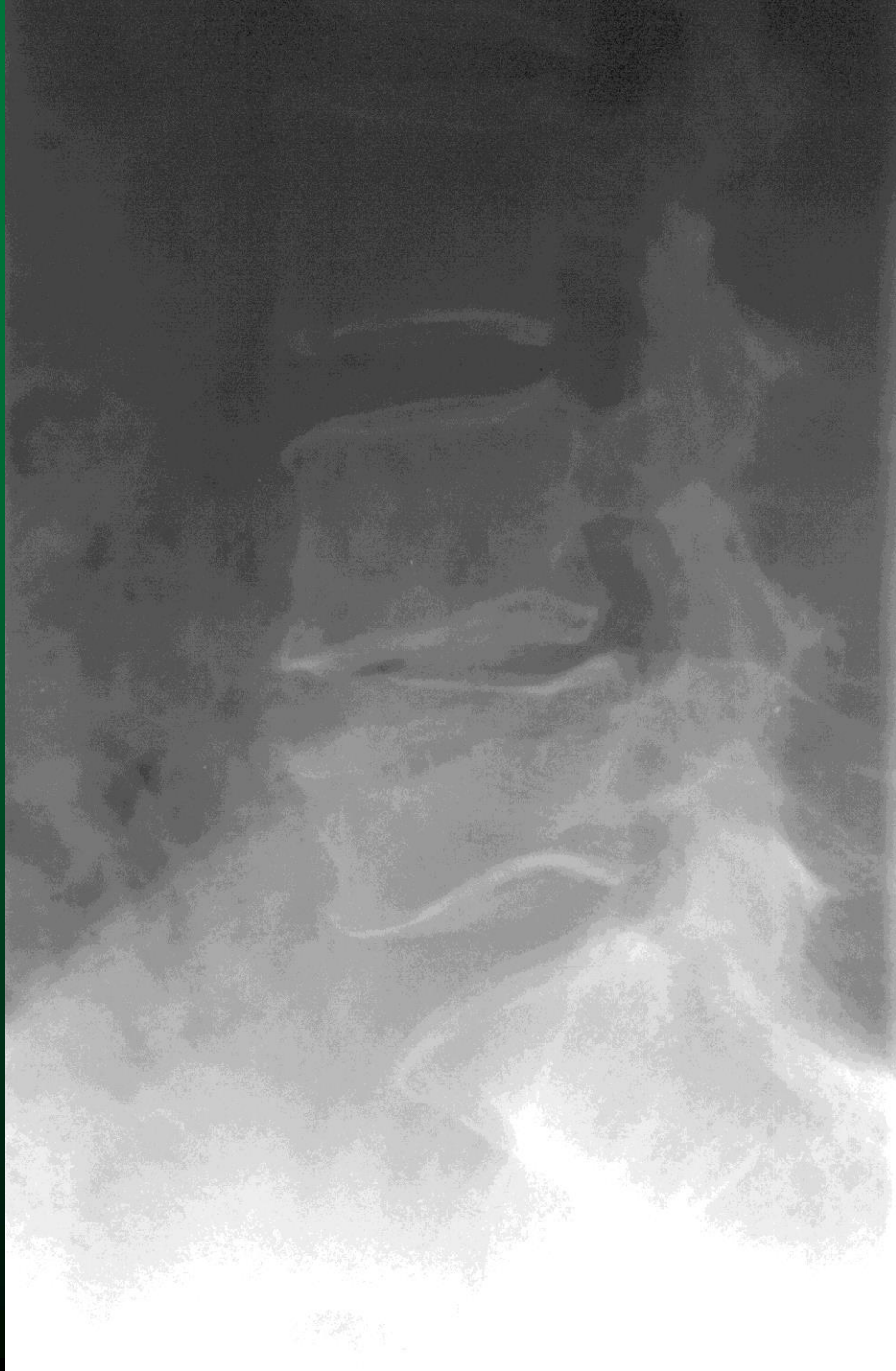
- compression of n. ischiadicus roots



Degenerative spinal diseases

- ◆ **discus chondrosis**
- ◆ **= osteochondrosis**
- ◆ **spondylosis**
- ◆ **spondylarthrosis**
- ◆ **discus hernia**
- ◆ **spinal instability**

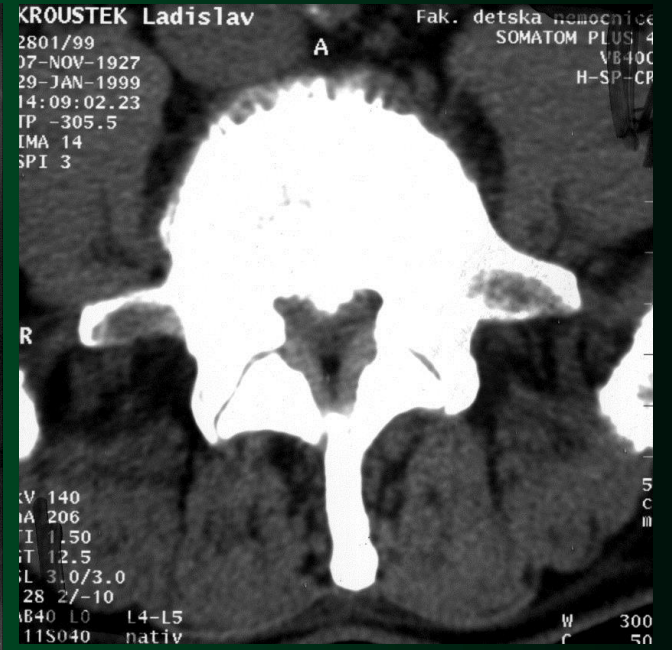




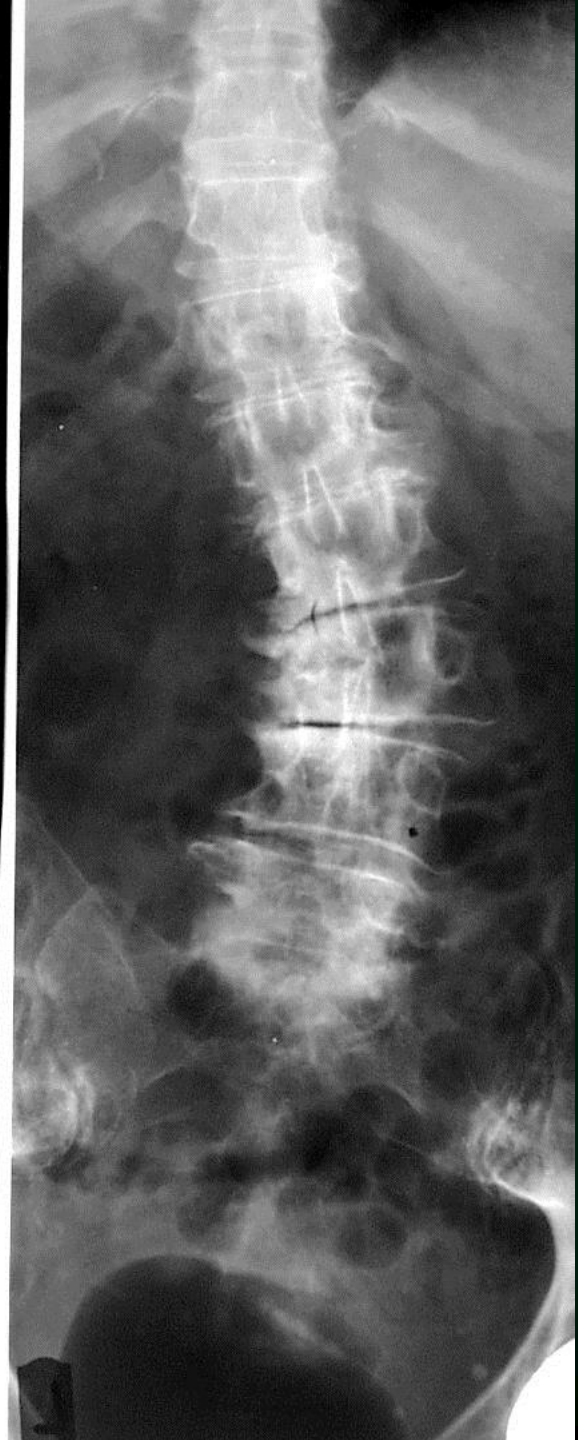


Spinal stenosis

- ◆ **Primary (congenital)**
- ◆ **Secondary**
 - **lateral (root compression)**
-CT+MRI
 - **central (canal compression)**
-CT+C-PMG



Trej.A.
03.01.00

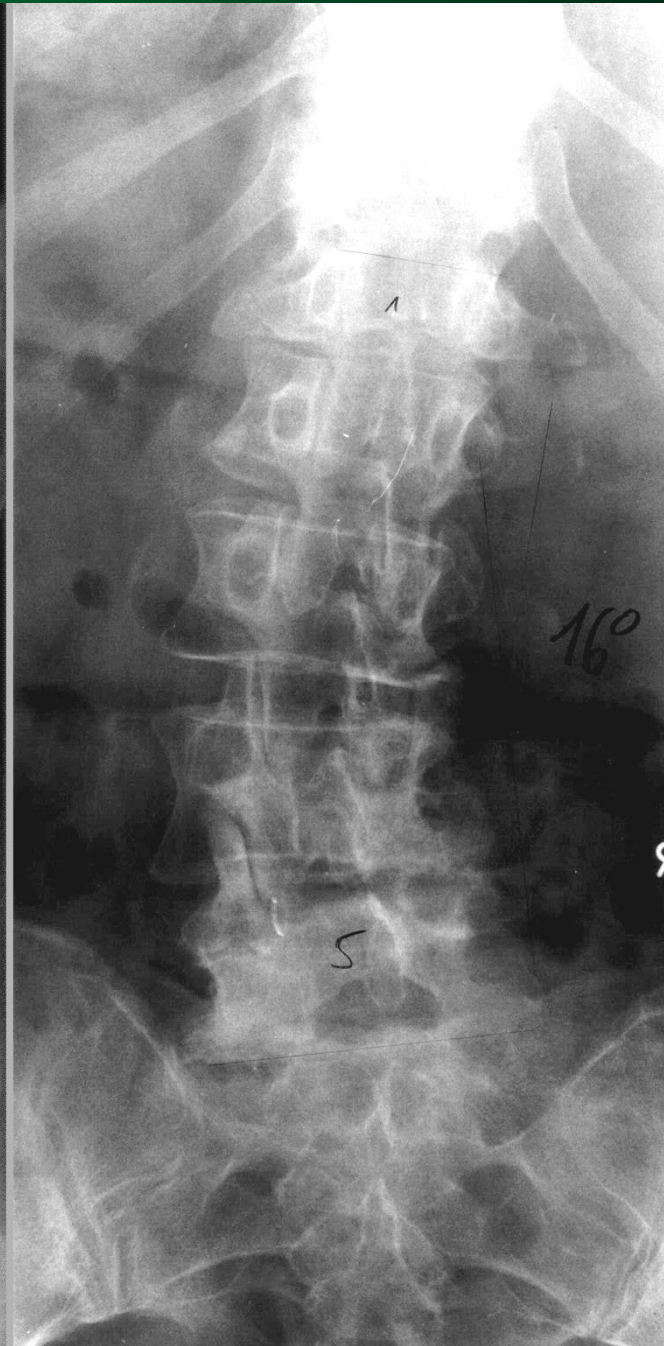


degenerative scoliosis

Fri.M.
13.09.99

S=23%

RL=3%





Degenerative spine evaluation

- ◆ **anamnesis**
- ◆ **Clinical examination**
- ◆ **imaging methods** (X-ray, bending films, CPMG, CT, MRI, bone scan, discography)



Conservative treatment

- ◆ **Short bed rest**
- ◆ **Medicaments**
 - peroral
 - infusions
 - local
- ◆ **Physiotherapy**
- ◆ **Back school**

Treatment algoritmus PAIN

