Lumbar disc prolapse

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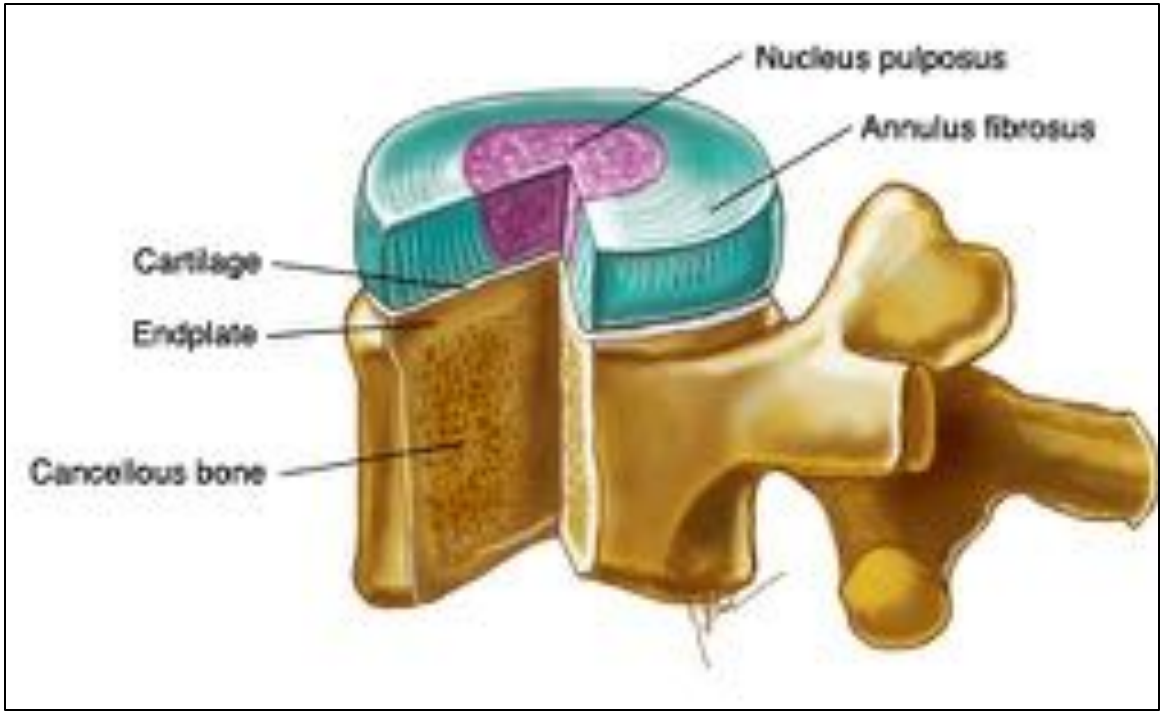
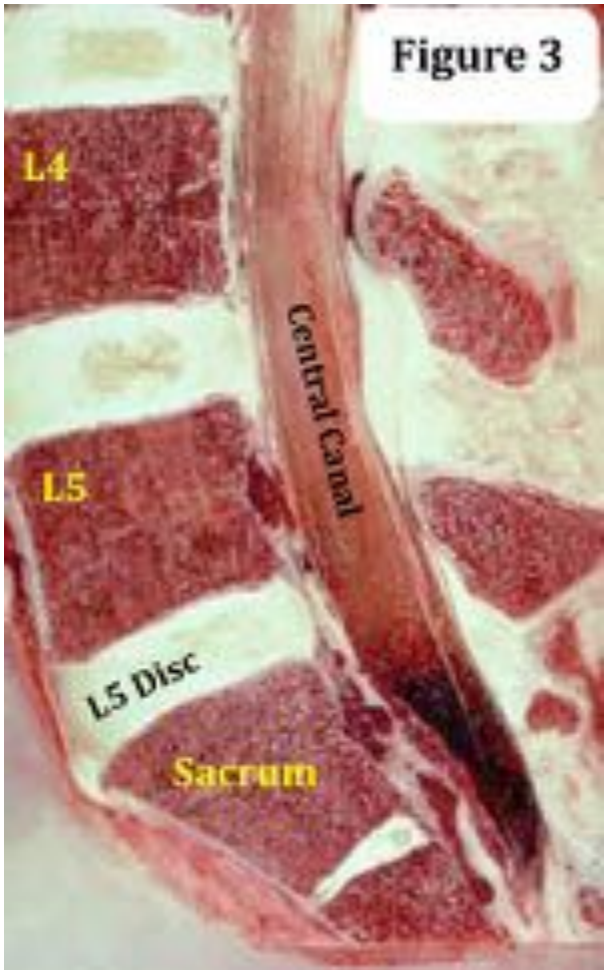
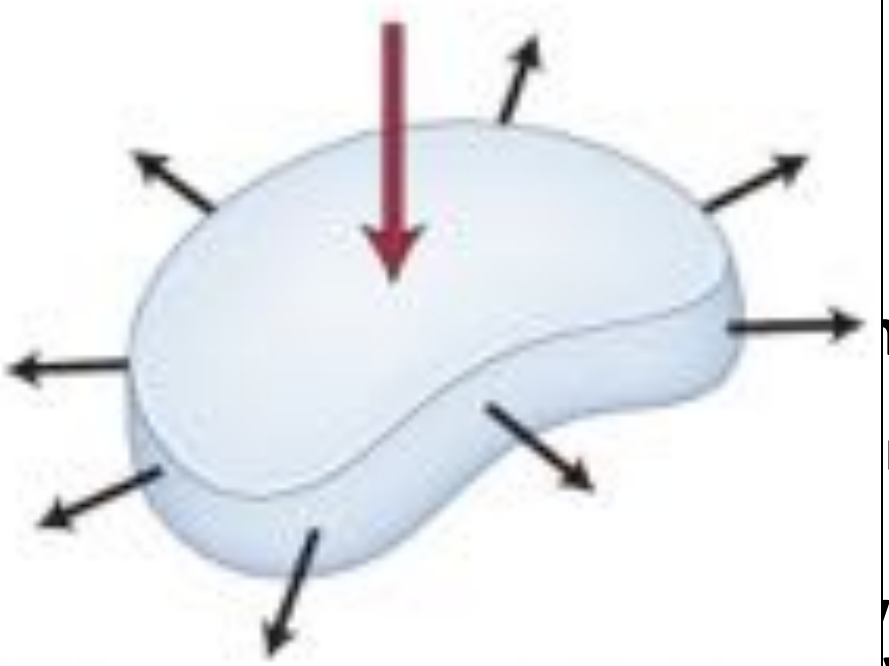
Lumbar Disc







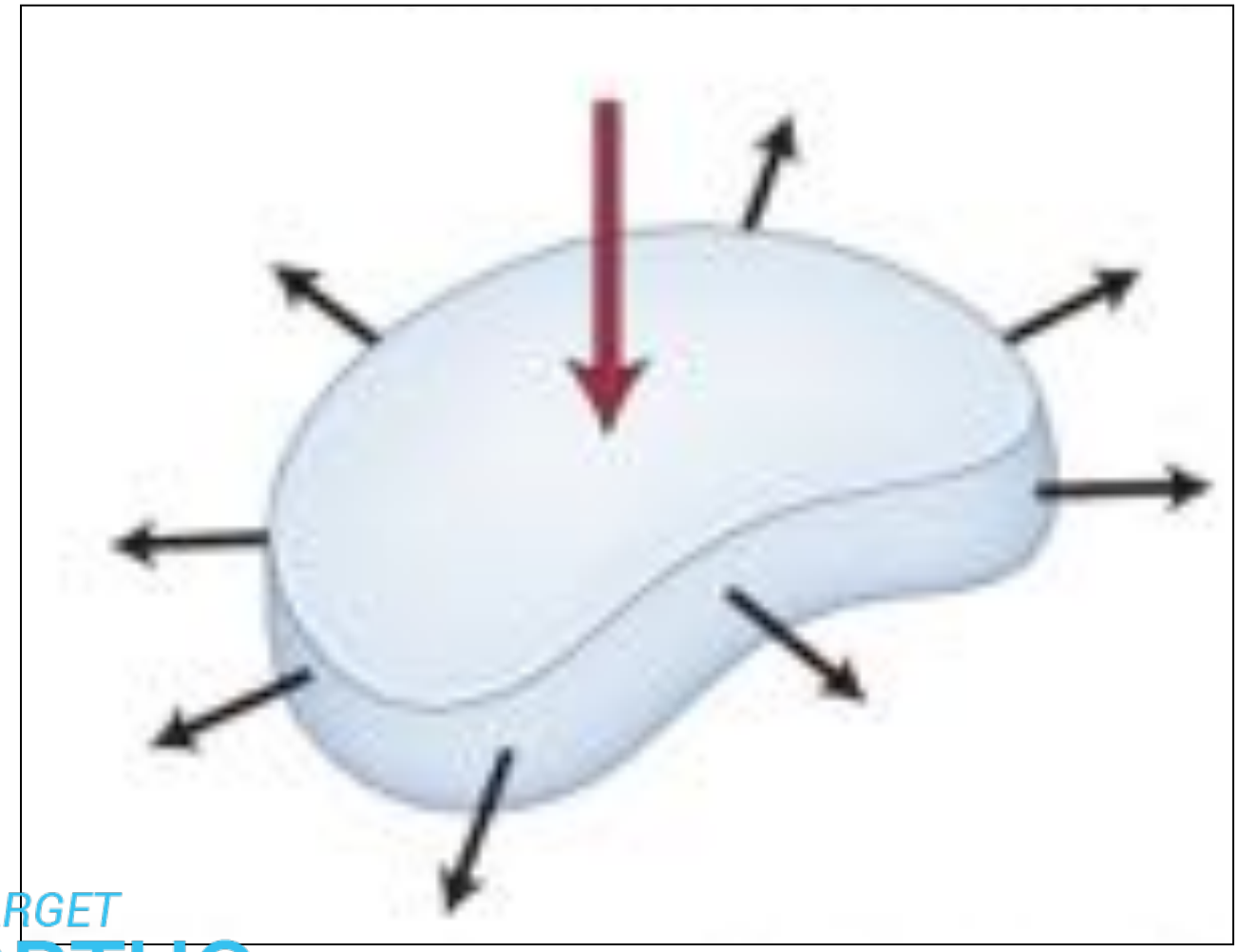
n fibres & fibroblasts

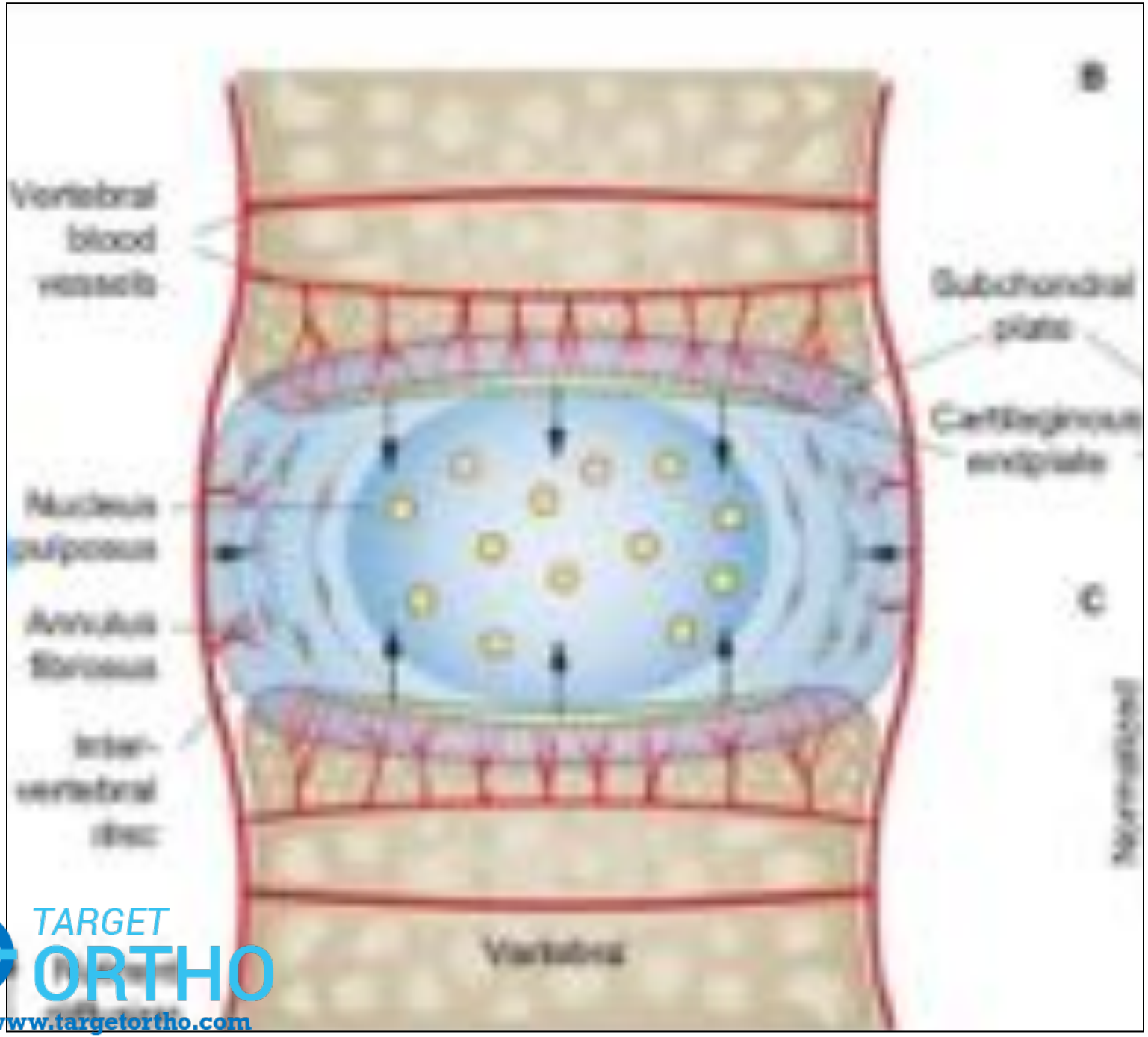
nsion & expands circumferentially

ycans (glycosaminoglycans) &
ytes

- Glycosaminoglycans-hydrophilic .
- Receives the axial load & converts into radial force

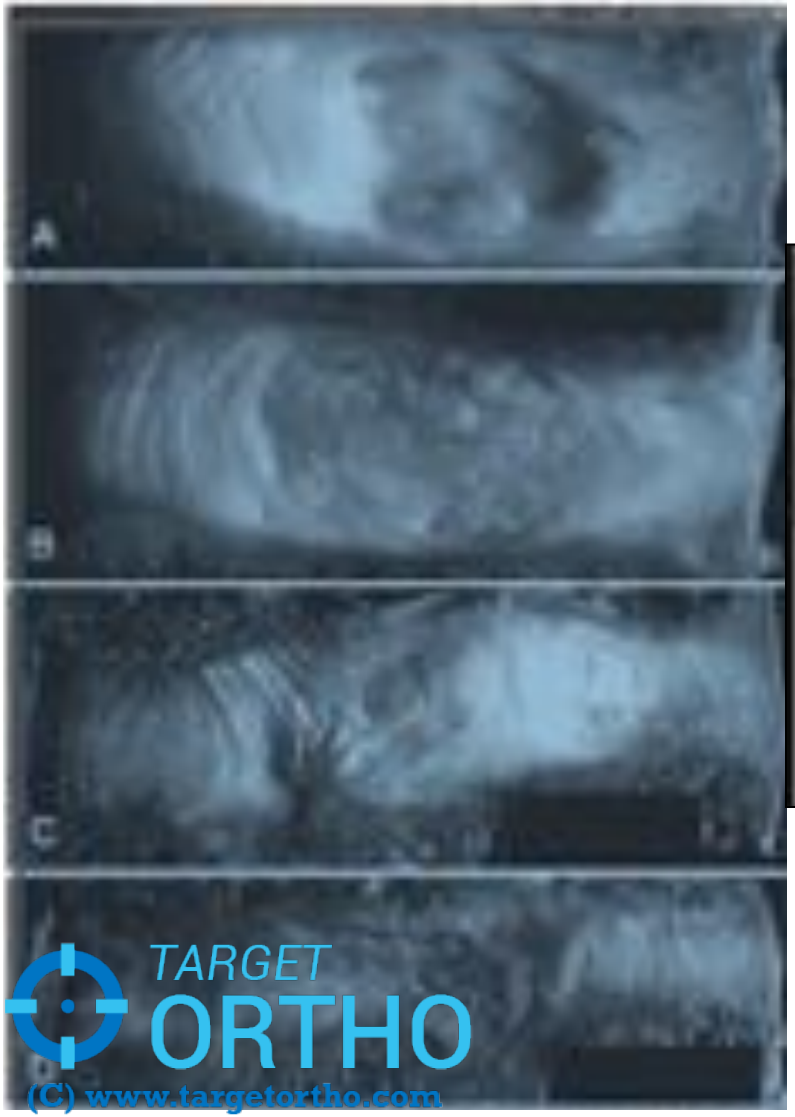
How axial load is distributed

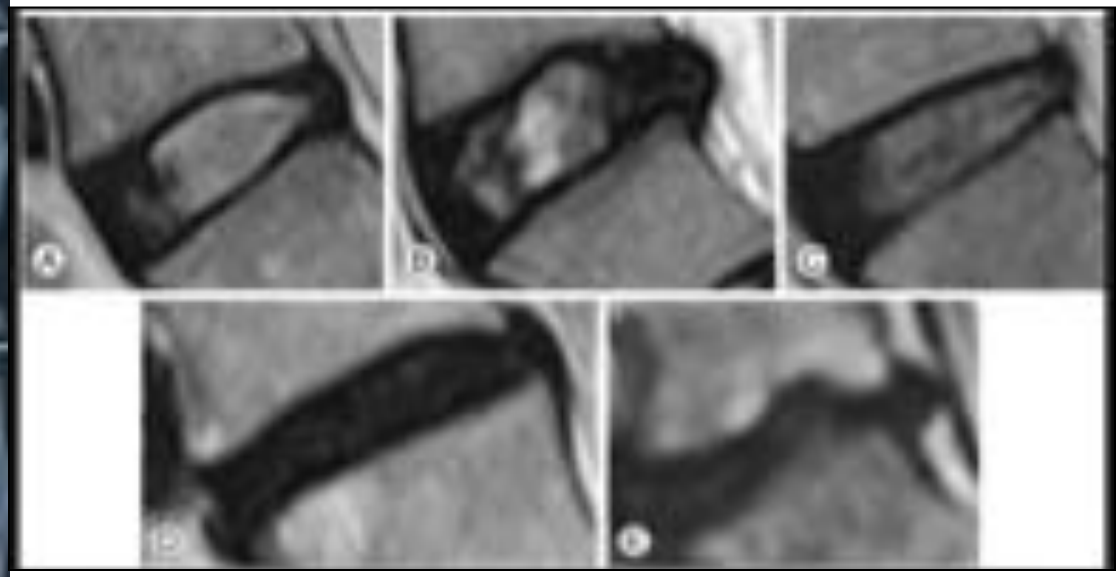




Disc degeneration

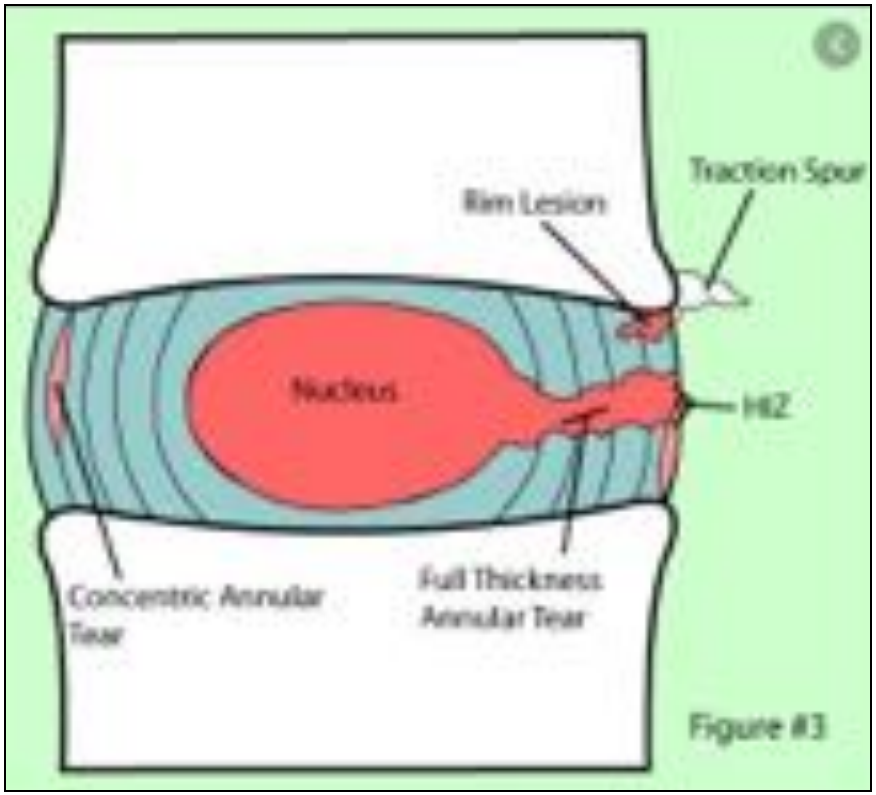
Disc degeneration
Pfirmanns grading

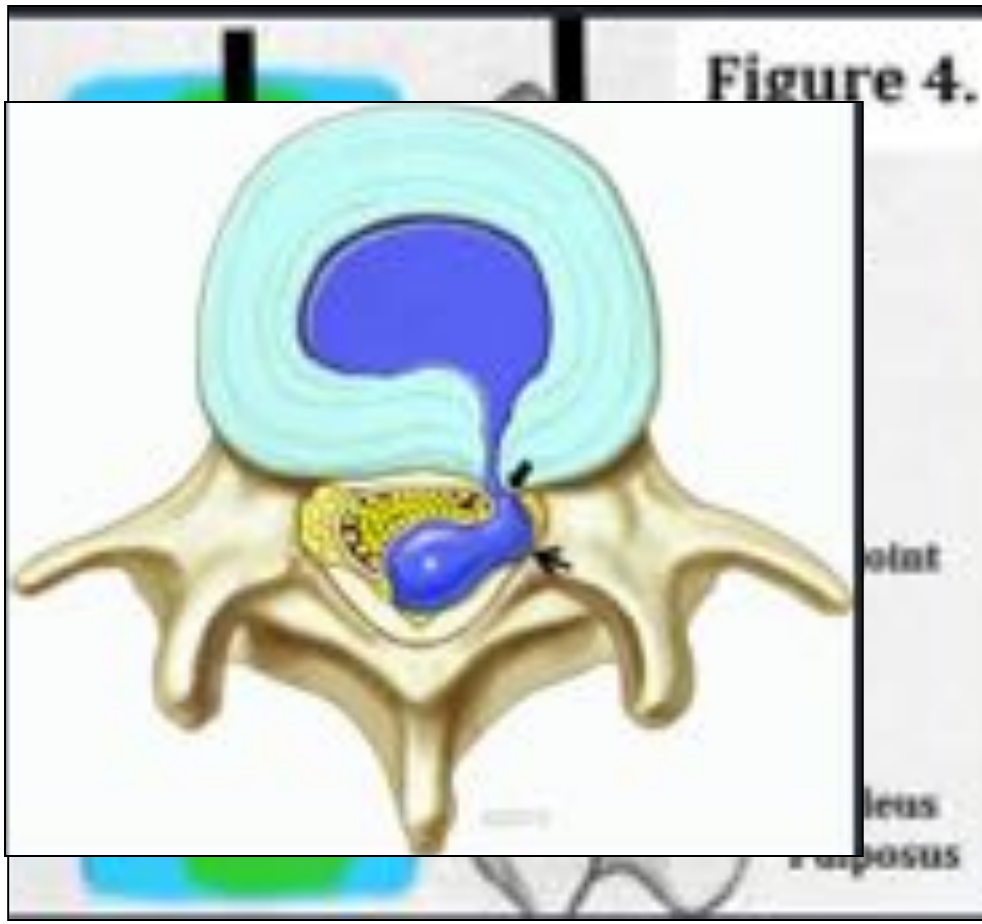




Disc prolapse more common in lumbar & cervical spine

Disc prolapse





History and symptoms

- LBA with radiating leg pain
- H/o long standing mechanical LBA
- H/O trauma- exacerbating the pain along with radicular leg pain ***(fall/twist/lifting heavy objects)***

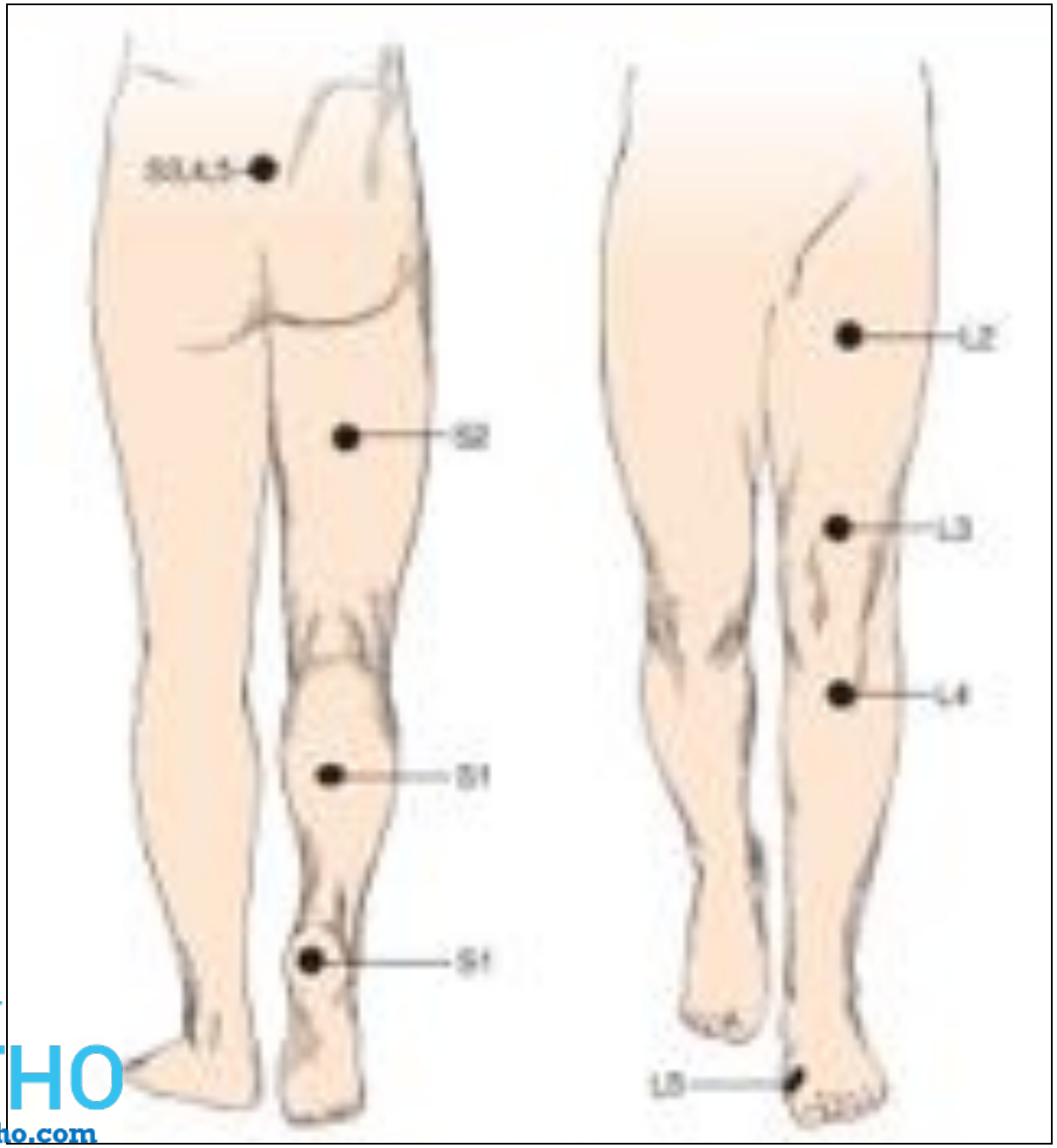
History and symptoms

- More risk- **vibration + flexion/rotation**
- **Leg pain- predominant / treatable**

- Leg pain
  - Disc prolapse- constant pain
  - Lumbar canal stenosis- only on walking

Pain increases – bending/ lifting/ coughing

Pain decreases – lying supine with hip and knee in flexion



History and symptoms

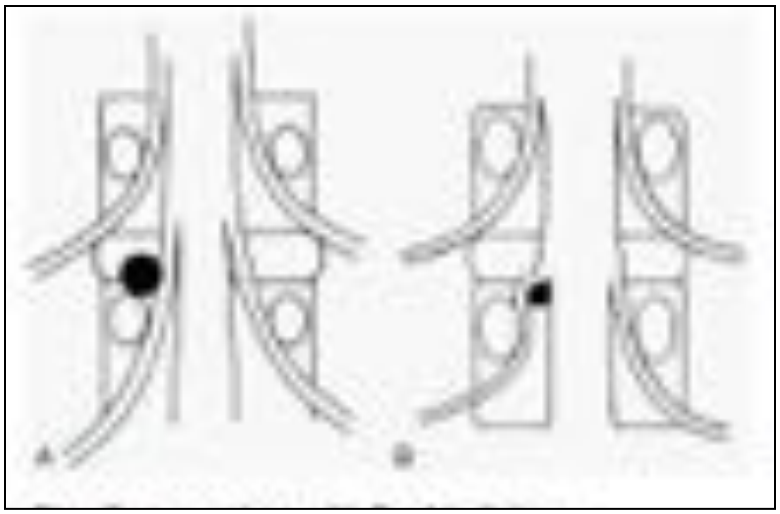
- History pertaining to motor & sensory weakness

1. Walking difficulty
2. Numbness.

- Bladder & bowel symptoms

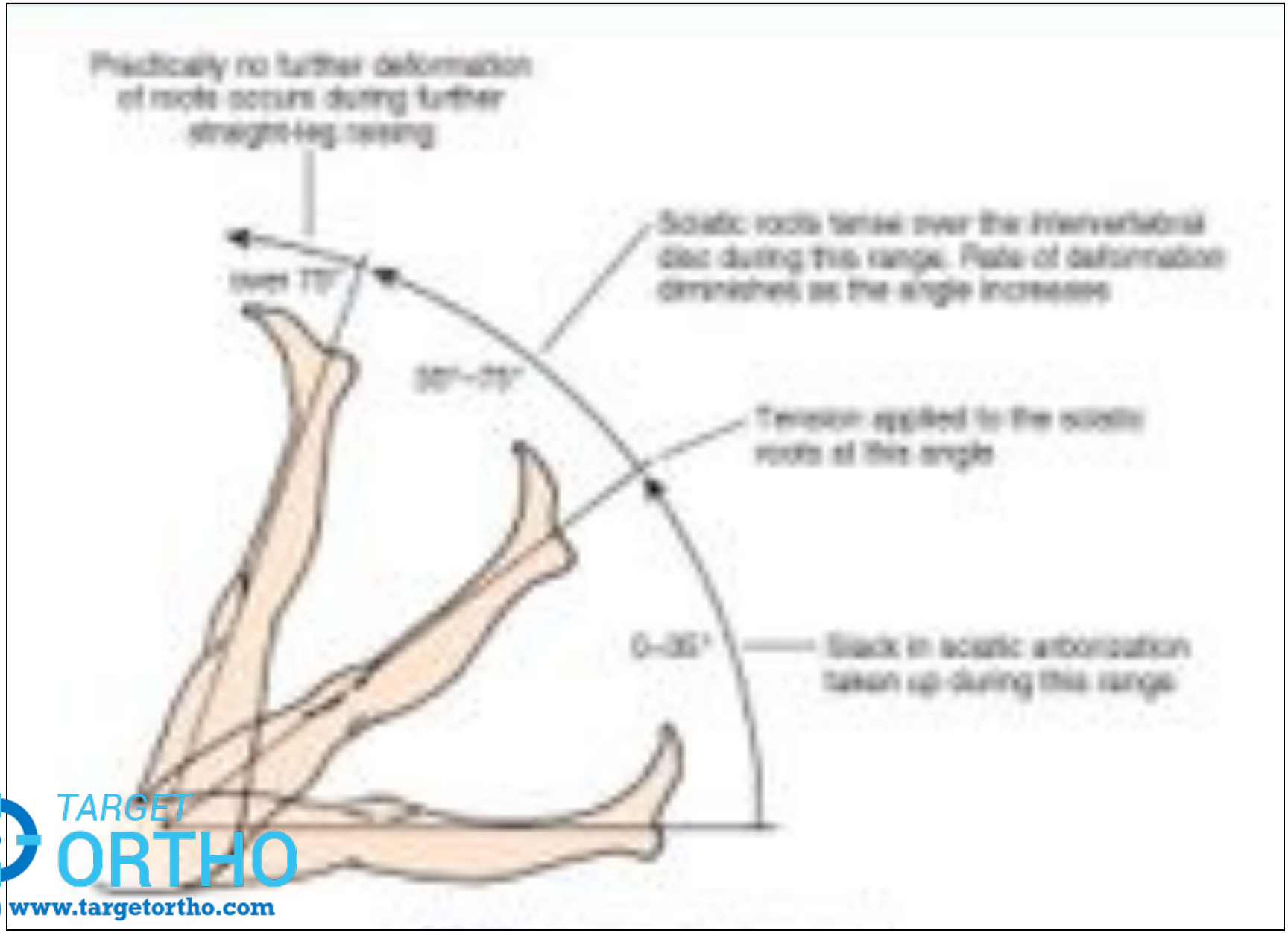
Clinical examination
Inspection

- Sciatic list



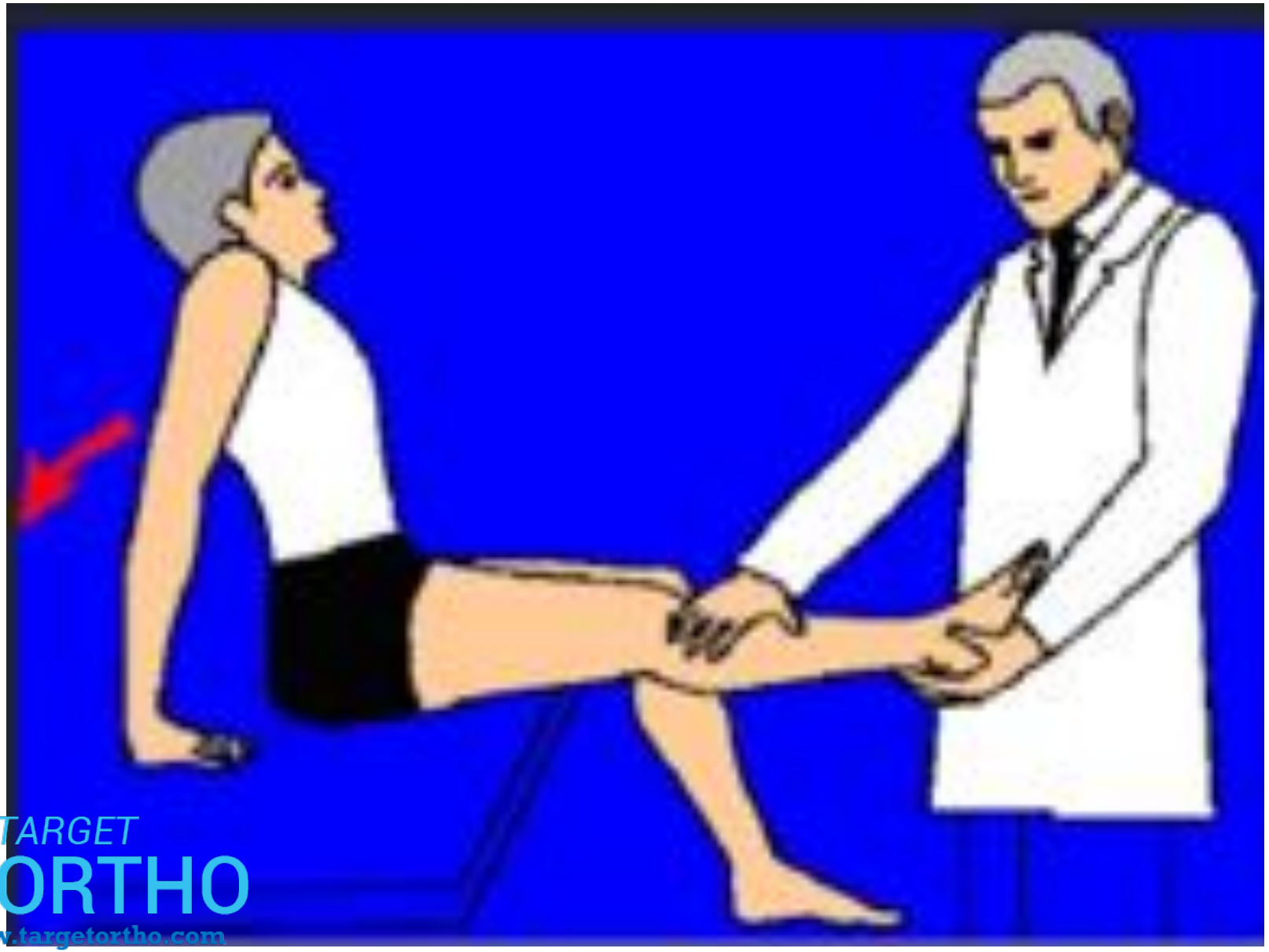
Paraspinal muscle spasm

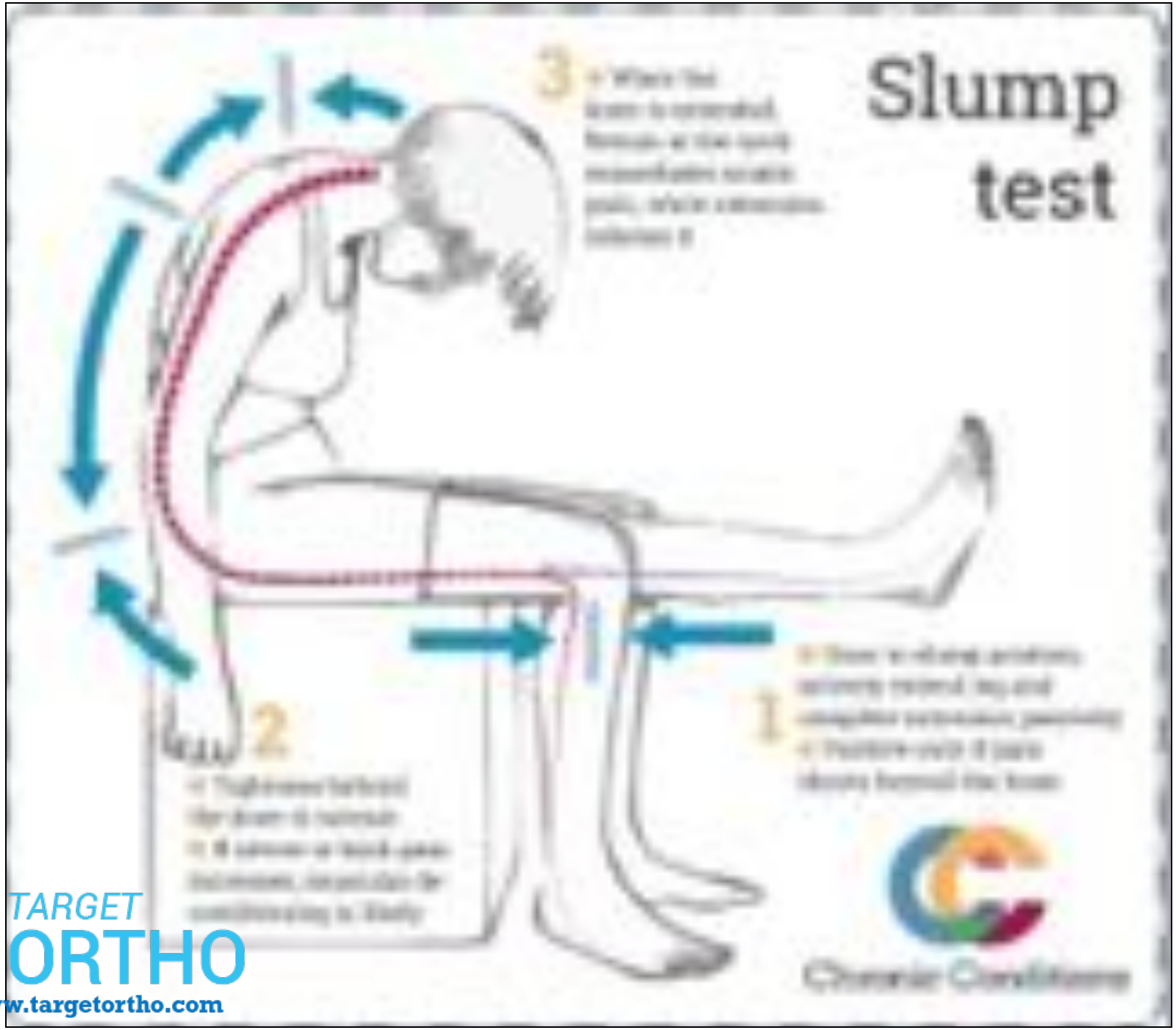
Straight leg raising test – SLR



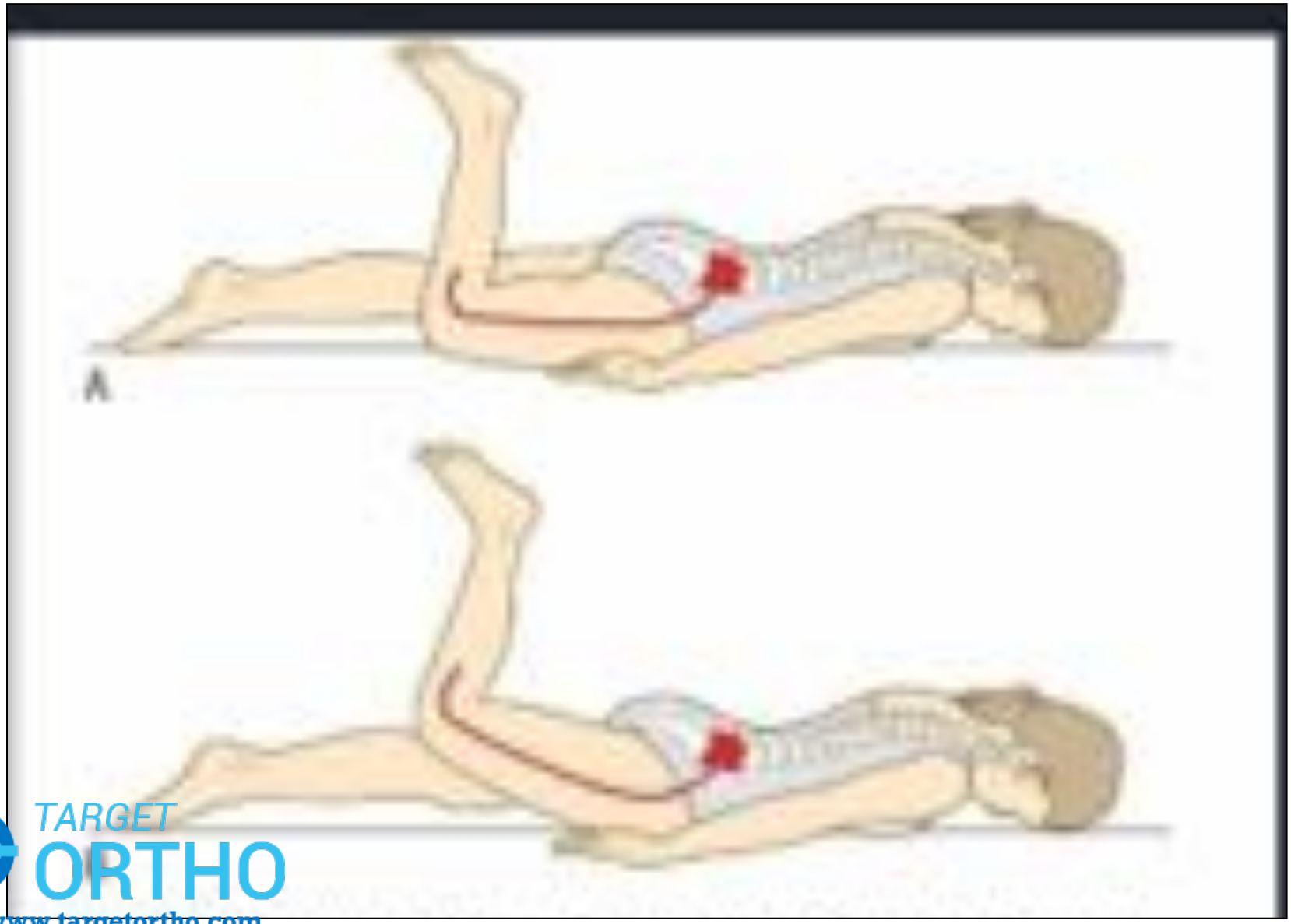
Bowstring test

Sitting SLR



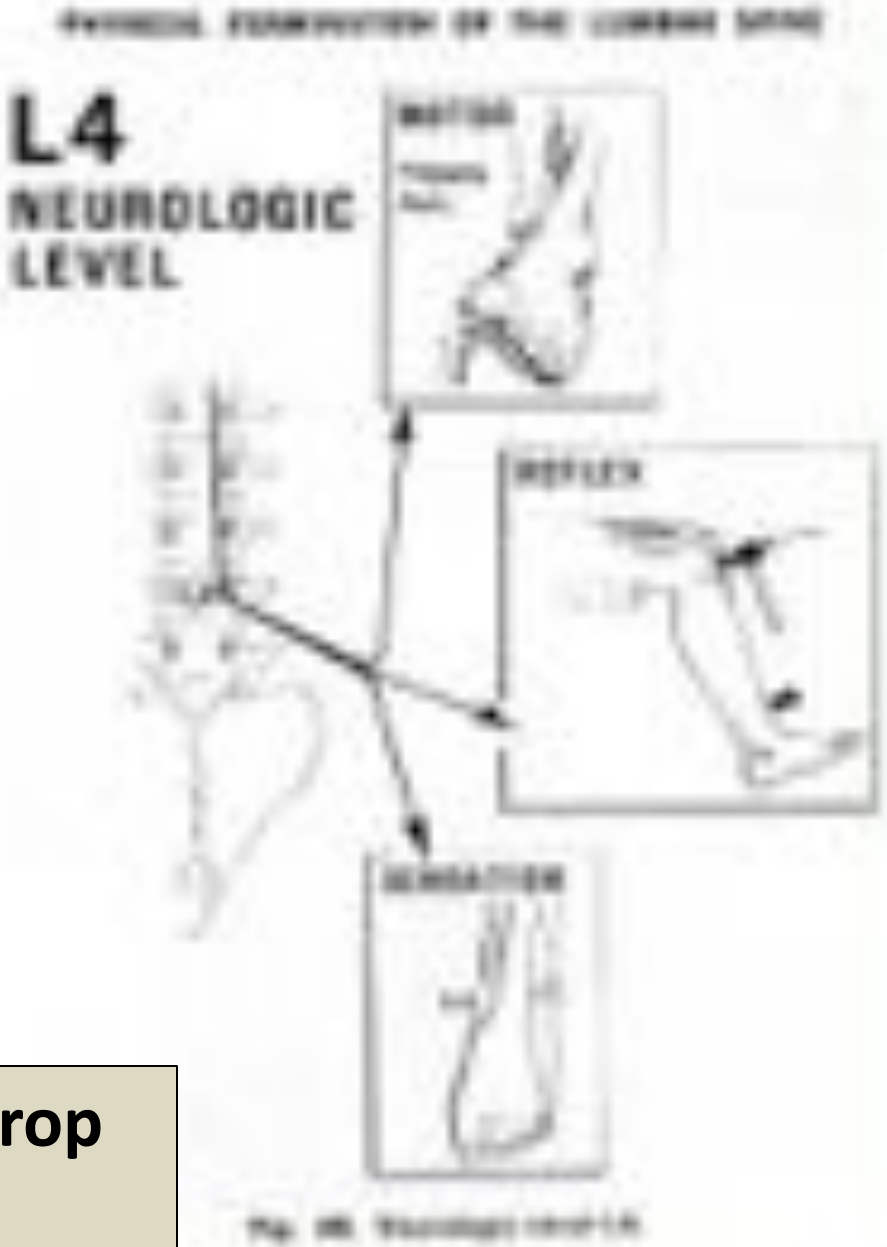


Femoral nerve strech test



Neurologic Examination L4

- Foot inversion (Tibialis anterior)
- Patellar reflex
- Medial aspect of foot sensation

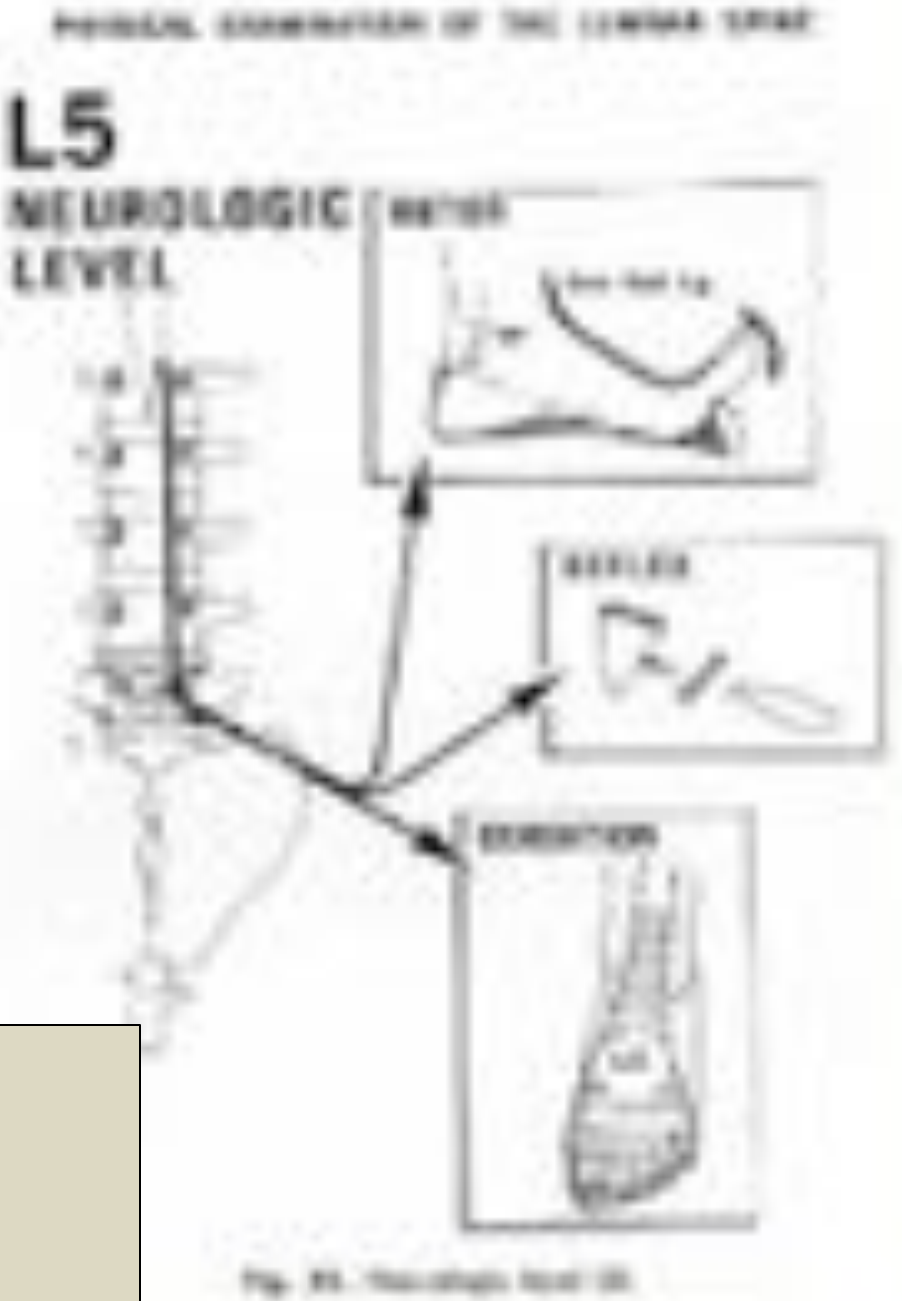


Ankle dorsi flexion – Foot drop

Heel walking

Neurologic Examination L5

- Great toe extension (Extensor Hallicus longus)
- No reflex
- Dorsum of foot sensation

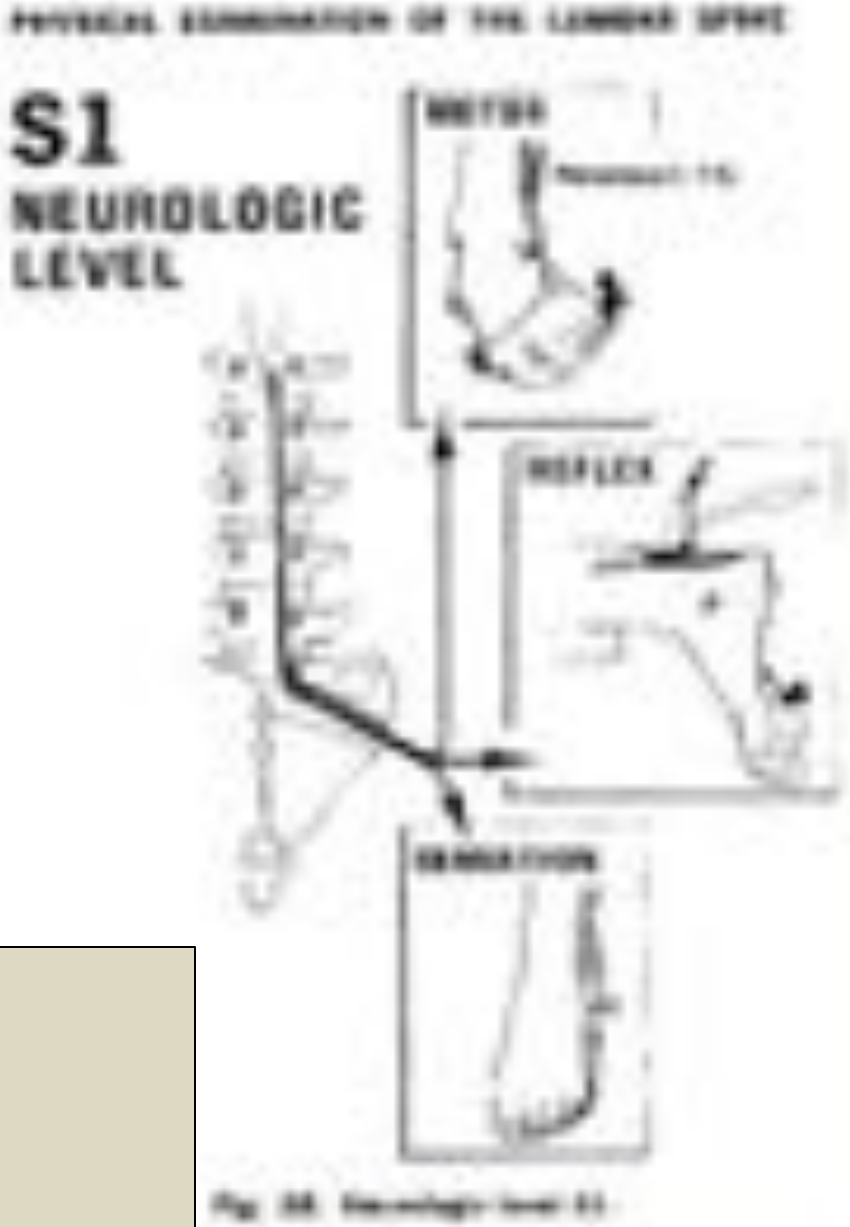


Foot drop- Heel walking

Hip abductor weakness- *Trendelenburgh gait*

Neurologic Examination S1

- Foot eversion (Peroneus longus and brevis)
- Achilles tendon reflex
- Lateral foot sensation



Ankle plantar flexion

Toe – walking

Hip extensor

Upper lumbar disc prolapse

Predominant back pain

Radicular pain- anterior thigh

Femoral nerve strech test

L2- Hip flexion

L3- Knee extension-Quadriceps

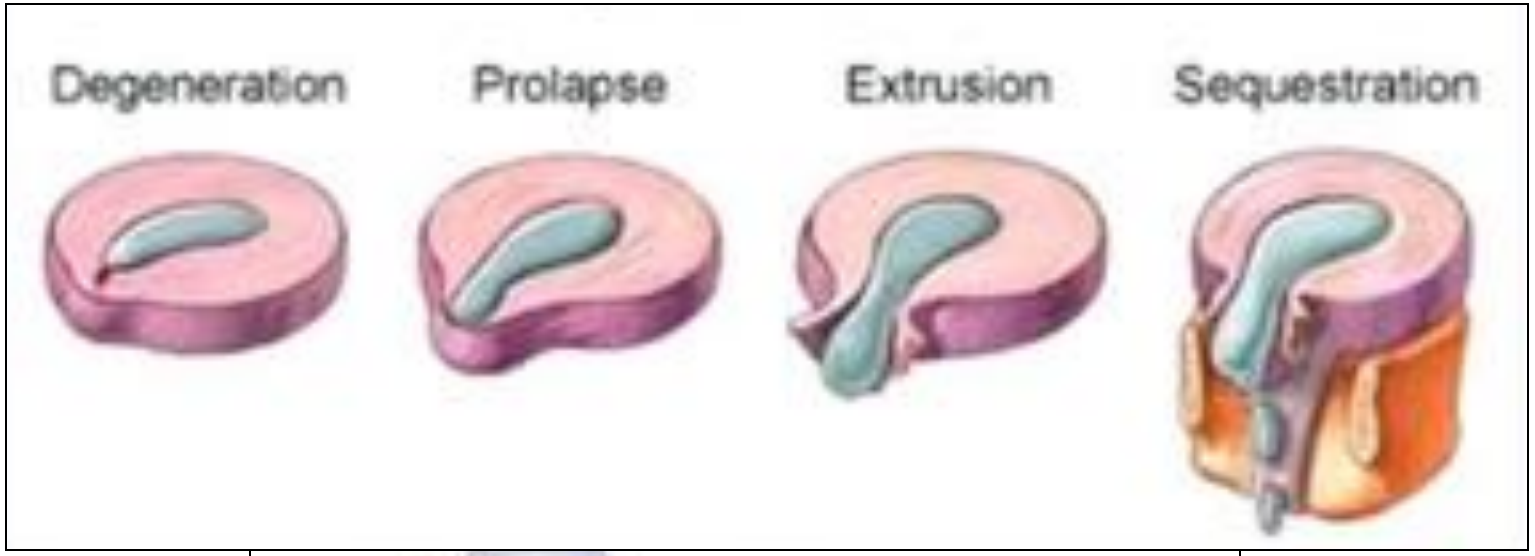
X- ray

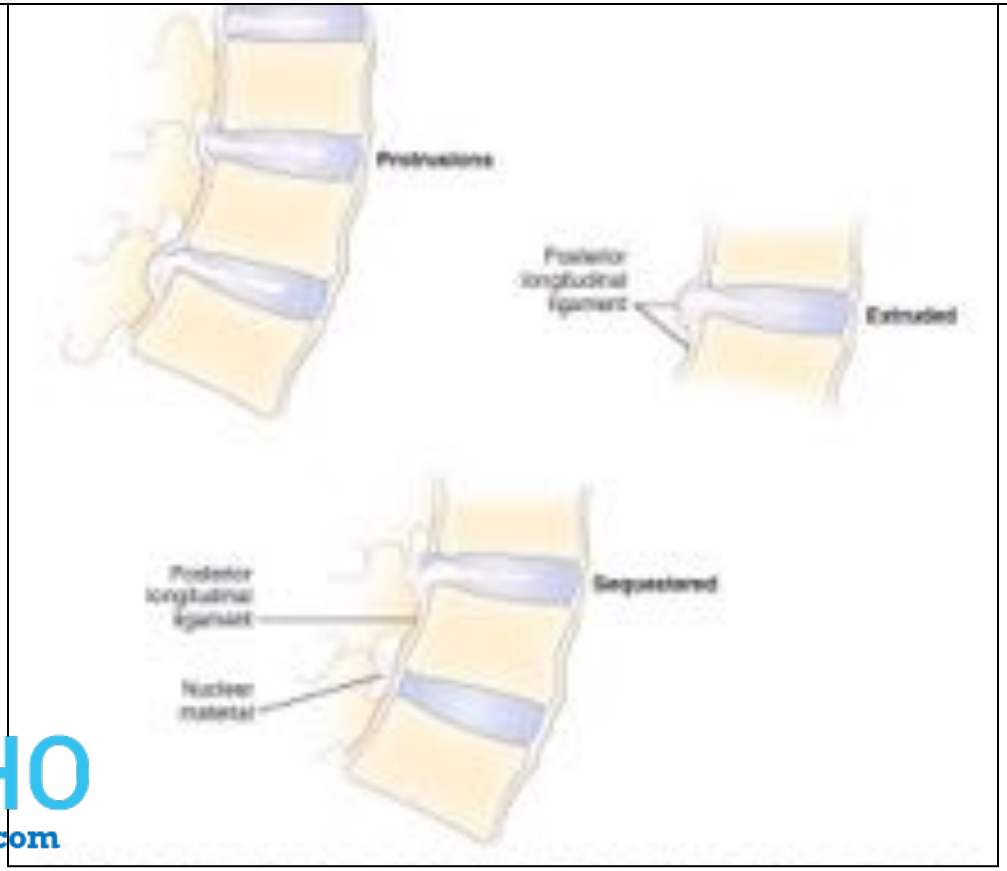
- Initial imaging modality – standing lateral view
- Does not show disc prolapse
- Look for

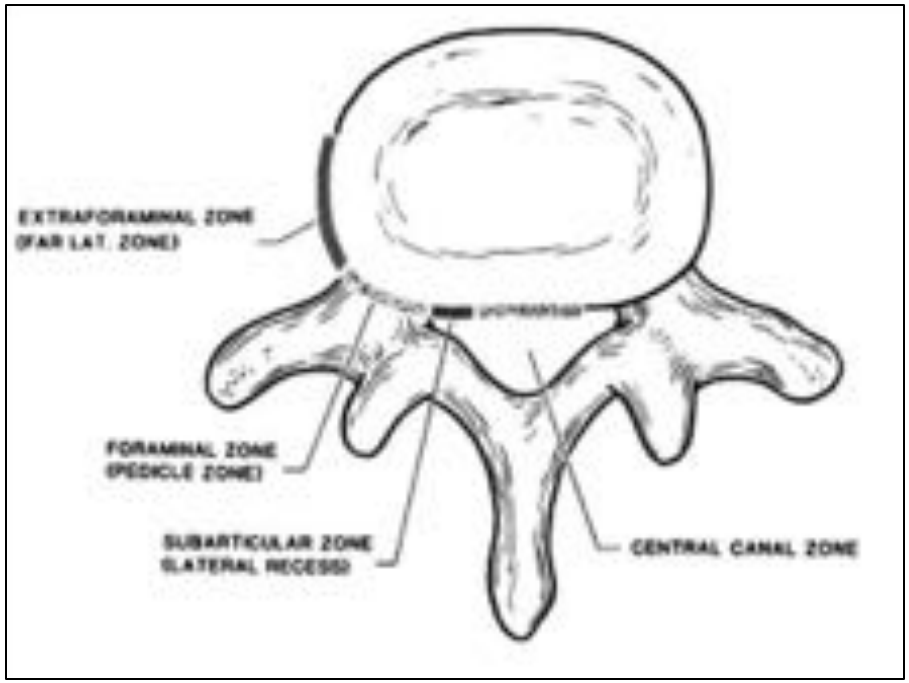
Instability

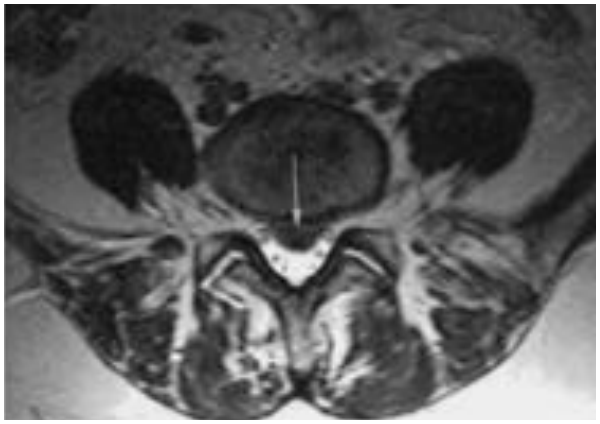
MRI – indications

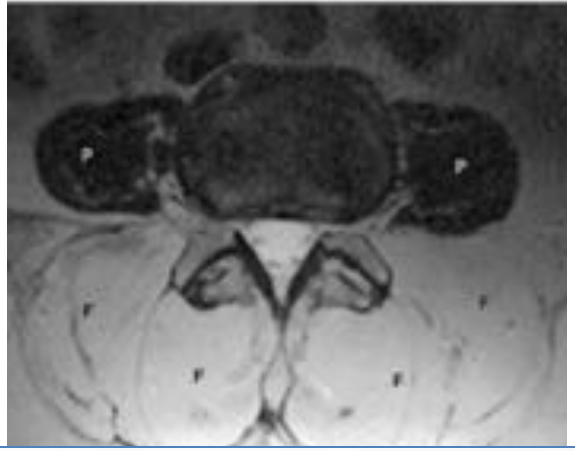
- Persistent symptoms
- Constitutional symptoms- fever/ chills
- H/o malignancy
- Neurological defecit
- Bladder / bowel incontinence

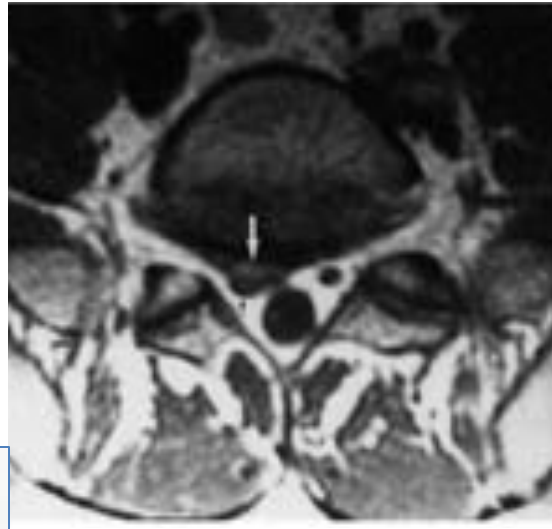


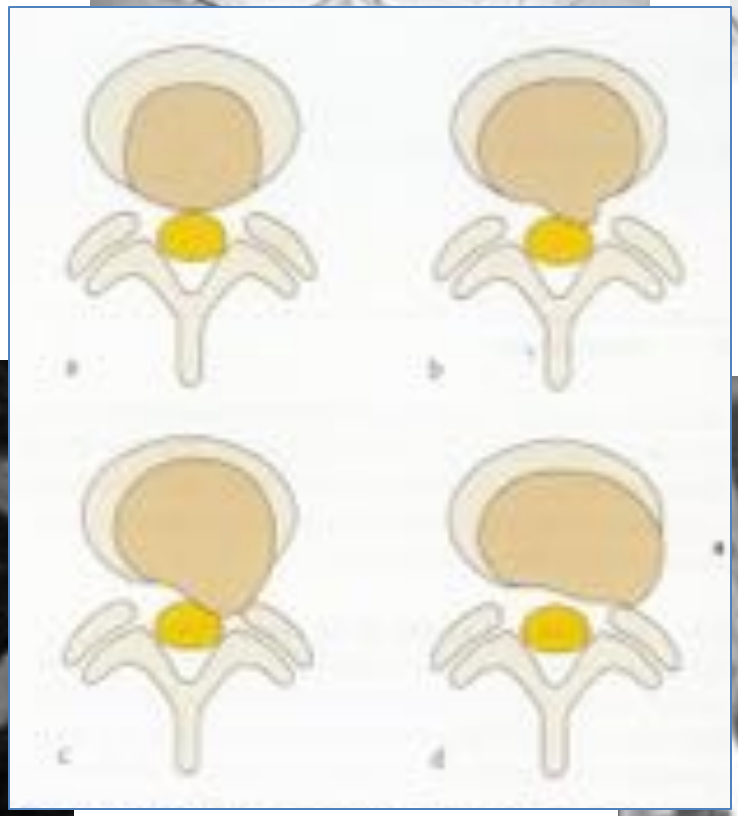


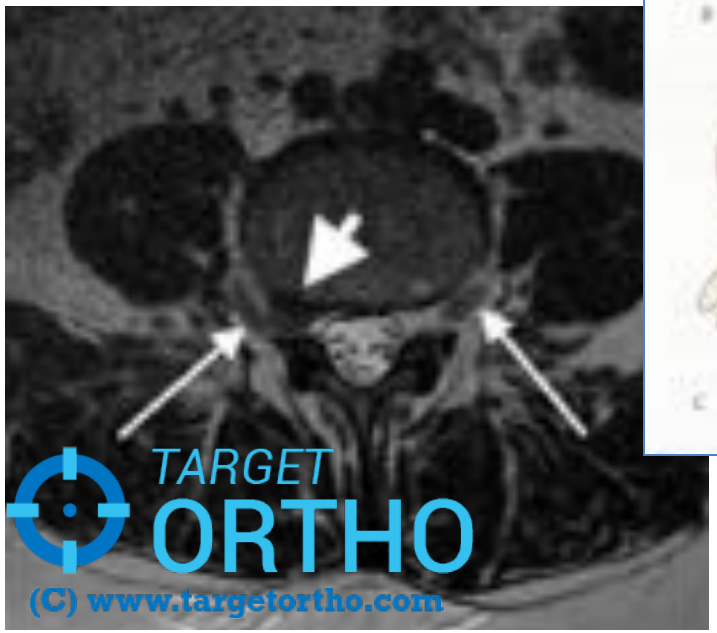


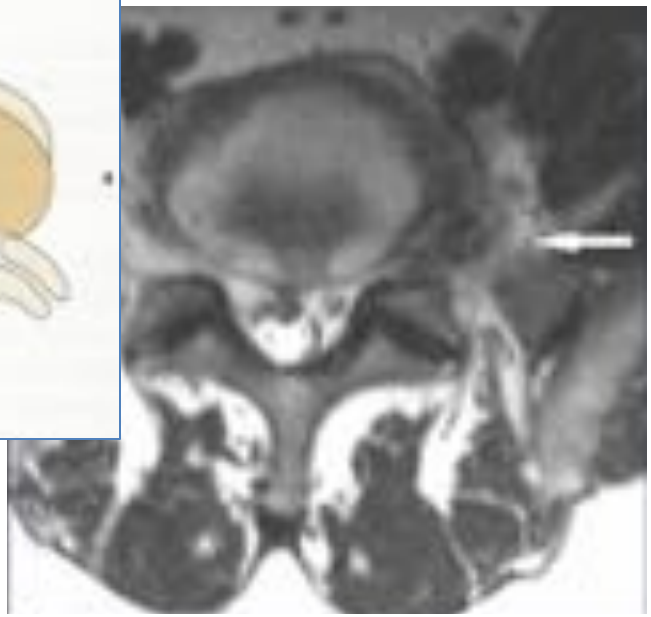


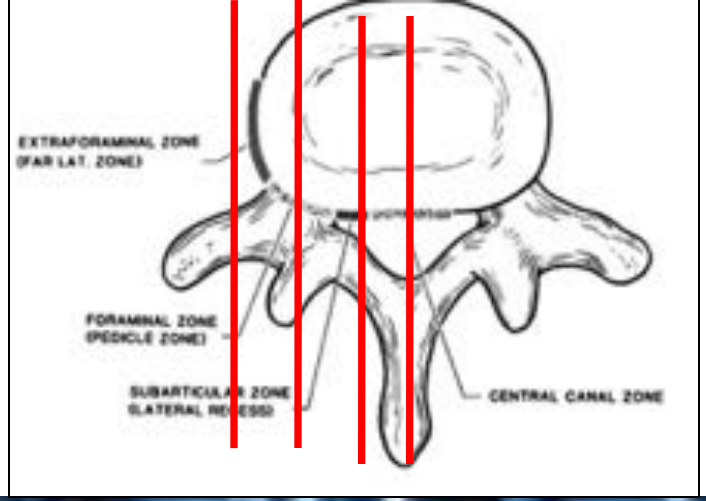




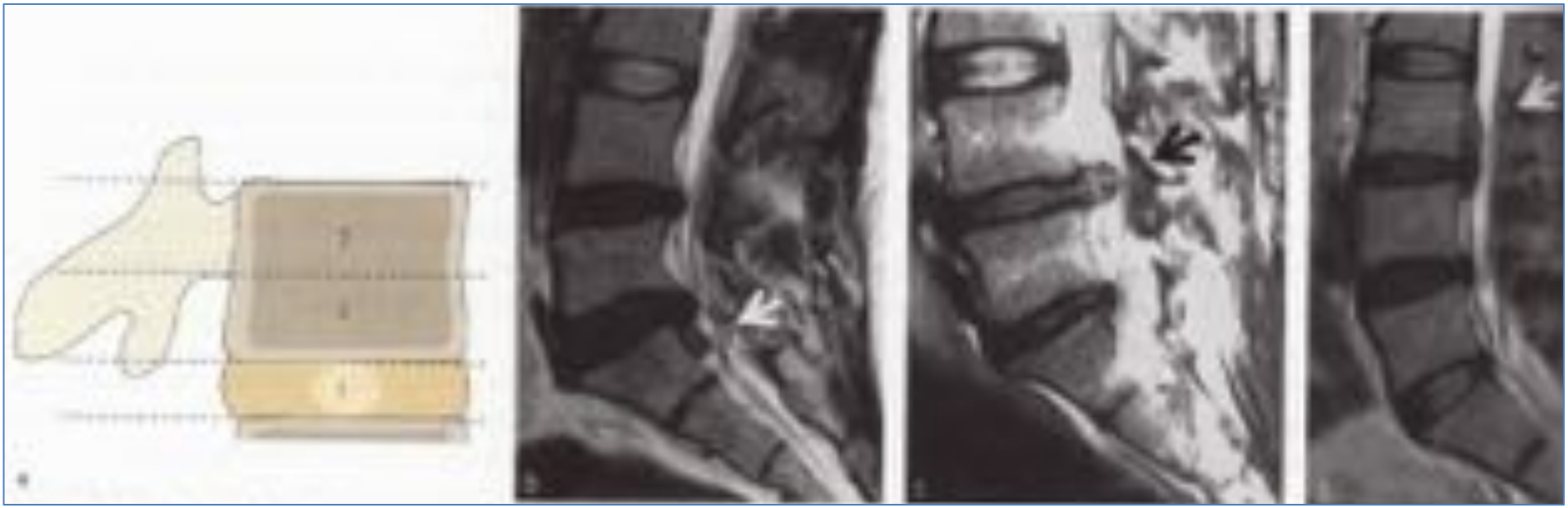


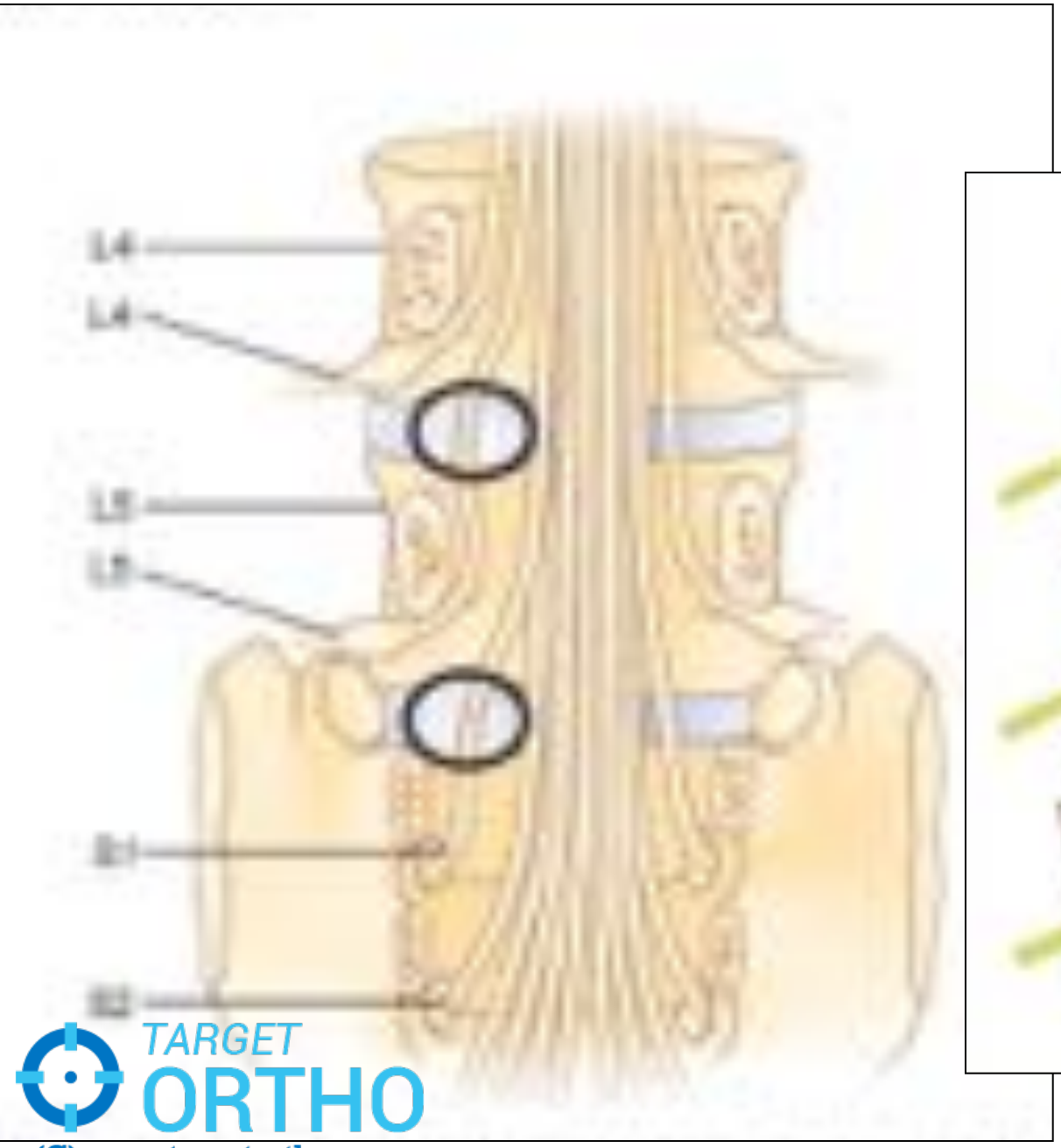


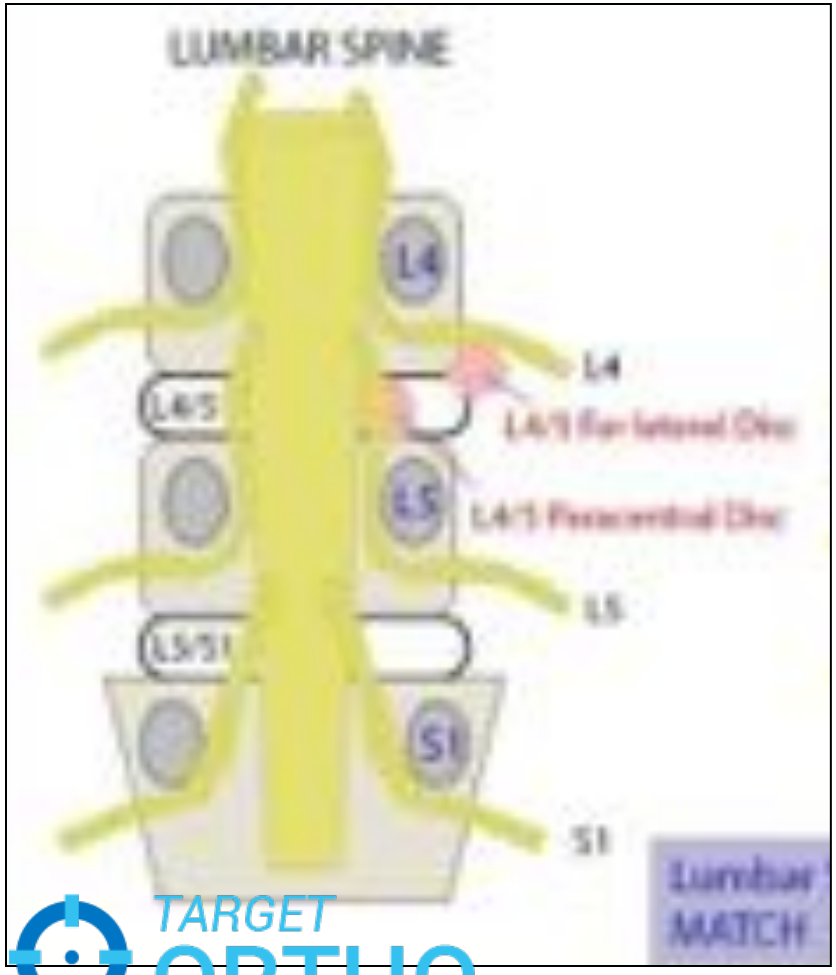




MRI – sagittal section

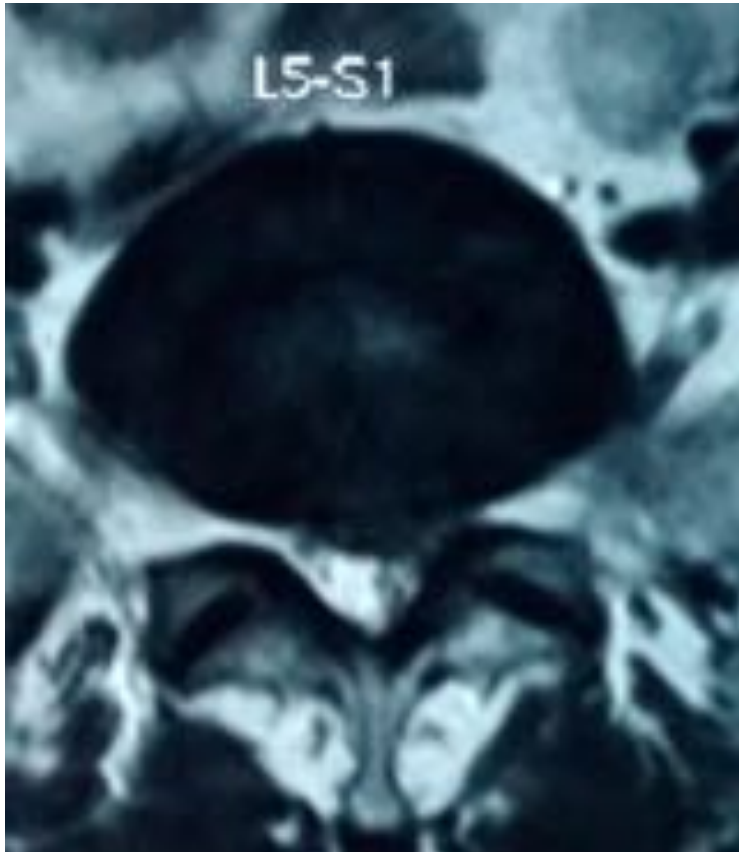






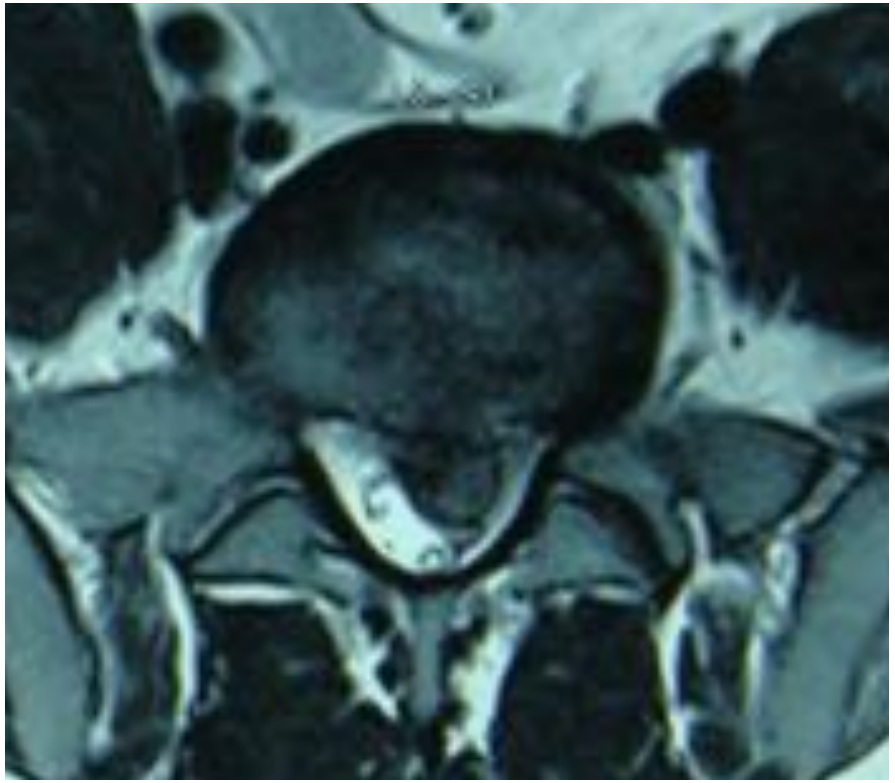
L4 root- L3-L4 paracentral disc
L4-L5 far lateral disc

L5 root- L4-L5 paracentral disc
L5-S1 far lateral disc



Natural history

what causes pain ?



Sciatica

- Pure mechanical compression – only sensory and motor defecit
- Inflammation of the nerve root – pain
- Nucleus pulposus – sheilded from immune system
- On prolapse-releases **TNF-α**

Conservative management

- **Natural history-** Radicular pain without significant neurological defecit will settle down in 60% individuals in 6 weeks.

- Rest
- Analgesics
- Physiotherapy

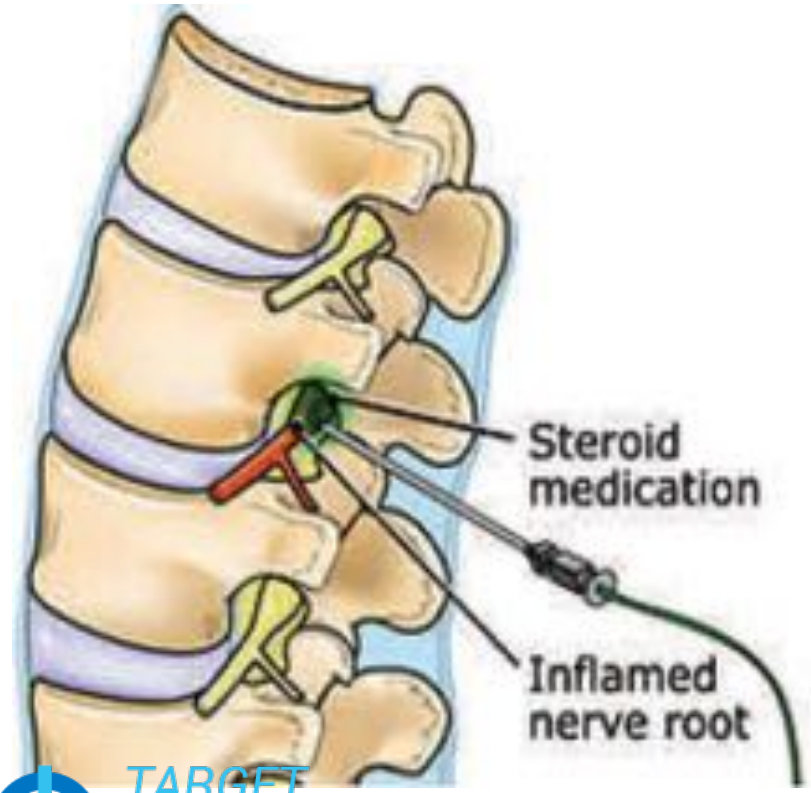
Conservative traetment
What I do…

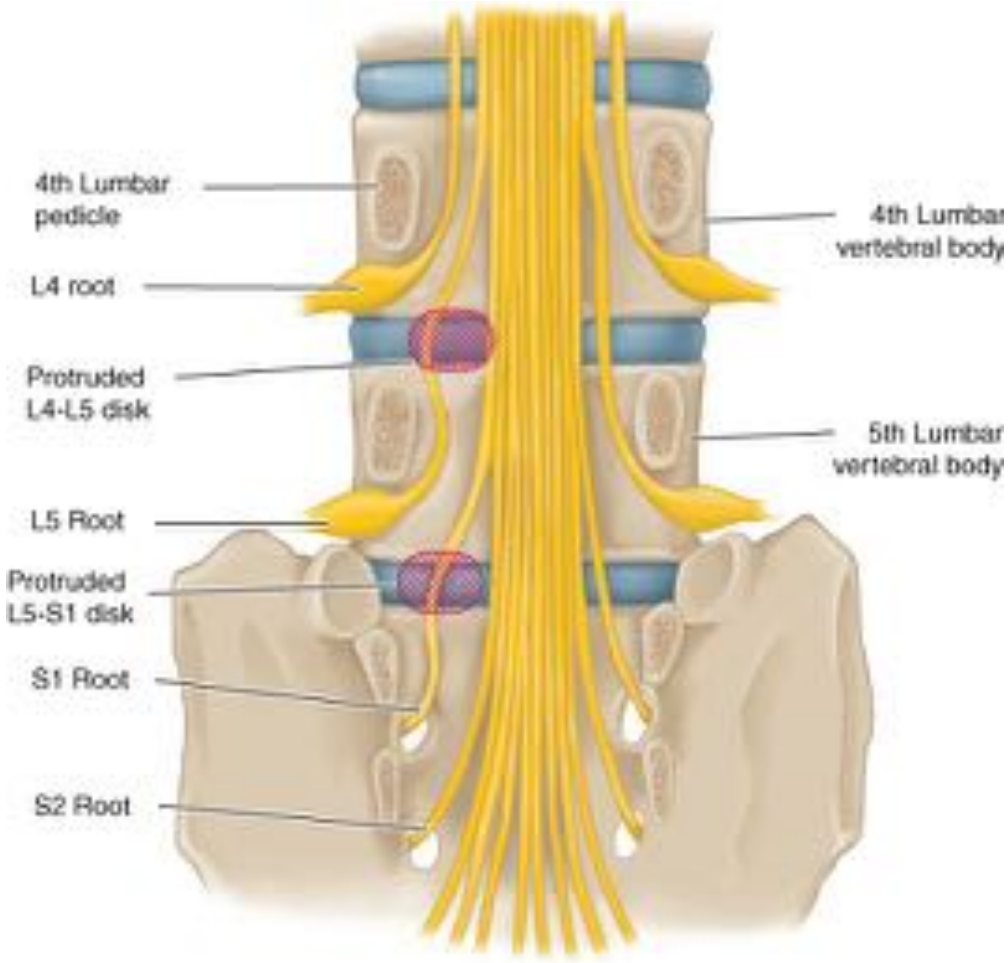
- Bed rest for 2 to 7 days
- Getle back exercises
- Strong analgesics- Aceclofenac/pregabalin
- Oral steroids- ? Use – I don't use
- Increase the exercises and level of activity.

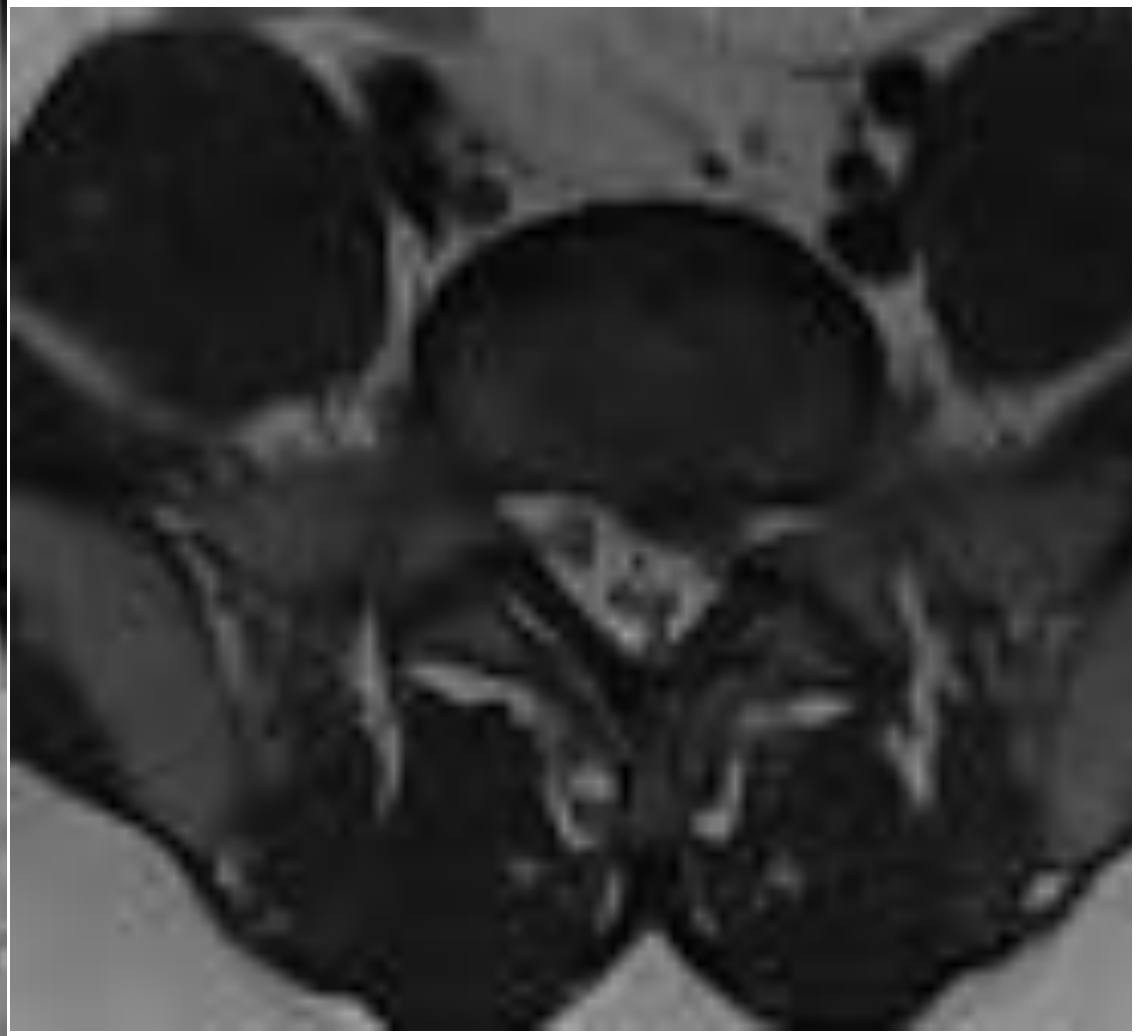
Physiotherapy

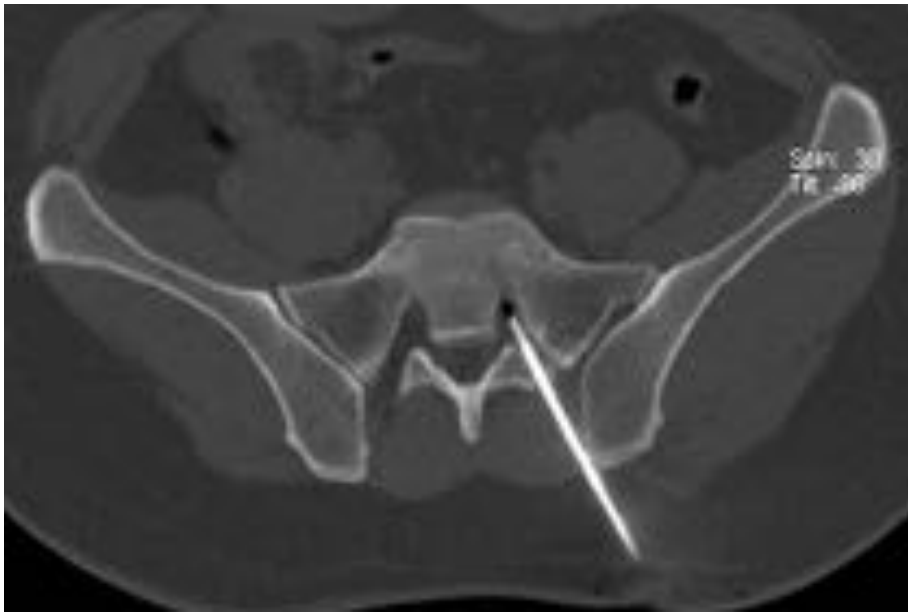
- **Pelvic traction**
- **IFT**
- **USG massage**

Nerve root block





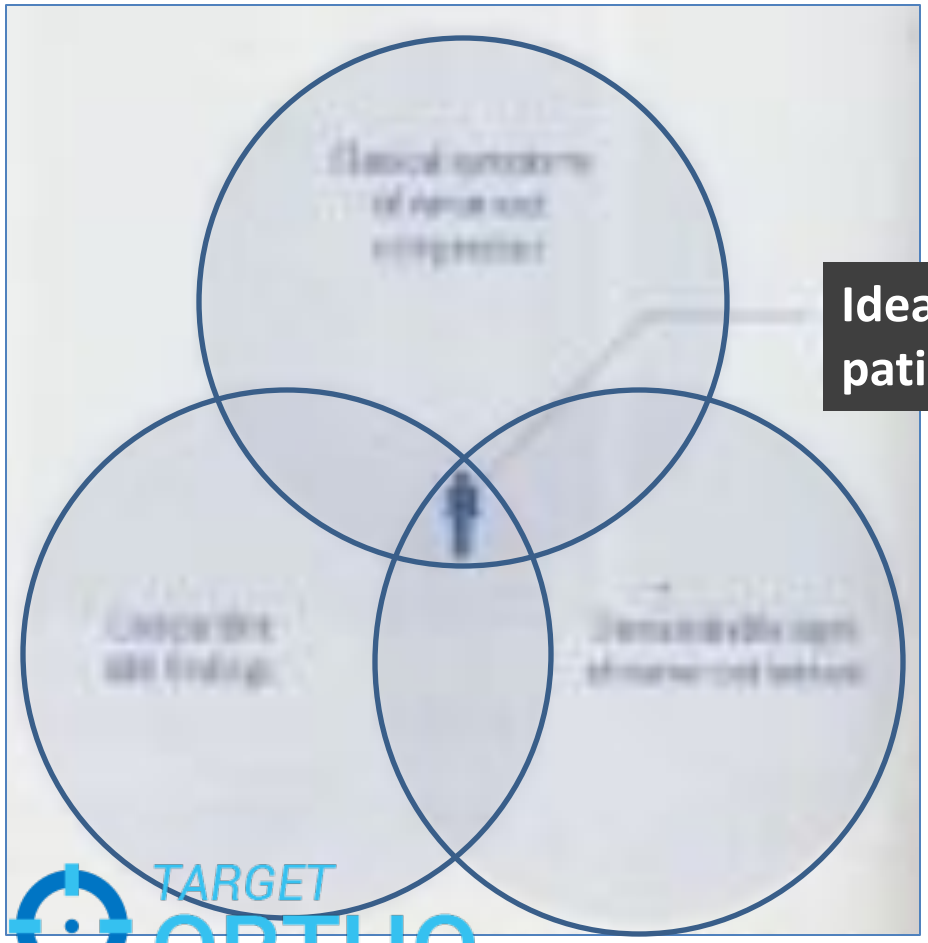




Surgery

- Failure of conservative treatment
- Neurological defecit
- Cauda equina syndrome

Patient selection – lumbar disc surgery



Ideal patient

1. Leg pain > Back pain
2. Disc prolapse - MRI
3. MRI finding = symptoms

Surgery for disc prolapse

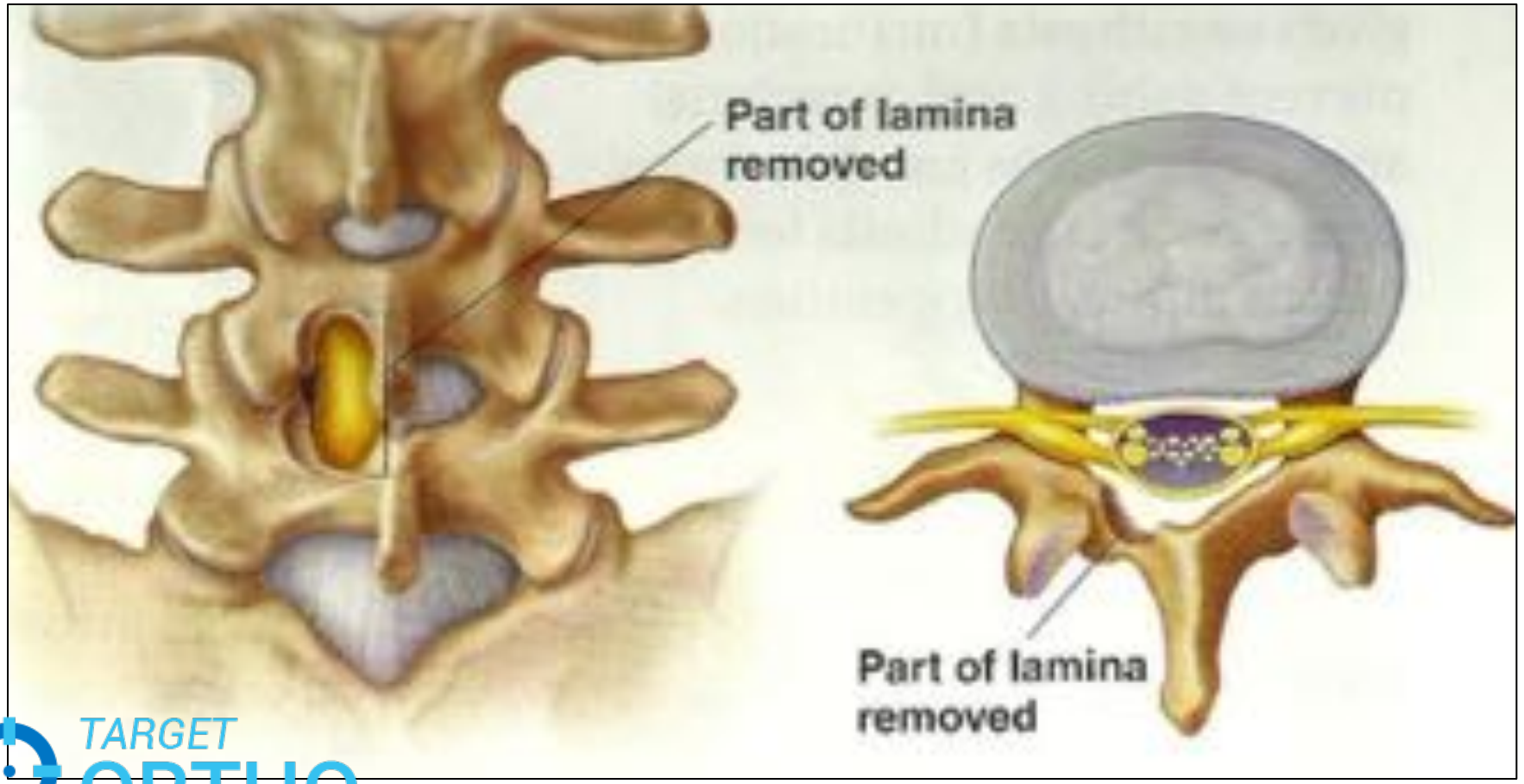
- Conventional laminectomy and discectomy
- Micro lumbar discectomy- gold standard
- Endoscopic transforaminal discectomy

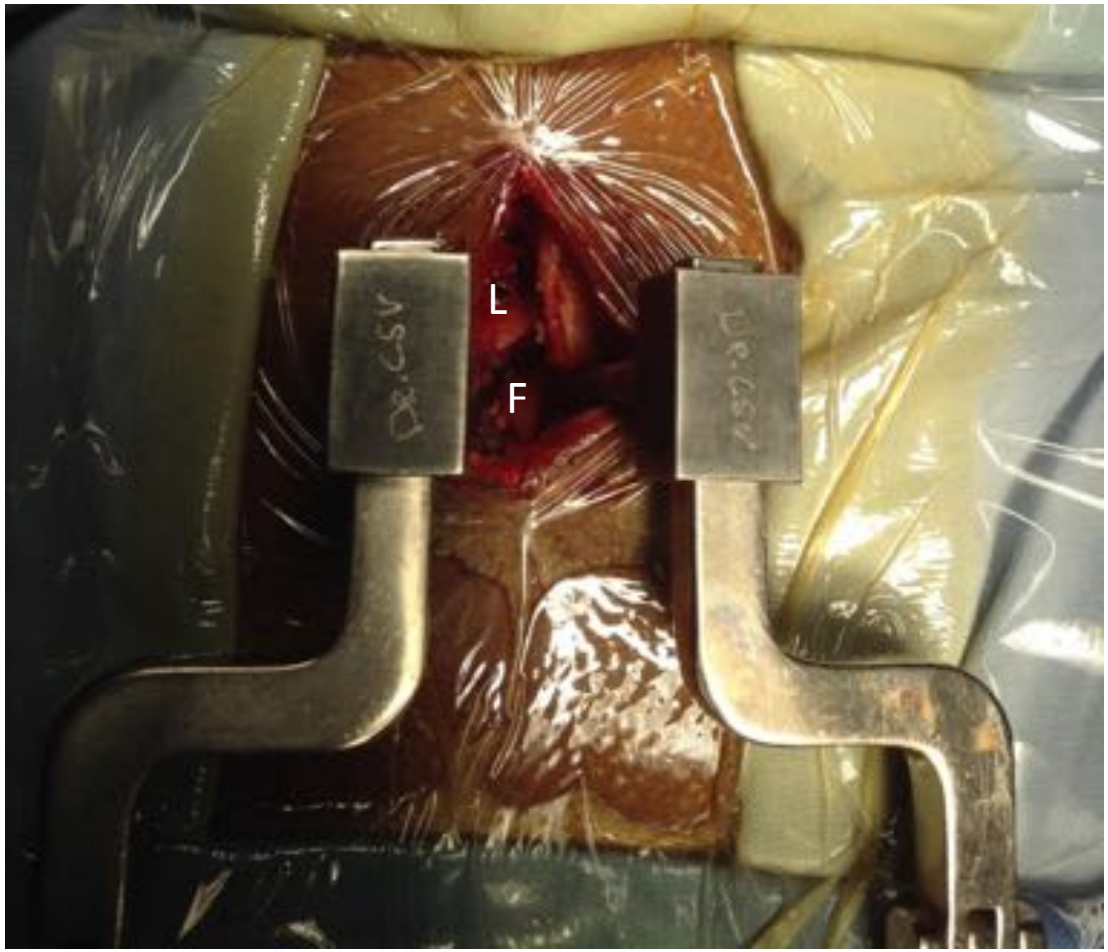
Positioning

Check your level

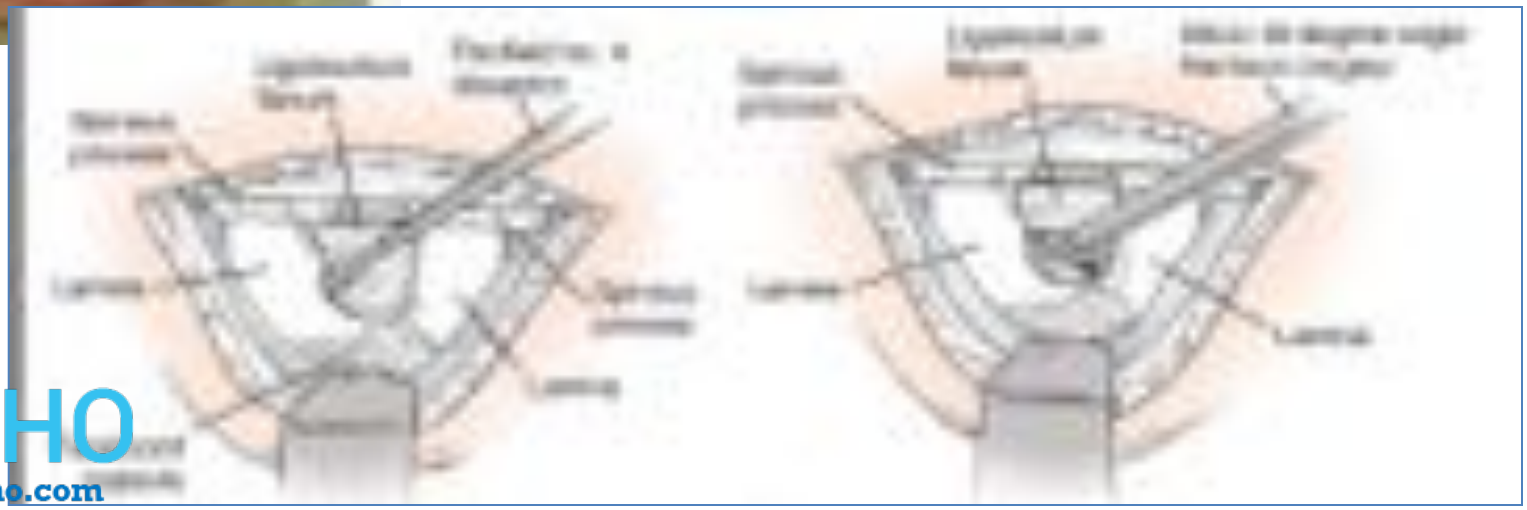
Surgical exposure

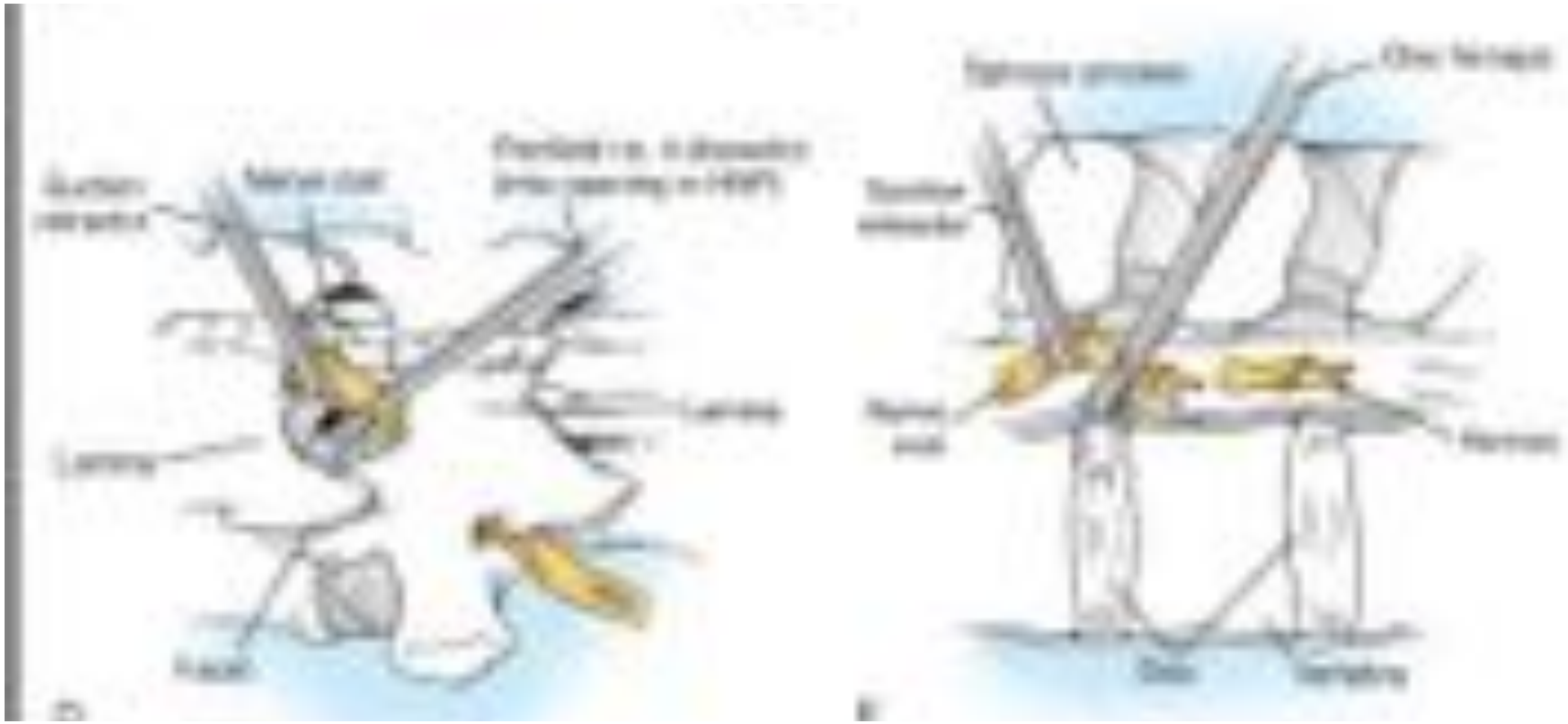
- 2.5 cm midline incision
- Skin and sub cut hemostasis – prevent blood spilling into field
- Fascia incised few mm from midline
- Paraspinal muscles elevated spinous process and lamina.





Flavectomy





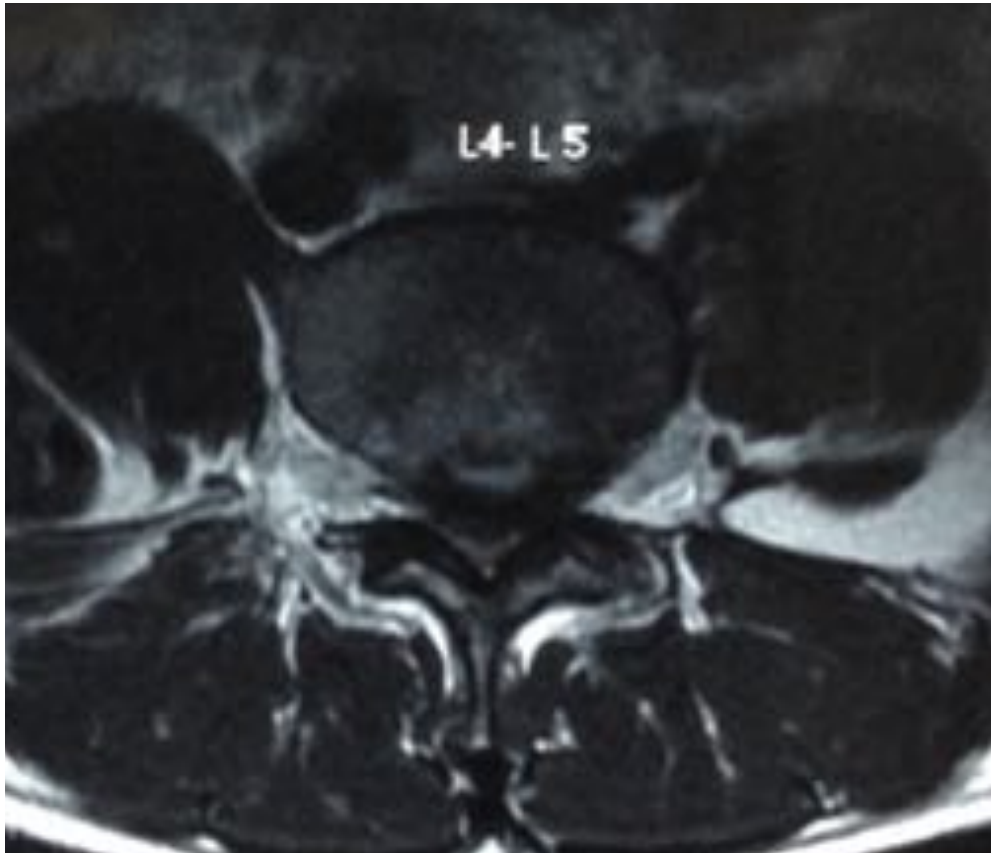
Cauda equina syndrome

1. Severe low back pain (LBP)
2. Sciatica-bilateral
3. Saddle anasthesia
4. Bladder, bowel and sexual dysfunction

- It occurs most frequently following a large lower lumbar disc herniation, prolapse or sequestration.

Cauda equina syndrome

Not to do MLD !!



Complications

- Persistent back pain
- Recurrent disc prolapse
- Surgical site infection
- Instability

Disc

A 34 years old man present with weakness of his right extensor hallucis longus and decreased sensation over the dorsal aspect of this right foot . deep tendon reflexes are normal.which of the following types of lumbar disc herniation would best explain this patients symptoms?

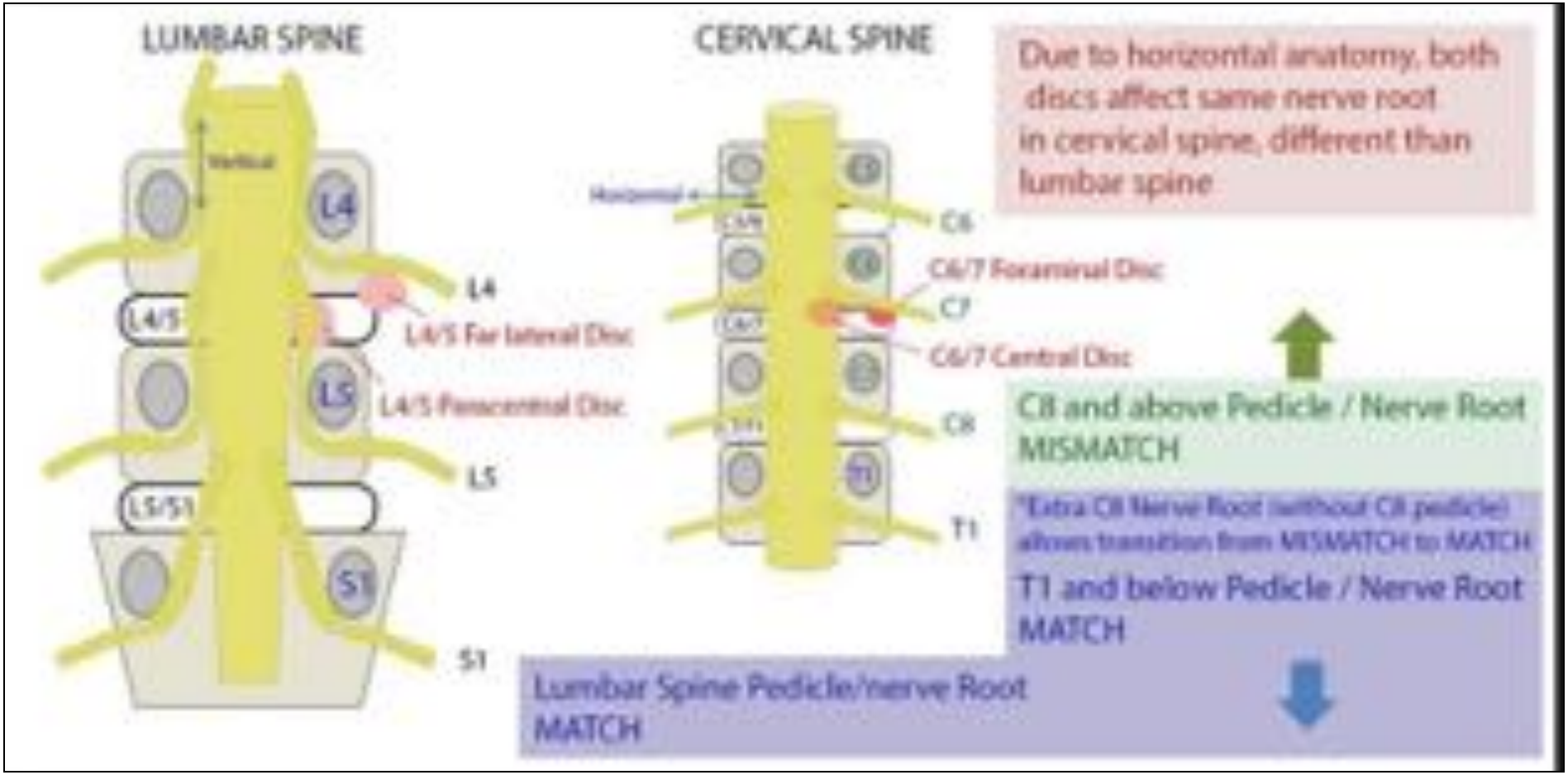
A) Postero lateral L5-S1 disc herniation

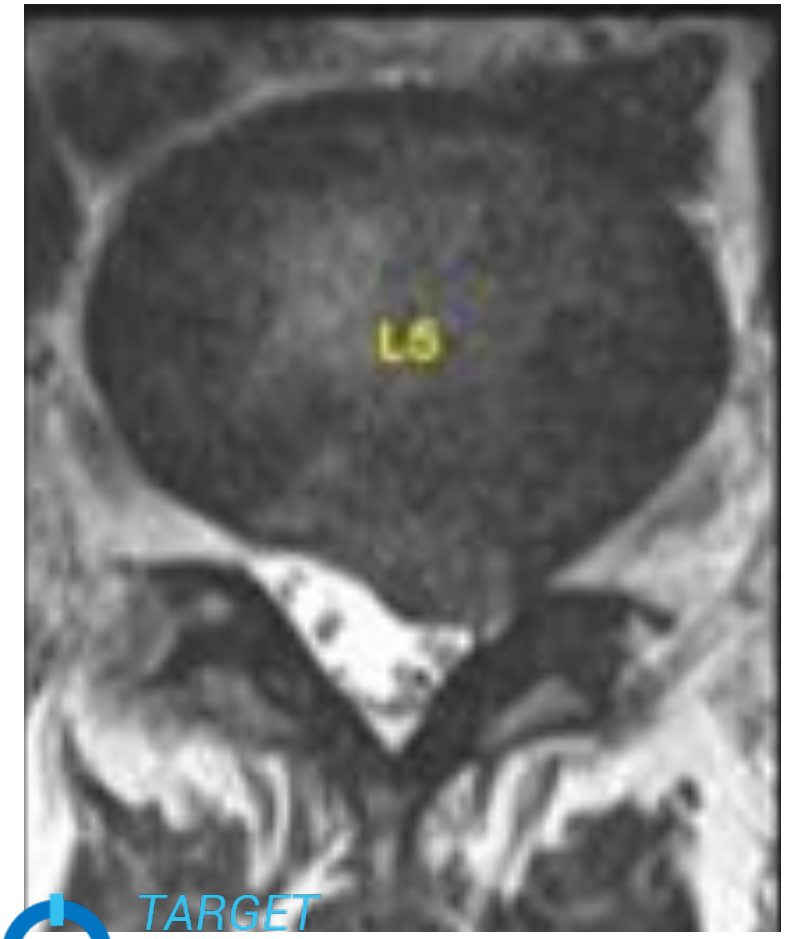
B)Extra foraminal L5-S1 Disc herniation

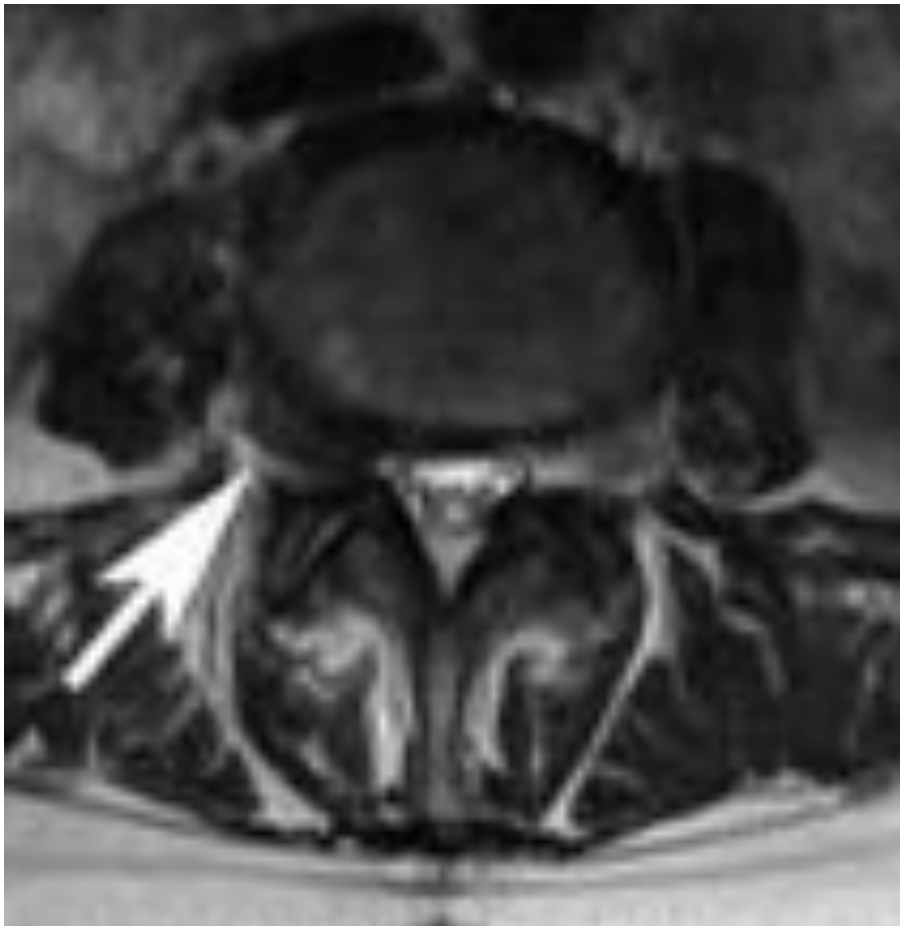
C) Postero lateral L3-L4 disc herniation

D)Extra foraminal L4-L5Disc herniation

E)Lateral L3-L4 Disc heniation







Disc pressure

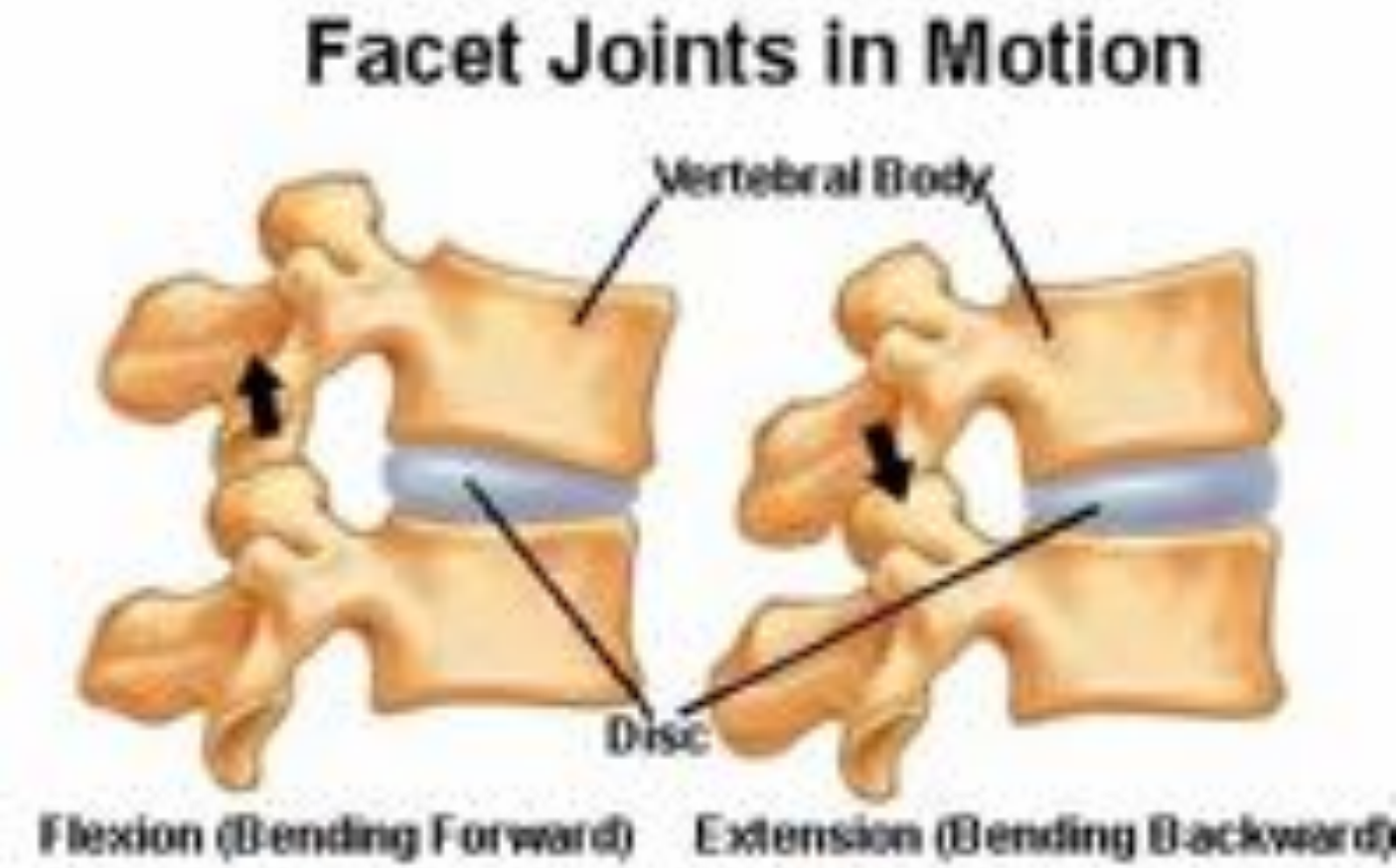
Higher lumbar disc pressure is generated in which of the following positions ?

A) Sitting with lumbar Support
B) Sitting with out support
C) Standing at the case
D)Lying supine
E) Lying Prone

What constitutes a spinal motion segment?

a. A disc and the facet joints at that level.
b. A disc and the vertebrae above and below, including their interlocking facet joints.
c. A section of the spine involved in a physiological curve with the similar function (i.e. thoracic kyphosis).
d. A vertebral body and the disc above.
e. A disc and the vertebrae above and below, including their interlocking facet joints and surrounding musculature.

Spinal motion segment



Waddell sign

Waddell sign include all the following expect

A)Nonorganic tenderness

B) Simulation tests

C) motor and /or sensory compromise

D) Distraction tests

E) Over reactions

Indication for disc surgery all except?

- Significant leg pain X 8 weeks
- Foot drop
- Cauda equina syndrome
- Acute recurrent disc prolapse

Pfirmanns grading ?