



Common spinal conditions and their management

Praveen Inaparthi
Consultant spinal surgeon

Spinal pathologies

- Degenerative
- Trauma
 - Falls and RTA
- Infection
 - Bacterial and tuberculosis
- Tumour
 - Benign and malignant
- Inflammatory
 - RA
 - Ankylosing spondylitis

Simple Backache

- Presentation between ages 20-55
- Mechanical pain i.e. varies with activity
- Lumbosacral distribution
- Patient is well otherwise
- Outcome – 90% recover in 4-8 weeks but recurrence rate is high.

NICE guidelines – back pain

- Self management (group exercises)
- Pharmacological support
- Combined physical and psychological interventions

Causes for concern

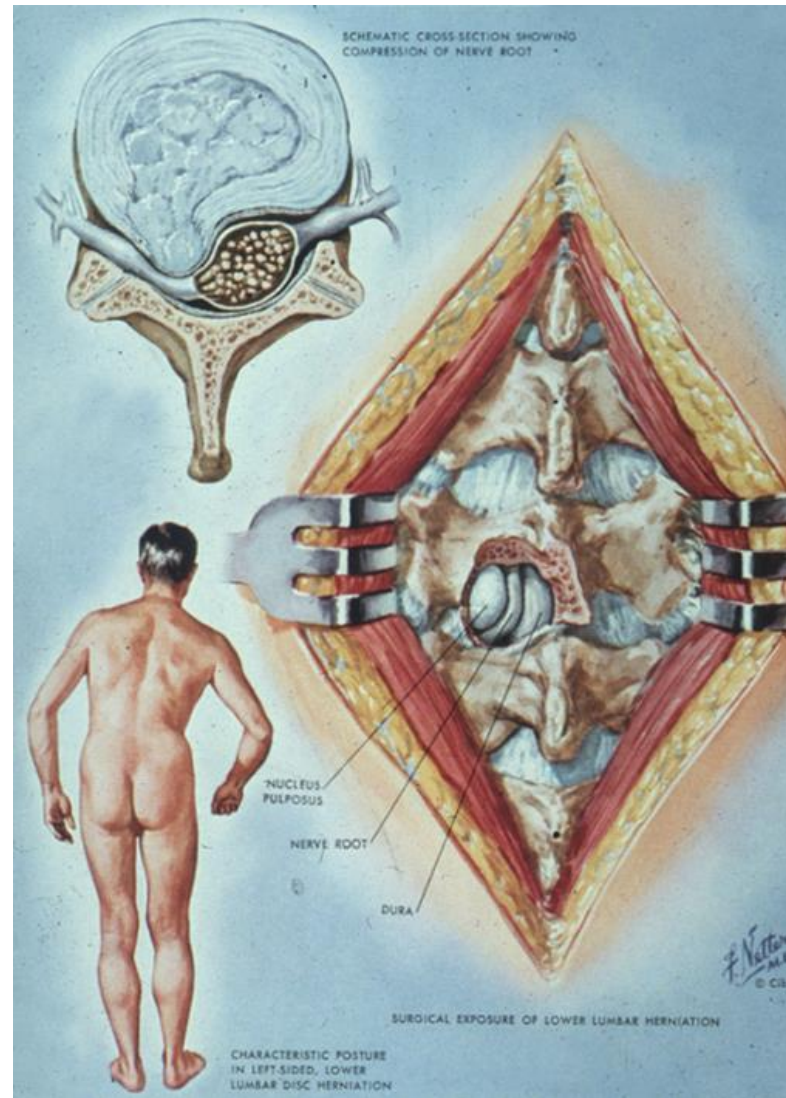
HISTORY

- Age < 18 yrs and >55 yrs
- H/O trauma
- Pain - Radicular, nocturnal
- Wt loss and fever
- PMH - H/O carcinoma, immunosuppression



Degenerative spine pathologies

Lumbar disc herniation



Diagnosis

- Sudden onset radicular pain down one or both legs
- Neurological deficits
 - Sensory and motor loss
 - Loss of reflexes
- Positive Nerve stretch tests – sciatic and femoral

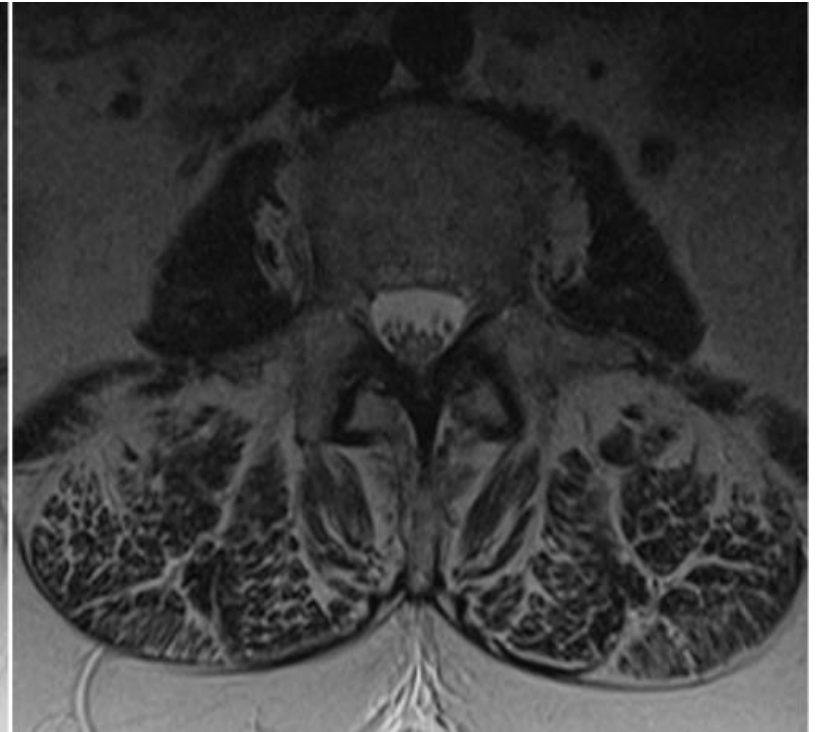
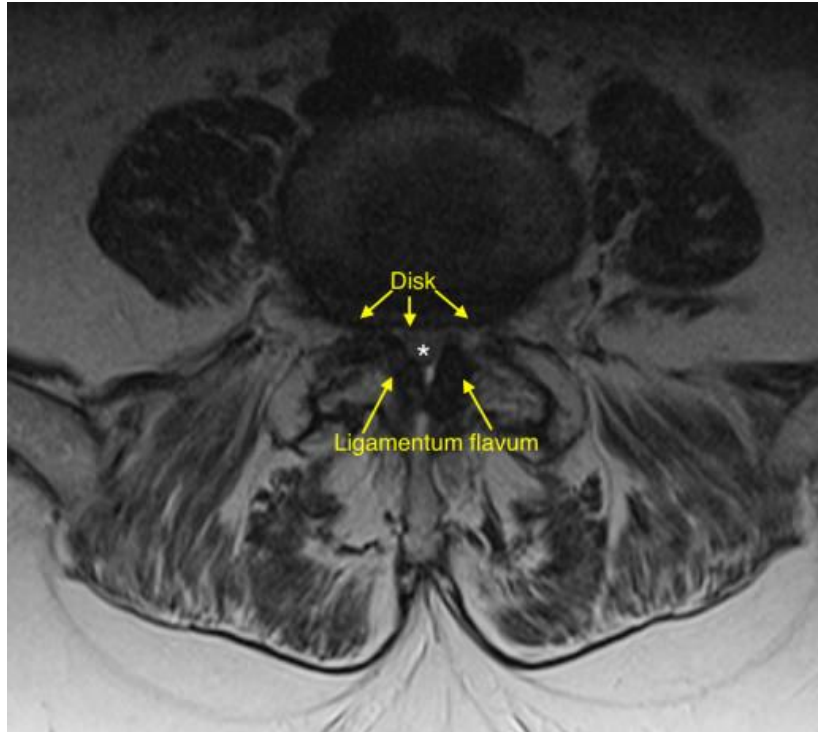
Indications for surgery

- Failure of conservative mgt – around 90% improve spontaneously
- Neurological deficit
 - Cauda equina syndrome
 - Bilateral neurodeficits with pain and sphincter disturbances
 - Radicular – motor deficits
- Social – early return to employment

Post-op

- Start working with physio as soon as able
- Wound check at 2 weeks
- Back to heavy activities after 6-8 weeks

Lumbar canal stenosis



Diagnosis

- Neurogenic claudication – on walking
 - Radicular pain
 - Sensory - Altered sensation
 - Motor – legs feel heavy/ give way
- Pain relieved by – rest/ lumbar flexion
- Examination – normal

Management

- Consider conservative measures – physio and pain management (including injections)
- Surgery if
 - Conservative measures fail
 - Severe restriction of activities
 - Neurodeficits
- Post-op - Similar to discectomy

Spinal fusion



Indications

- Any spinal pathology which would cause or lead to **instability** – needs fusion/ stabilisation
 - Degenerative – listhesis
 - Trauma
 - Infection
 - Tumour

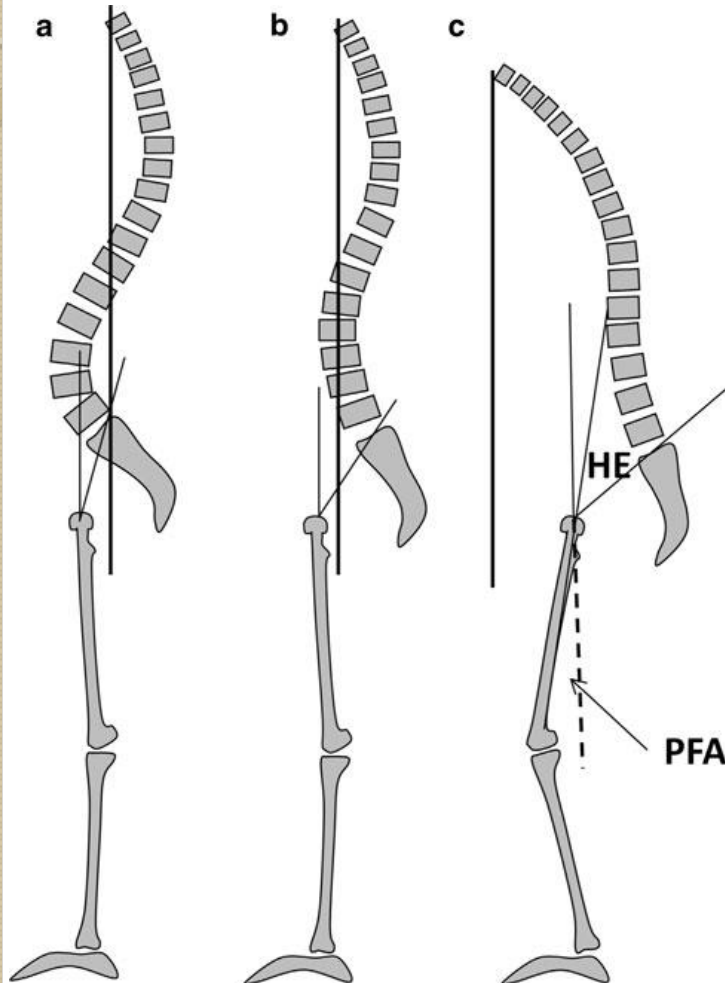
What is spinal instability?

- Panjabi and white
- Under **physiological loads**, spine should be able to **maintain relationship between vertebrae without causing**
 - Incapacitating pain
 - Deformity
 - Damage to cord/ roots

Methods and approaches

- Posterior
 - Pedicle screw
 - Interbody cages
- Anterior
 - Interbody cages
- Lateral
 - Cages + screws

Sagittal imbalance

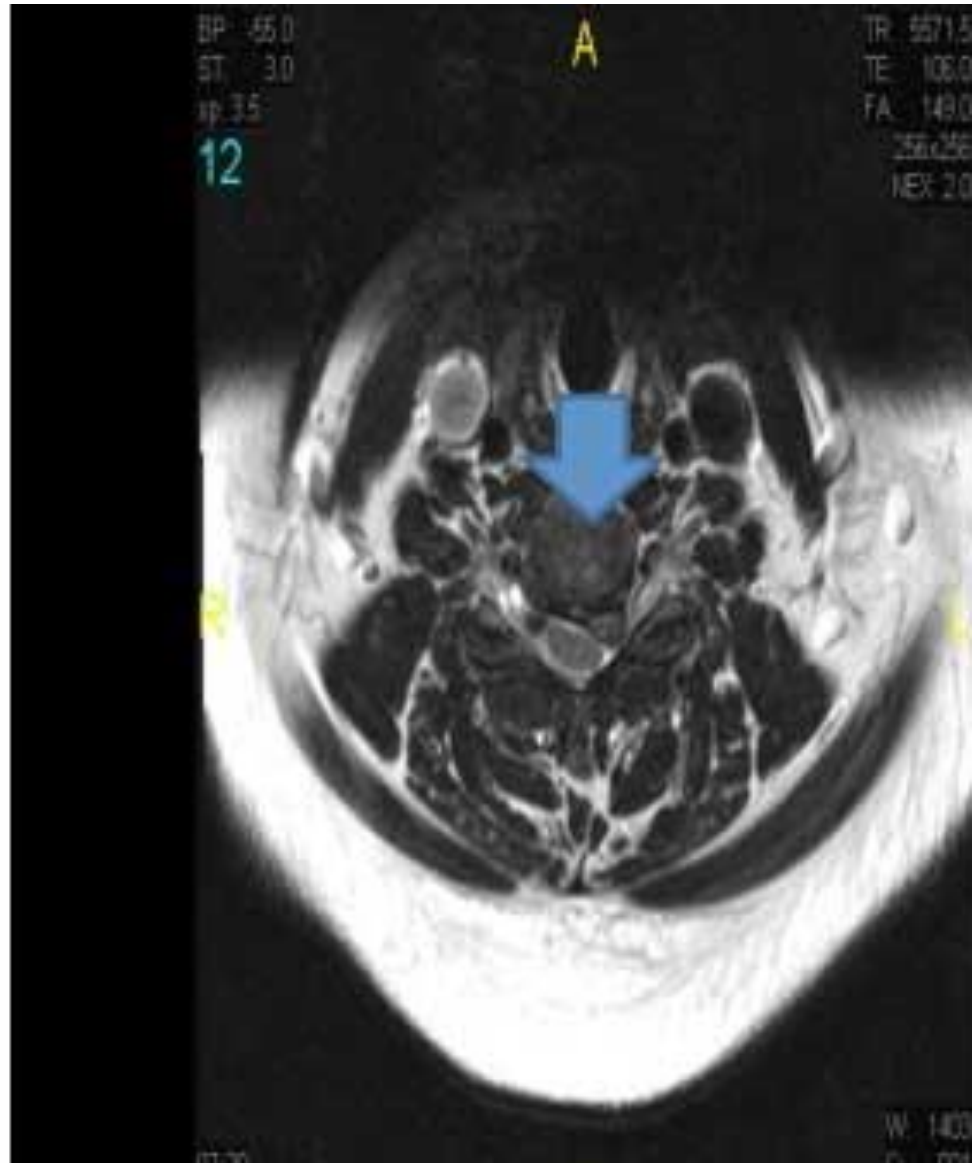


- Causes mechanical back ache as muscles working harder to keep upright
- Need to correct the lumbar lordosis if pain/loss of function too severe.

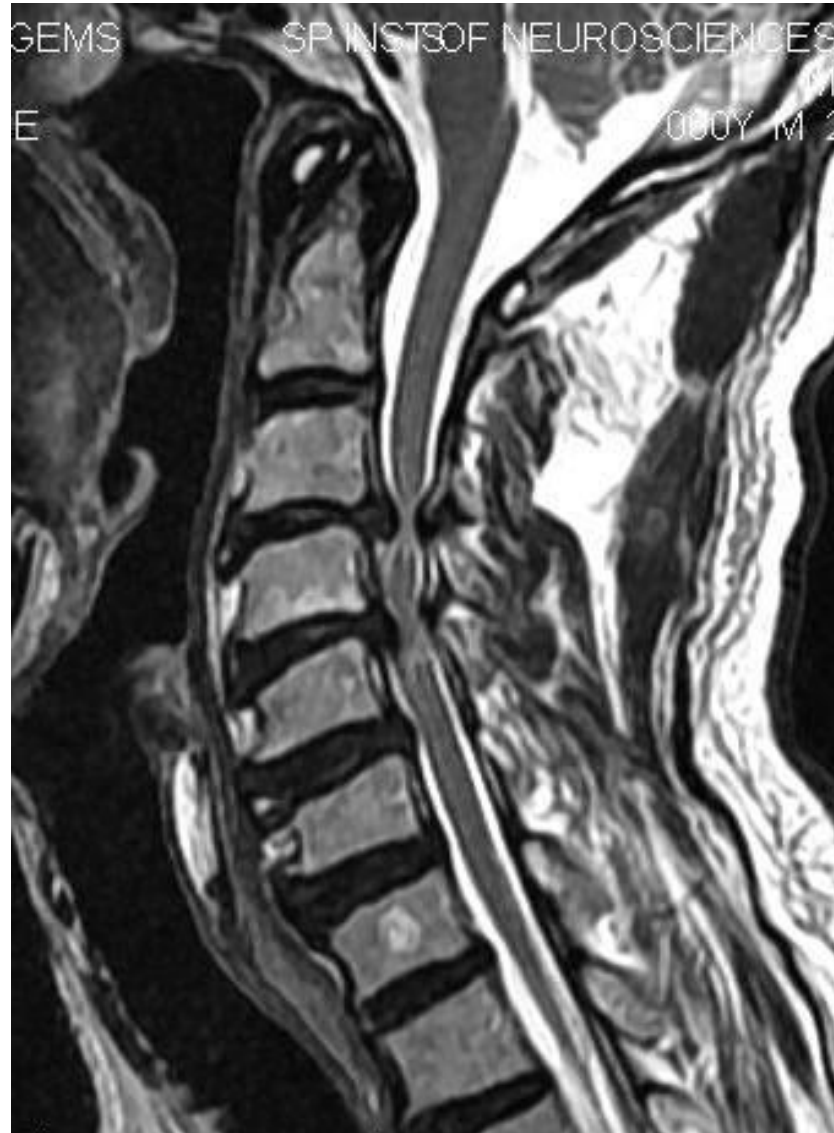


Cervical spine

Disc herniation



Spondylotic myelopathy



Examination

- Radicular symptoms – when nerve root is impinged
 - Brachialgia
 - Loss of sensation – dermatomal
 - Motor/ reflex loss
 - +ve Spurling's test

Myelopathic features

- **UMN features**
 - Limb weakness
 - Hyperreflexia/ increased tone
 - Babinski +ve
- **Loss of fine motor function**
 - Buttoning up, picking coins
- **Loss of balance**
 - Broad based unsteady gait

Indications for surgery

- 80-90% disc prolapses settle spontaneously
- Surgery indicated if
 - Myelopathic features
 - Progressive neurological deficit
 - Failure of conservative methods
 - Instability – tumour, infection

Surgical goals

- Decompression
- +/- Fusion

- Operative techniques
 - Anterior approach
 - ACDF
 - Posterior approach
 - Laminectomy +/- fusion





Minimally invasive spinal surgery

Minimally invasive spinal surgery

- Definition

An MIS procedure is one that results in **less collateral tissue damage**, resulting in measurable decrease in morbidity and **more rapid functional recovery than traditional exposures**, without differentiation in the intended surgical goal.

Spine (2010)



- Advantages

- Less tissue damage
- Smaller scars
- Less blood loss
- Less pain
- Shorter hospital stay
- Quicker return to daily activities

- Disadvantages

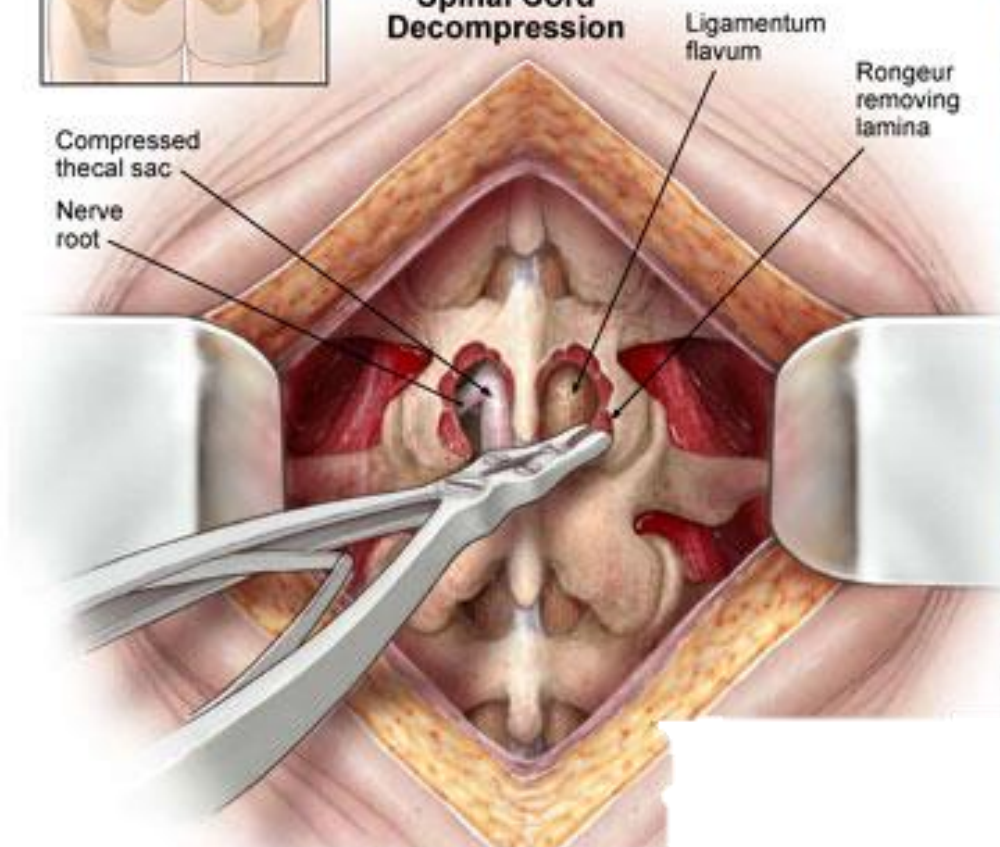
- Increased operative time
- Increased radiation exposure
- Not appropriate for every case
- Learning curve for surgeon and staff



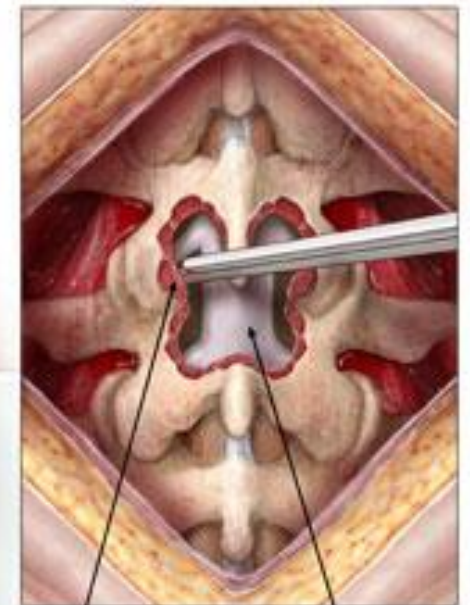
Incision made over lumbar spine

Lumbar Spine Decompression Surgery

Spinal Cord Decompression



Neural Foramen Decompression



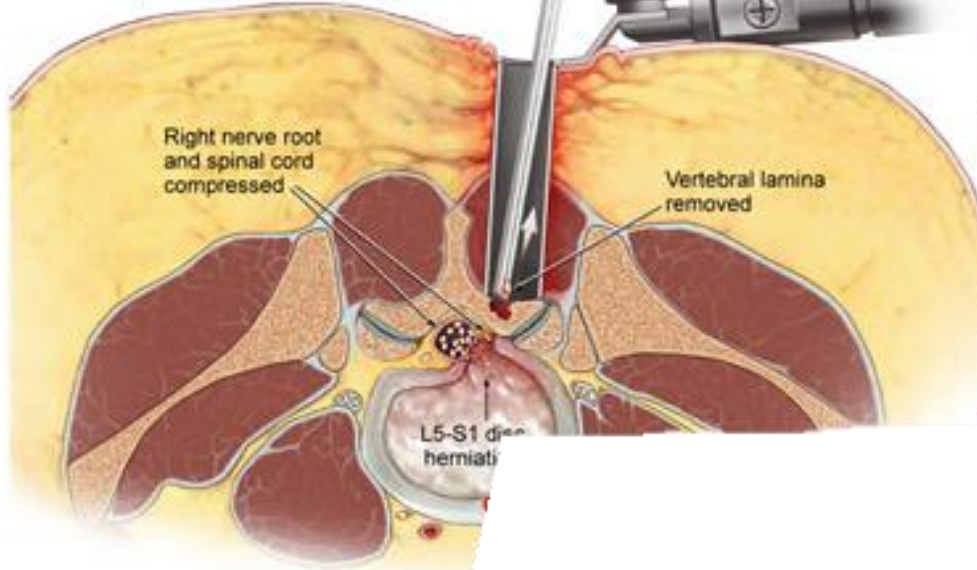
Orientation View



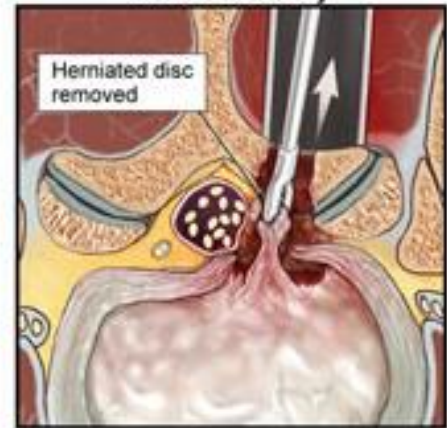
Incision at L5-S1



Minimally Invasive Right-Sided Laminectomy
(Cross section through L5-S1 disc)



Microdiscectomy



Post Decompression

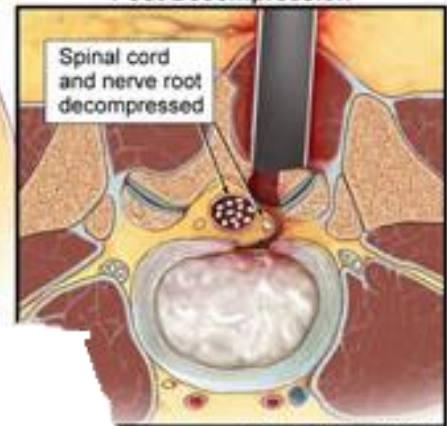




Figure 1. Photograph demonstrating traditional open posterior wound for segmental fixation.

Versus



Figure 2. Photograph demonstrating minimally invasive spine surgery with percutaneous pedicle screw fixation.



Spinal infection

Etiology

Pyogenic	Non - pyogenic
<ul style="list-style-type: none">• Gram +ve<ul style="list-style-type: none">• Staph aureus – 30-70% of spinal infections• Gram –ve –<ul style="list-style-type: none">E Coli – UTI (25%)• Anaerobic – penetrating injury	<ul style="list-style-type: none">• Tuberculosis• Fungal infections• Parasitic infestation

Risk factors

- IV Drug abuse
- Diabetes
- Hemodialysis or renal failure
- Infectious endocarditis
- Prior invasive procedure or spinal surgeries
- immunosuppression

Clinical features

- Pain and focal tenderness 90%
- Fever 60%
- Root symptoms/signs 60%
- Loss of wt/ appetite

Spinal infections – S. Govender (JBJS – 2005)

Treatment options

- Antibiotics – usually sufficient
- Immobilisation – reduced mobility as tolerated with a brace
- Surgery – for instability and/ or neurological deficits

Spinal fractures



Spine fracture

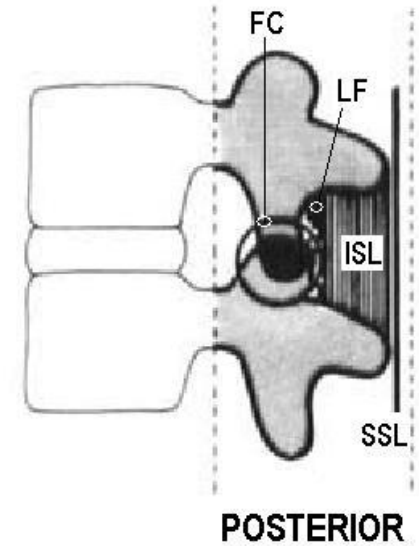
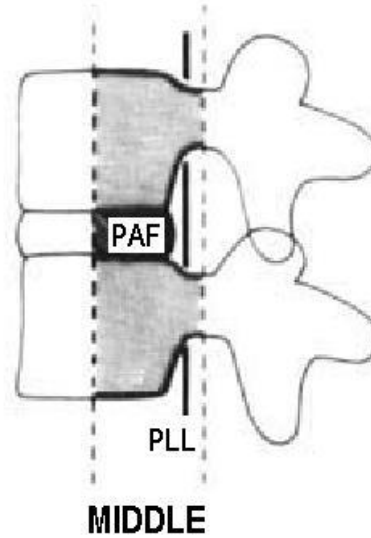
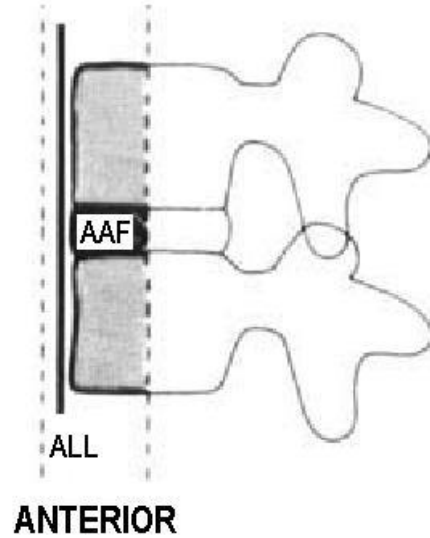
- Etiology
 - Trauma Vs non-traumatic
 - Elderly – tumours, osteoporosis, **ankylosing spondylitis**
- Stable Vs Unstable
- Neurologic status

Classification systems

Currently, no spinal fracture classification system that has achieved global clinical utility and acceptance.



Denis 3 column theory



Most importantly

- Severe pain and immobility
 - Unstable
 - Any neurological deficit
-
- If yes to any of the above 3 questions – refer to A&E



THANK YOU
FOR YOUR ATTENTION