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Back pain

NOTE : THIS PRESENTATION DOES NOT REPLACE ATTENDANCE OR INFORMATION GIVEN IN THE LECTURE.IT IS INTENDED AS A HIGHLIGHT FOR THE TOPIC

INTRODUCTION

- 60-80% of people will have LBP sometime in their lives.
  - 30% are referred to Ortho
  - 3% admitted
  - 0.5% operated.

  - 90% LBP resolves in 6w
  - 75% may experience symptoms & disability one year after initial consultation.

- The total cost of management Back pain is 4 billions $

Etiology

- Idiopathic
- Discogenic
- Traumatic
- Degenerative
- Infection
- Tumor
- Inflammatory
- Metabolic
- Hematological
- Others
- Referral etiologies

Disc prolapse

- Lifetime prevalence of sciatica secondary to
- prolapsed intervertebral discs 1% - 3%.
- Male predominance
- the peak of its incidence 30-50 years of age
- occupation involves lifting and twisting
- There is an increased incidence in smokers.

ANATOMY

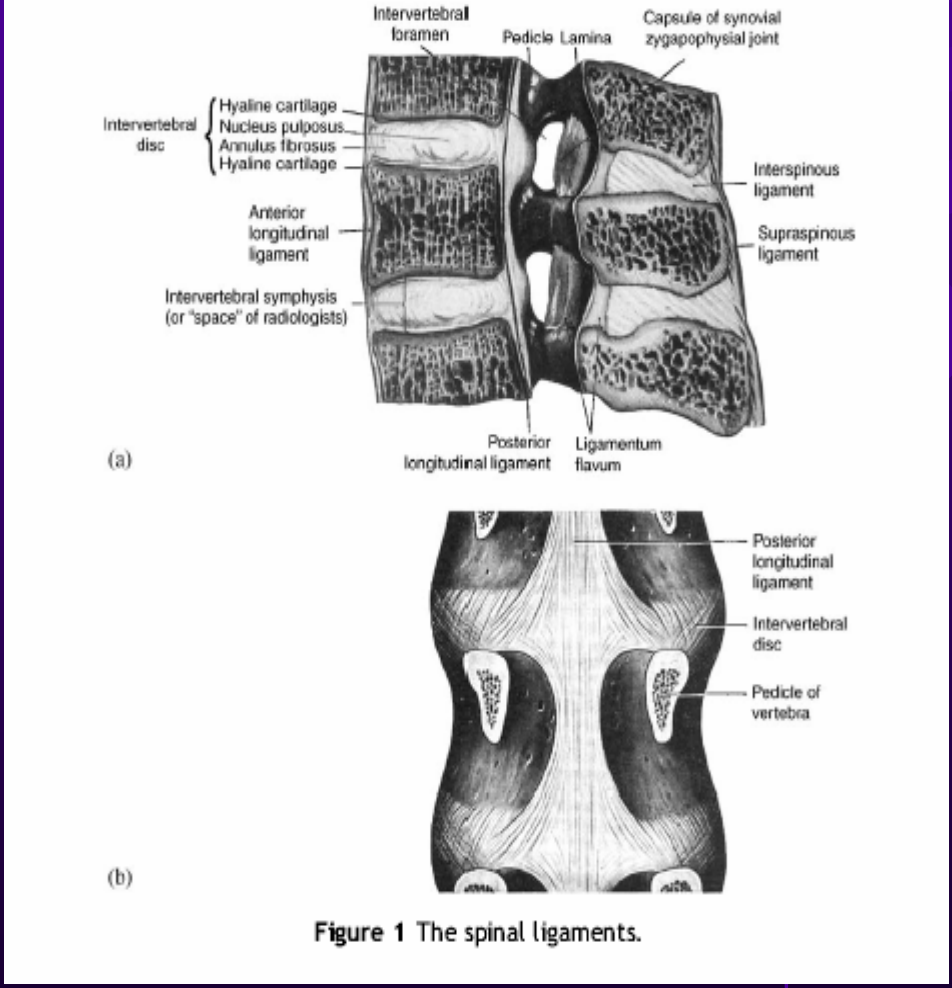
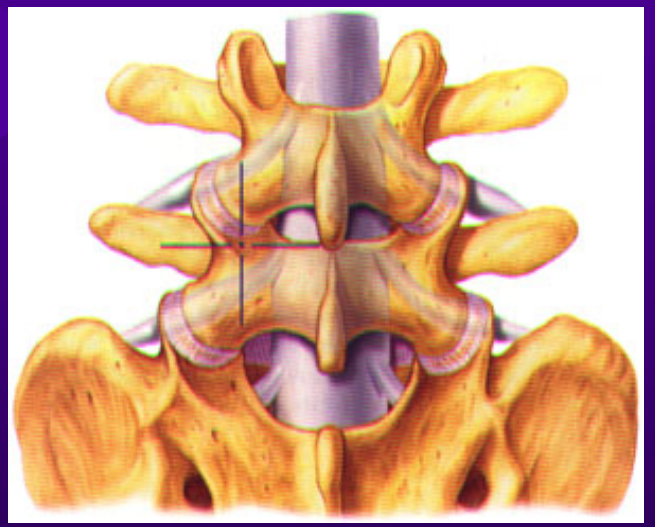
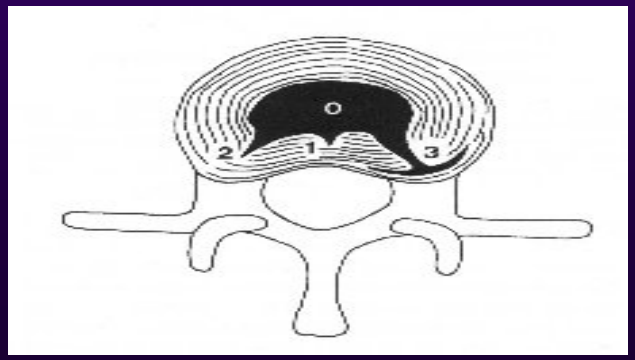


Figure 1 The spinal ligaments.





CLINICAL PRESENTATION

- Back pain
- Radiation to lower limbs
- ? Numbness
- ? Sensory or motor deficit
- ? Loss of bowel or urinary control

Cauda Equina Syndrome

CLINICAL EXAMINATION

- Patient in pain
- Local spine examination
  - Central spinal tenderness
  - Paraspinal muscle spasm

Sensory & motor evaluation

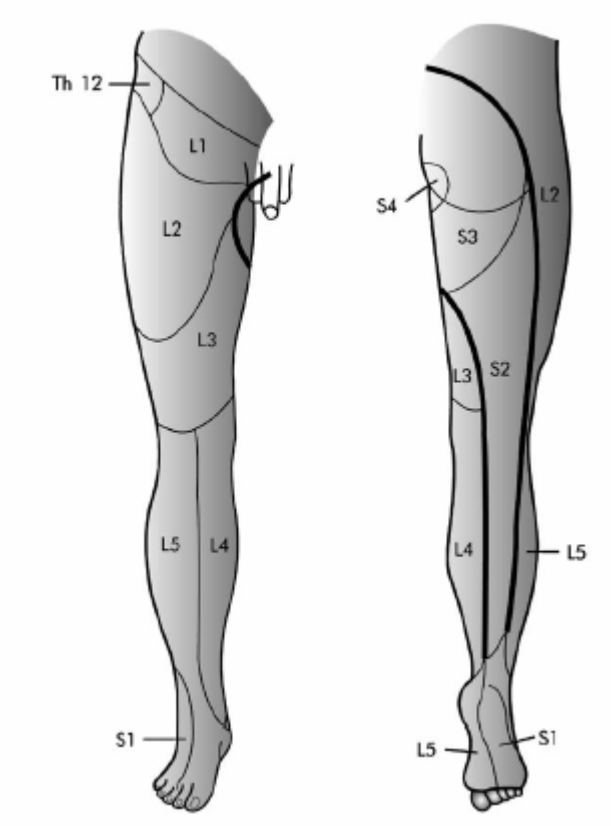
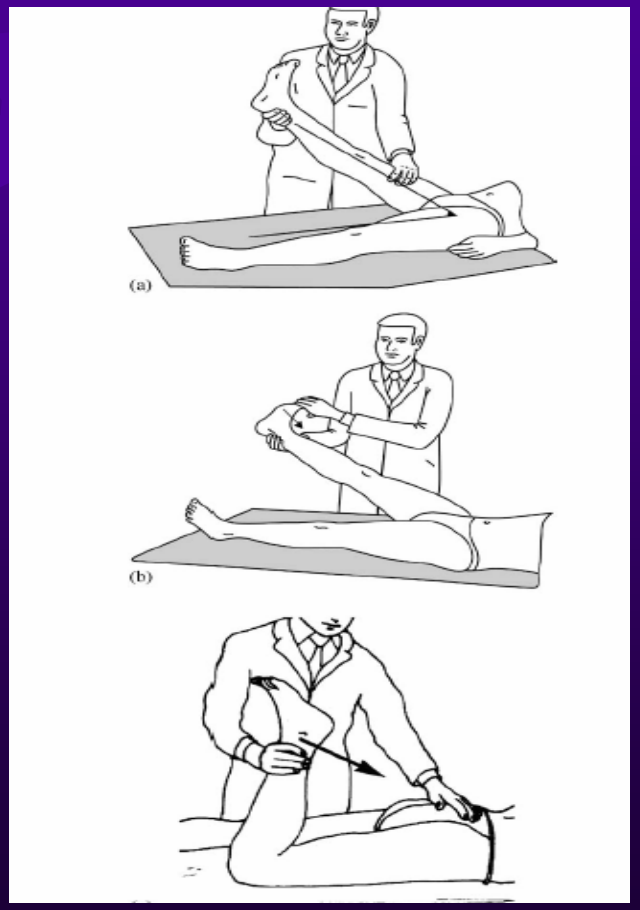


Table 1 The motor nerve roots responsible for joint motion in the lower limbs.

Hip flexion	L1/2
Hip adduction	L2/3
Knee extension	L3/4
Ankle dorsiflexion	L4/5
EHL	L5
FHL	S1
Ankle plantarflexion	S1/2

Special test

- Straight leg raising test

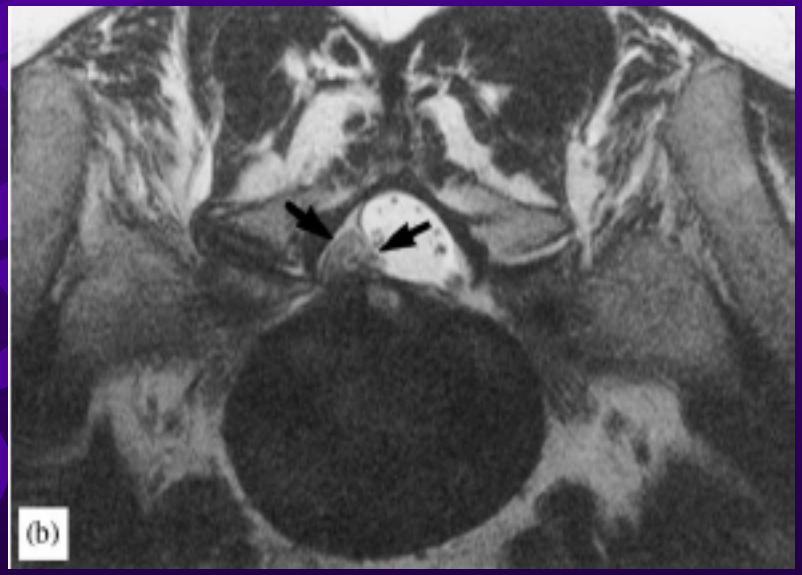


- Femoral stretch test

Reflexes

- Deep tendon reflexes
  - Biceps reflex C5
  - Brachioradialis reflex C6
  - Triceps reflex C7
  - Patellar tendon reflex L4
  - Achills tendon reflex S1

Investigation-MRI



Treatment of Disc prolapse

- Conservative
  - Bed rest
  - Analgesia
  - Physiotherapy
  - Epidural steroid injection
- Surgery
  - Cauda equina syndrome
  - Non responder
  - Motor deficit
  - frequent attacks of sciatica

Types of surgery

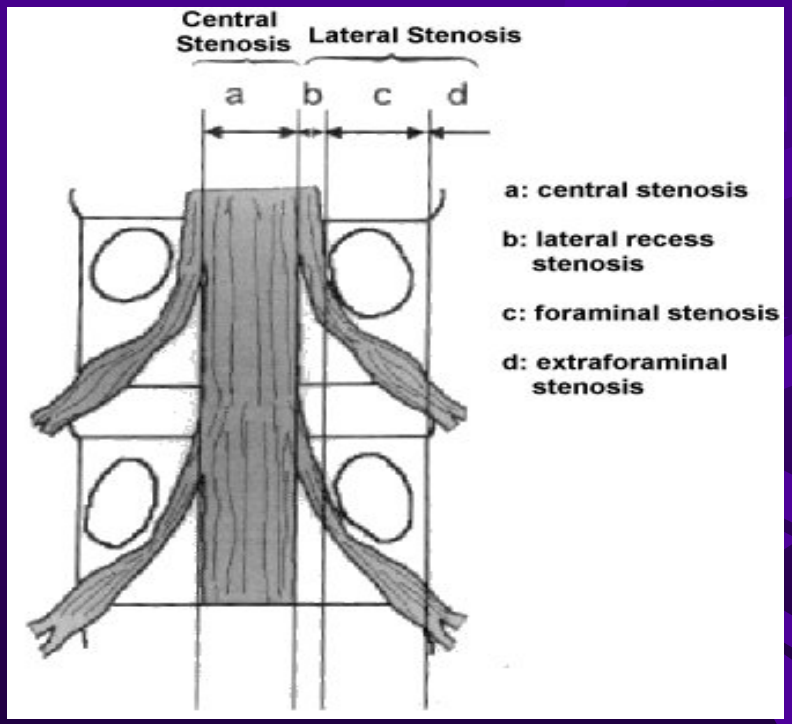
- Discectomy
  1. Open
  2. Microscopic
  3. endoscopic
- Percutanouse
  - Disc ablation

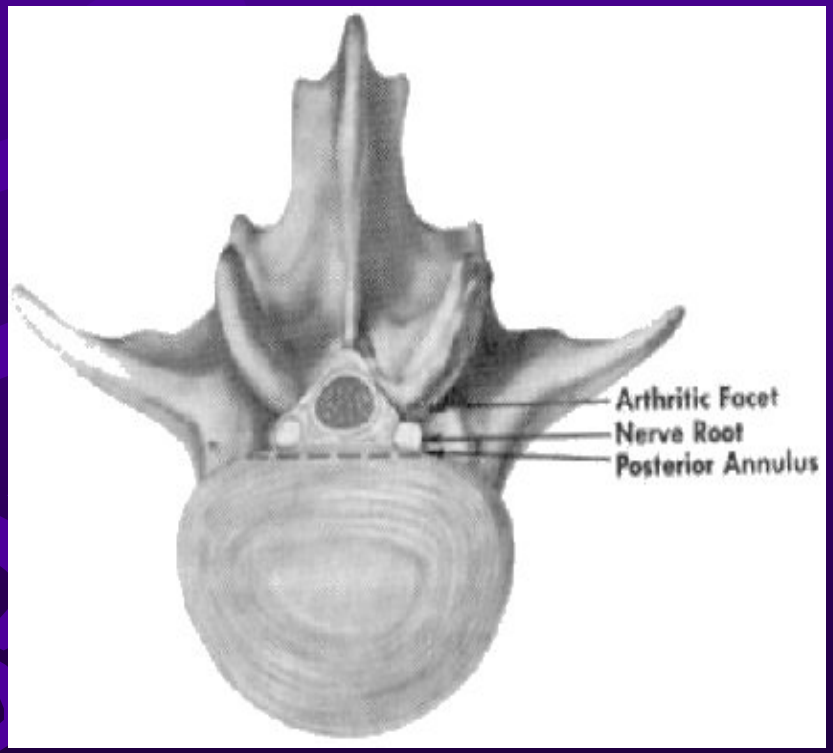
Degerative etiologies

- OA
- RA
- AS
- Deformities

1. Spinal canal sternosis
2. Facet arthritis
3. Deformity

Spinal canal stenosis





Aetiology

- Classification - Arnoldi (1976) [Picture]

1. Congenital
    1. Developmental
    2. Achondroplasia
2. Acquired
    1. Degenerative
        - Spondylolisthetic
        - worse if imposed on a developmental narrowing
    2. Disc Herniation
    3. Degenerative & Disc Herniation
    4. Degenerative & congenital
3. Others:
    1. Paget's
    2. Spinal tumour
    3. Infection (TB)
    4. Post-surgery
    5. Trauma

Central stenosis:

- neurogenic claudication. (from compression on the cauda equina)
- increased unsteadiness or loss of balance
- feeling better if they walk stooped forward
- Rarely - urinary incontinence & cauda equina syndrome

Foramenal stenosis:

- Radicular signs from narrowing of the lateral recess or the neural foramen.

Physical examination can be unimpressive in patients with central stenosis.

- ambulate with a forward-leaning posture and a moderately broad-based gait.
- check distal pulses to screen for vascular causes of claudication.

- Stress Test = walk until symptoms occur

Investigations

- X-rays:

  bone spurs, decreased disc height and facet hypertrophy in older patients.

- CT:

  more accurate and detailed picture of the bony anatomy
  less accurate than MRI in estimating the degree of compromise of the soft tissue elements.
  thus can underestimate the degree of stenosis
  spinal canal < 10mm AP diameter = Absolute Stenosis

- MRI: (without gadolinium)

  currently represents the "gold standard" in the evaluation of central stenosis.

  It allows the visualization of the disc, neural elements, ligamentum flavum & thecal sac

- Epiradicular Nerve root block:

  improvement of radicular symptoms after injection of anaesthetic is suggestive of lateral (foraminal) stenosis.

- Myelography:

  is no longer routinely necessary, although it can be useful in selected cases

Treatment

Non-Operative:

- NSAIDs
- Muscle relaxants
- Antidepressants for chronic radicular pain
- Epidural & nerve root block steroid injections - good long-term relief in patients with foramenal or lateral recess stenosis

- Physiotherapy
  - (with massage, ultrasound, TENS, braces or supports, acupuncture, biofeedback, hot or cold packs, traction, or manipulation) can offer symptomatic

- Calcitonin

Operative

Indications:

1. Severe neurological symptoms
2. Failed conservative treatment + impaired ADL (activities of daily living)

INFECTION

- BACTERIAL
- TB

- VERTEBRAL OSTEOMYELITIS
- EPIDURAL ABSCESS

VERTEBRAL OSTEOMYLITIS

- Risk factors:

- older debilitated patients
- IV drug addicts (pseudomonas)
- history of pneumonia, UTI, skin infection
- immunocompromised patient

- 70 % arise from UTI, chronically ill, elderly adults. Due to Batson's venous plexus = communication betw. pelvic & vertebral plexus.(NB surgically)

- Organisms:

- Staph aureus is most common but MRSA is on the increase
- Gram negatives (E coli, Pseudomonas, Proteus) & anaerobes are on the increase
- Strep viridans
- brucellae, candidae, coccidiomycosis (in immunocompromised)
- tuberculosis (commonest site = T10)

- Site of infection:

- lumbar spine is the area most often affected - uncommonly cause paralysis
- thoracic & cervical regions are affected less often but have a higher incidence of paralysisa

- Clinical

- Often a significant delay in diagnosis (6-12 weeks)
- Insidious course, w/ back pain developing over 1-3 months
- Triad = fever + back pain + tenderness
- consider bacterial endocarditis

Neurology:

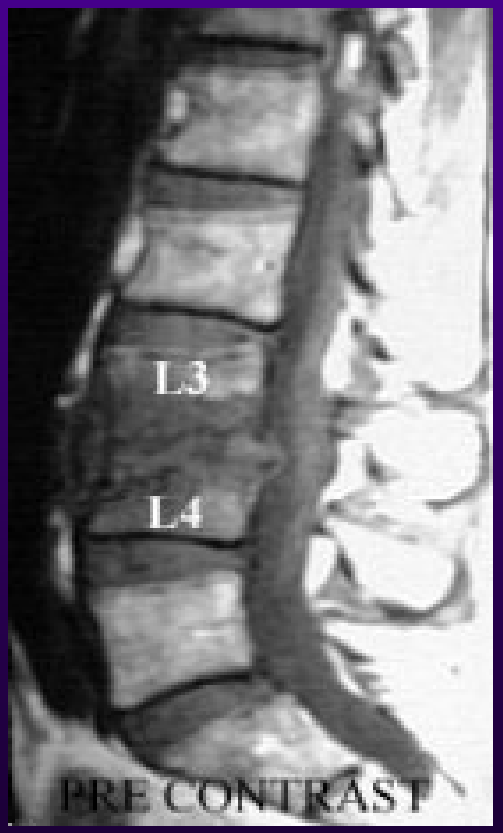
- incidence of neurological deficit may be as high as 40%
- suggests epidural extension of abscess (usually located anterior to neural elements)

RADIOLOGICAL INVESTIGATIONS

- X-Rays:
- 2 weeks - disc space narrowing (infections involving vertebral bodies frequently extend into & destroy adjacent Intervertebral discs; usually two
- vertebral bodies and a disc space affected)
- 6 weeks - erosion vertebral body endplate; osteolysis
- 8 weeks - reactive screrosis due to trabecular collapse
- 12 weeks - new bone formation is noted
- 6-12months - intervertebral fusion - usually signifies a resolution of process

- MRI

- Very sensitive & specific (for differentiating from tumour)
- Gadolinium enhances sensitivity
- High signal on T2



LABROTARY INVESTIGATIONS

- Bacteriologic diagnosis essential:
- blood cultures
- percutaneous CT guided needle biopsy - positive in 68-86% of cases; infections of upper cervical spine & sacrum are not safely accessible to
- needle aspiration; do stains for AFB & fungi.
- ASOT
- anti-staph. titres
- Tuberculin skin tests for TB
- FBC, ESR, CRP, bone biochemistry
- MSU

- Non Operative

- IV antibiotics for 2w then oral for 3m.
- ESR used to follow treatment effects (gallium scans can also be used)
- Good Prognostic signs:
- age less than 60 years
- normal immune status
- decreasing ESR
- Staph aureus infection

- operative

- Indications

1. need for open biopsy
2. if neurology not settling
3. instability due to vertebral collapse
4. paraspinal or epidural abscess
5. failure of response to medical treatment

Tumor

- Primary
- Secondary
  - Breast
  - Prostate
  - Kidney
  - Bowel
  - Thyroid

CLINICAL PRESENTAION

- Age
- Night pain
- Weight loss
- Neurological signs

INVESTIGATIONS

Discitis

- Infection of the disc space
- Children
- Pain, fever, restrictive spine movement
- Conservative
- ? surgery

TRATMENT

- EXCISION
- FUSION
- INSTRUMENTATION

Spondylolisthesis

- Forward slippage of one vertebral body on another
- Causes
  - Congenital
  - Isthmic
  - Traumatic
  - Pathologic
  - Degenerative
- Treatment

Spondylolysis
Spondylolisthesis

Red flags for possible serious spinal pathology

- Presentation under age 20 or onset over 55
- Thoracic pain
- Past hx of carcinoma, steroids
- Unwell, weight loss
- Widespread neurology
- Structural deformity
- Abnormal blood parameters

METABOLIC CAUSES

- Osteoporosis
- Osteomalacia
- Renal osteodystrophy
- Hypophosphatemia

HAEMATOLOGICAL CAUSES

- SCD
- Thalasemia
- Hemangioma

Referral back pain

- Chest
- Abdomin
- Genatourinary