

The Spine

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Disorders of the spine and spinal cord

Cervical spondylosis

Lumbar spondylosis

Spinal cord compression

Intrinsic diseases of the spinal cord

Cervical spondylosis

Cervical spondylosis is the result of osteoarthritis in the cervical spine.

It is characterised by degeneration of the intervertebral discs and osteophyte formation.

Radiological changes are frequently found in asymptomatic individuals over the age of 50.

Spondylosis may be associated with neurological dysfunction

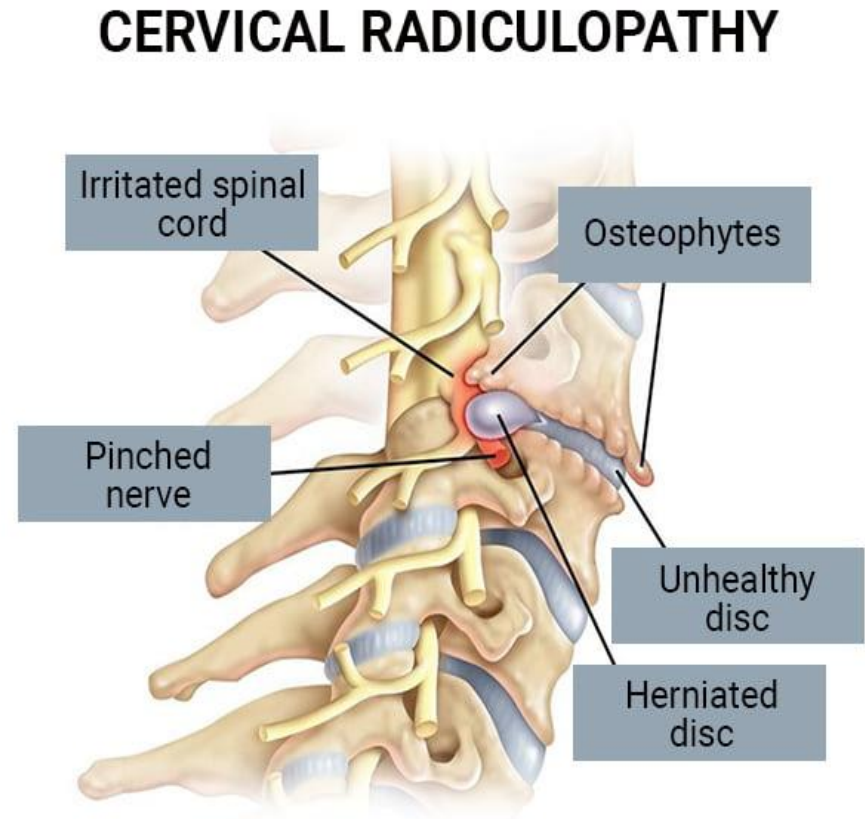
Cervical radiculopathy

Cervical myelopathy

Cervical radiculopathy

Acute onset of compression of a nerve root occurs when a disc prolapses laterally.

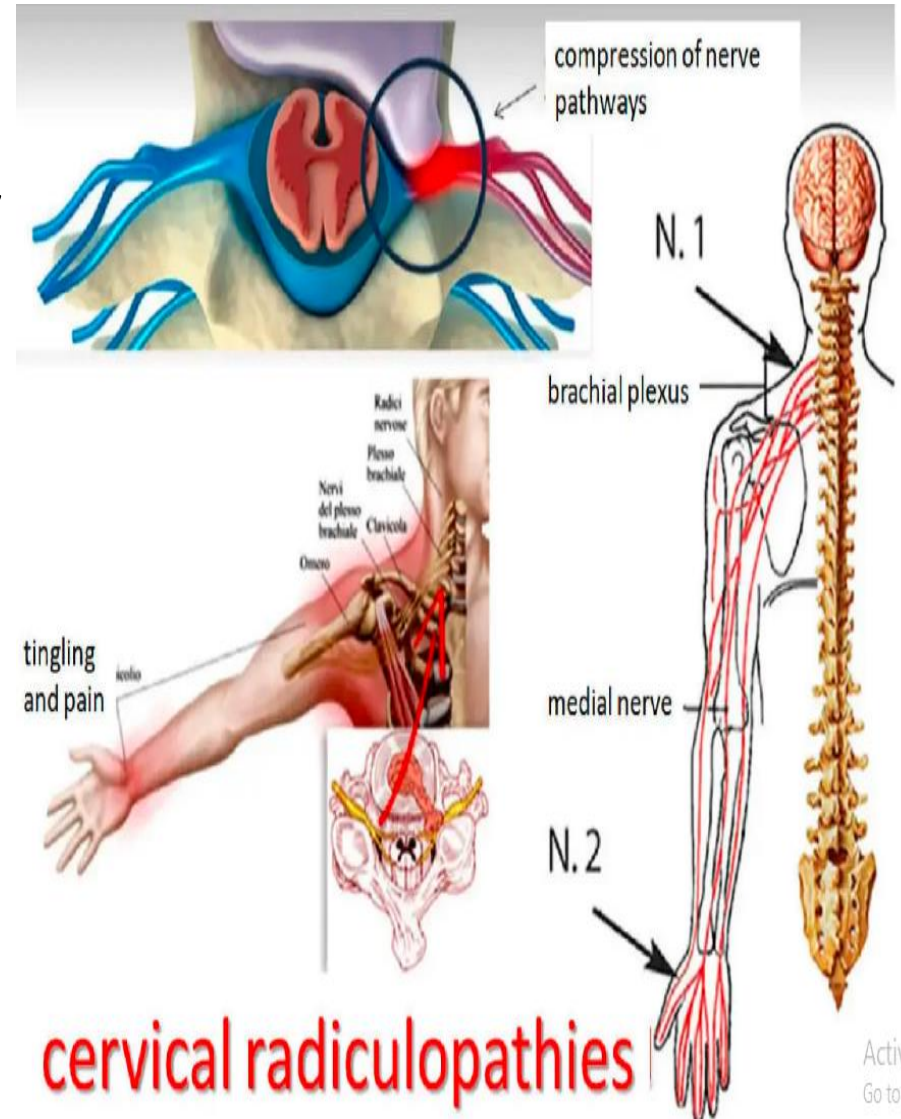
More gradual onset may be due to osteophytic encroachment of the intervertebral foramina



Cervical radiculopathy

Clinical features

- Pain** in the neck that may radiate in the distribution of the affected nerve root.
- Neck movements may exacerbate pain.
- Parasthesia** and **sensory loss** may be found in the affected segment

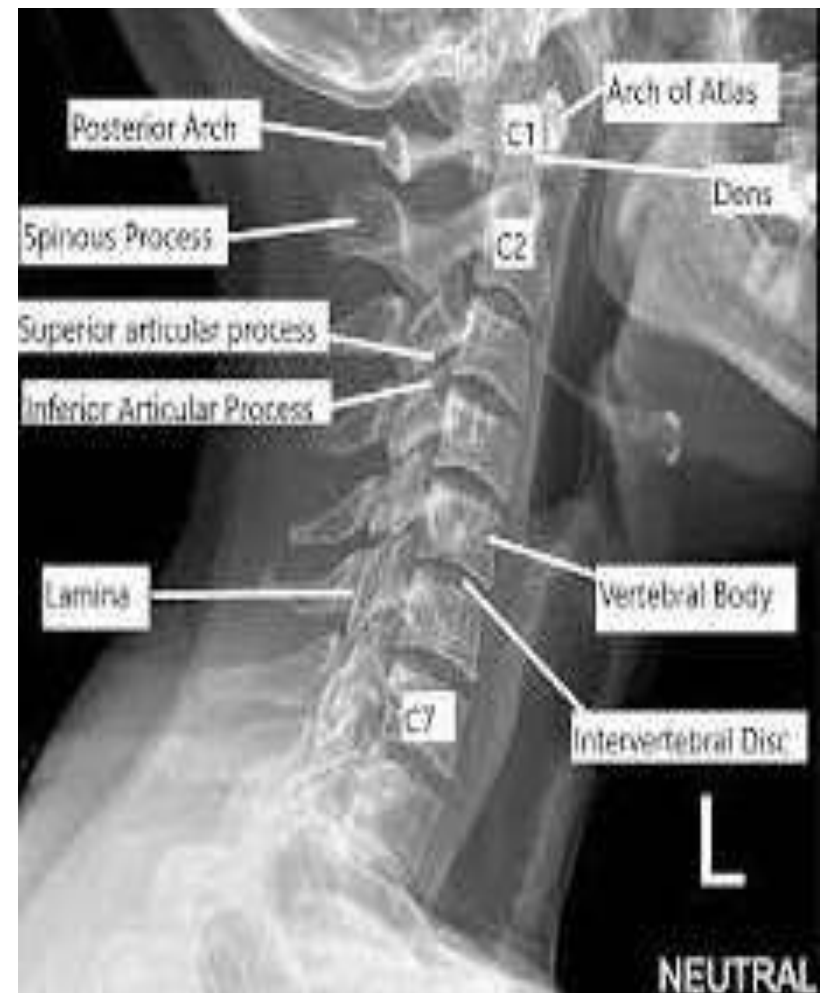
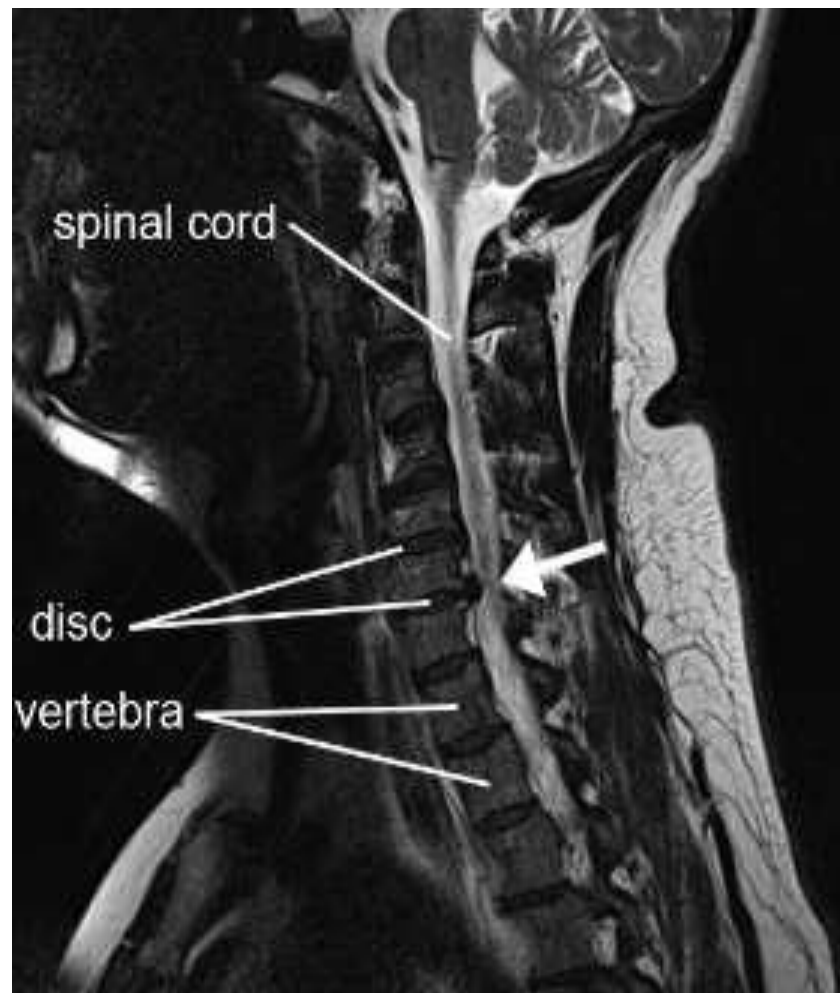


Cervical radiculopathy

MRI is the investigation of choice in those with radicular symptoms.

X-rays offer limited benefit, except in excluding destructive lesions.

Management Conservative treatment with analgesics and physiotherapy results in resolution of symptoms in the great majority of patients, but a few require surgery in the form of discectomy or radicular decompression.





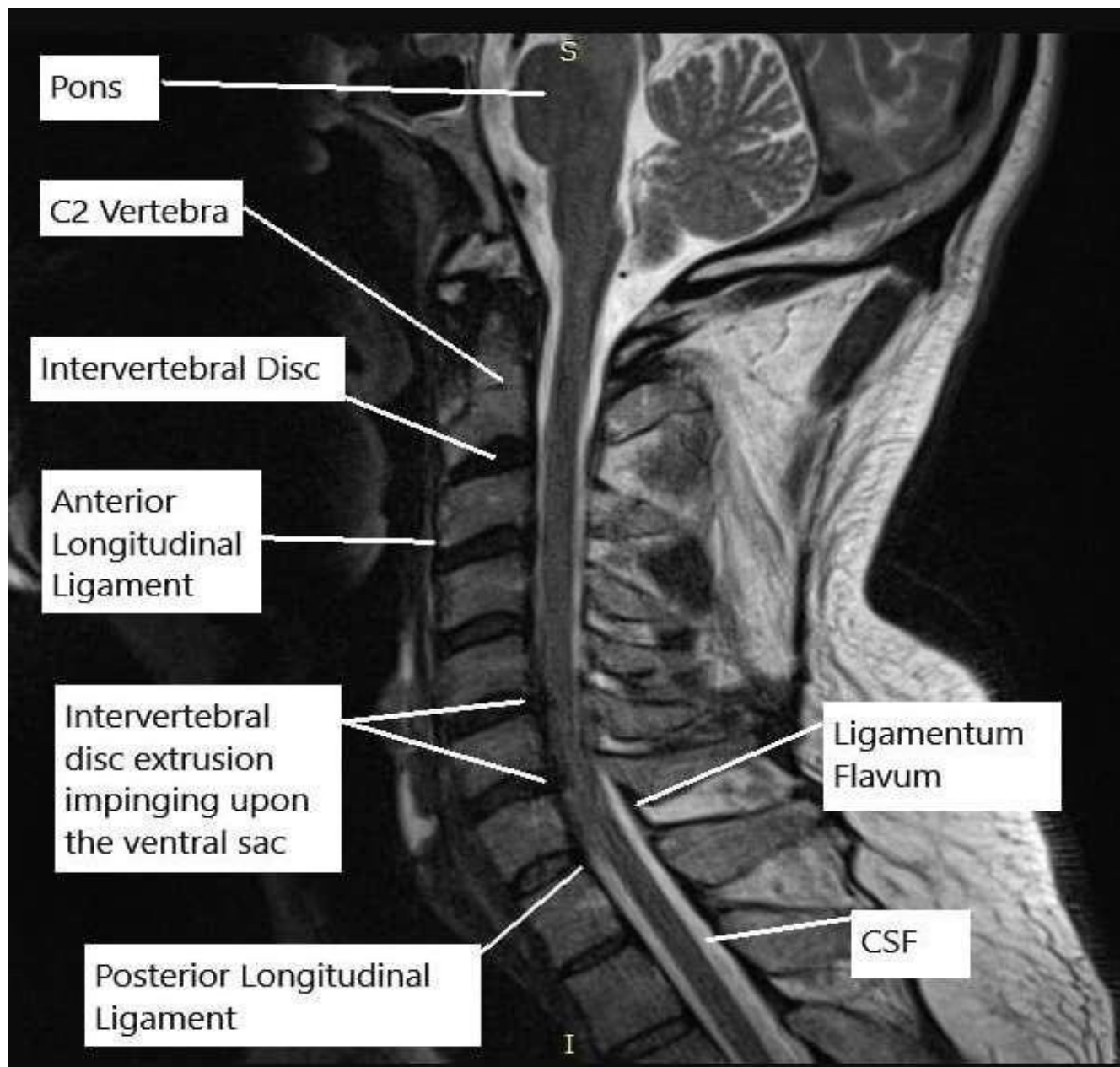
Figure

Caption

Figure 2. T 2-weighted magnetic resonance imaging in a patient with right-sided c6 radiculopathy. (A) Sagittal view showing spondylosis at c5-c6 and c6-c7 disk levels (arrows). (B) Axial view showing a right-sided disk-osteophyte complex at c5-c6 disk level (arrow) that is putting pressure on the c6 nerve root.

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(a)



(b)

Cervical myelopathy

Dorsomedial herniation of a disc
the development of transverse bony bars or posterior osteophytes
may result in pressure on the spinal cord or the anterior spinal artery, which supplies the anterior two-thirds of the cord

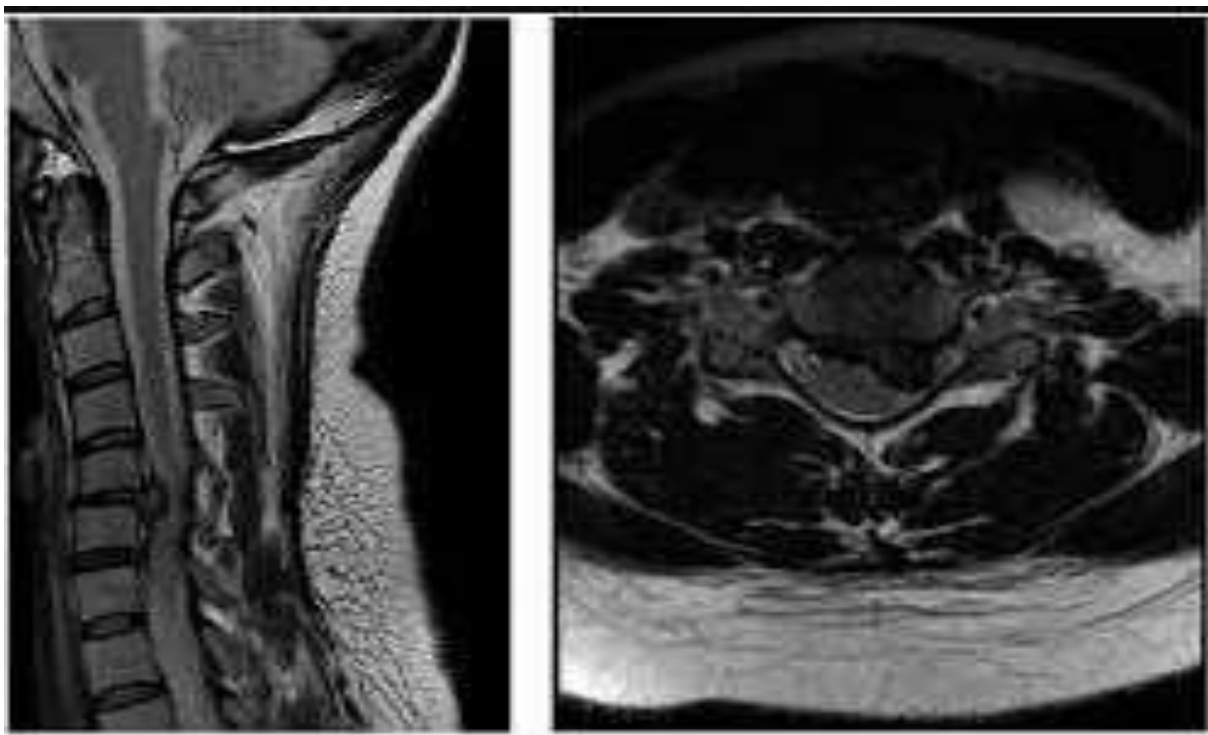


Cervical myelopathy

Clinical features The onset is usually insidious and painless. Motor and Sensory loss in the upper limbs is common. Sensory manifestations in the legs are much less common.

Investigations MRI will direct surgical intervention, provides information on the state of the spinal cord at the level of compression.

Management Surgical decompression



Lumbar spondylosis

This term covers degenerative disc disease and osteoarthritic change in the lumbar spine.

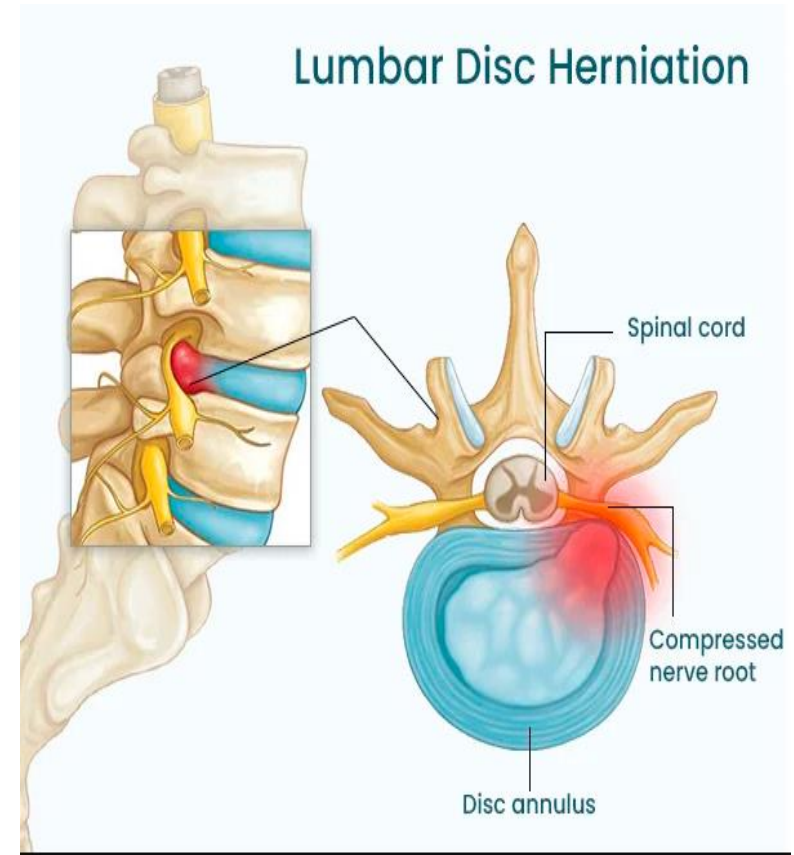
Pain in the distribution of the lumbar or sacral roots ('sciatica') is almost always due to disc protrusion

Lumbar disc herniation

Lumbar canal stenosis

Lumbar disc herniation

A herniated disc in the spine is a condition during which a nucleus pulposus is displaced from intervertebral space. giving rise to pressure on nerve endings in the spinal ligaments or pressure on nerve roots.



Lumbar disc herniation

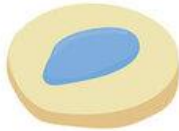
Clinical features : repeated episodes of low back pain , lumbar region pain and may radiate to the buttock, thigh, calf and foot. Pain is exacerbated by coughing or straining but may be relieved by lying flat.

Investigations **MRI** is the investigation of choice if available, since soft tissues are well imaged. **Plain X-rays** of the lumbar spine are of little value in the diagnosis of disc disease, although they may demonstrate conditions affecting the vertebral body. **CT can provide** helpful images of the disc protrusion and/or narrowing of exit foramina.

Management: 90% of patients with sciatica recover following conservative treatment ,Injections of local anaesthetic or glucocorticoids by ligamentous injury or joint dysfunction. Surgery if there is no response to conservative treatment .

Stages of a disc herniation

Bulging disc



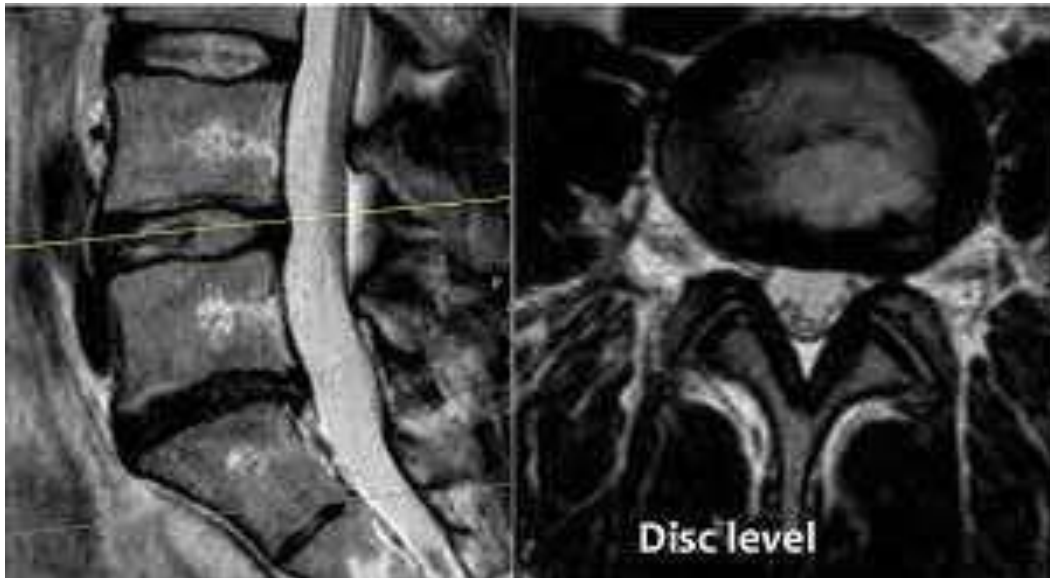
Protrusion

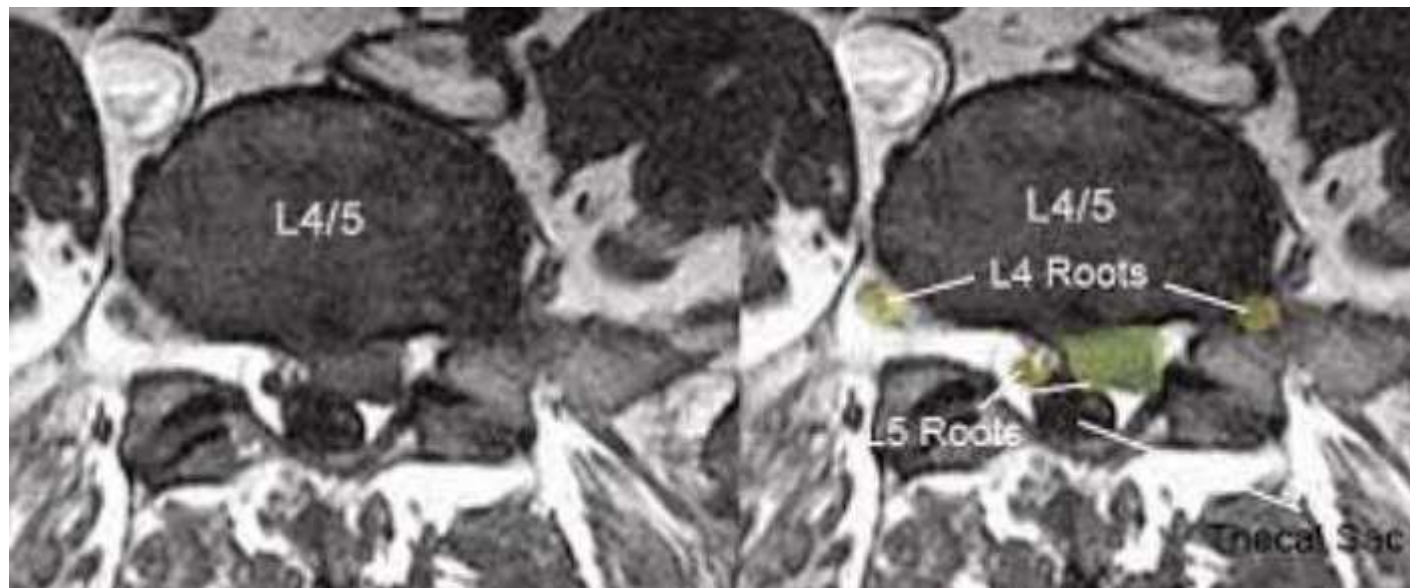
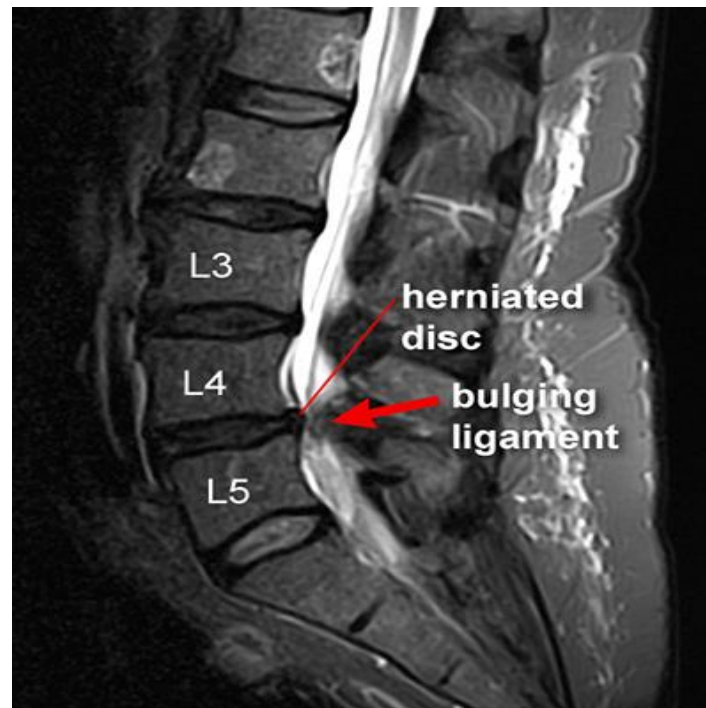


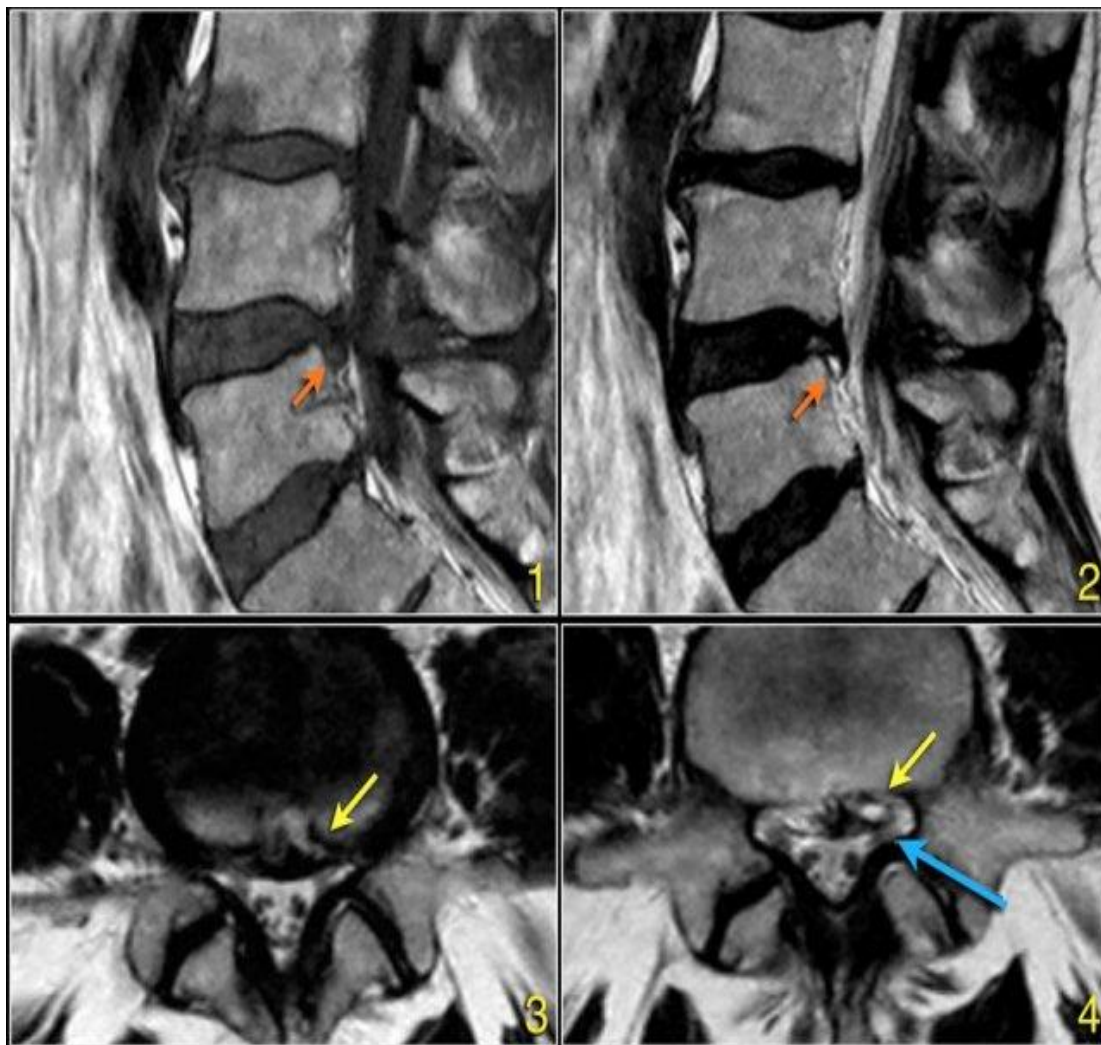
Extrusion



Sequestration







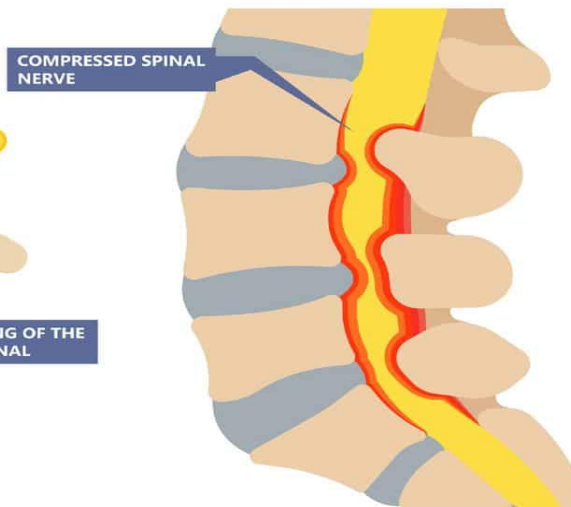
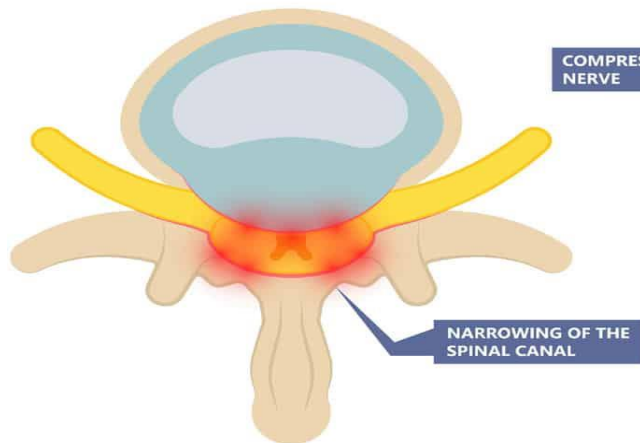
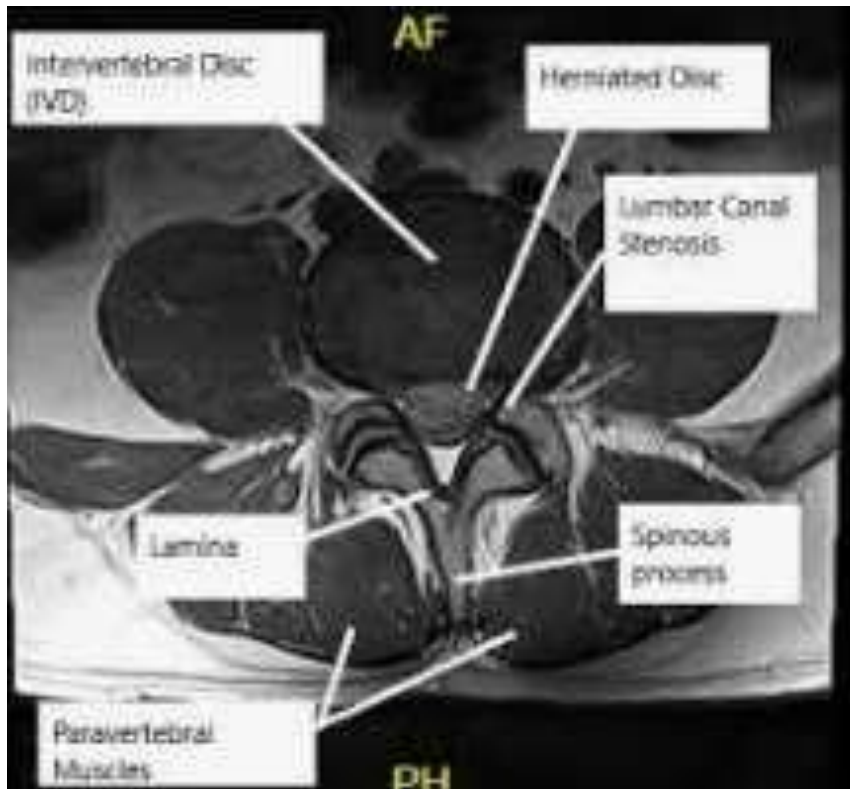
Lumbar canal stenosis

Clinical features usually elderly, develop exercise-induced weakness and paraesthesia in the legs .are quickly relieved by a short period of rest.

Investigations The investigation of first choice is MRI, but contraindications (body habitus, metallic implants) may make CT or myelography necessary.

Management Lumbar laminectomy may provide relief of symptoms and recovery of normal exercise tolerance.





SPINAL STENOSIS

Spinal cord compression

is one of the more common neurological emergencies.

Spinal cord compression occurs when pressure is applied to the spinal cord, often due to factors such as a herniated disc, tumors, fractures, or other conditions that lead to narrowing of the spinal canal.



25.79 Causes of spinal cord compression

Site	Frequency	Causes
Vertebral	80%	Trauma (extradural) Intervertebral disc prolapse Metastatic carcinoma (e.g. breast, prostate, bronchus) Myeloma Tuberculosis
Meninges (intradural, extramedullary)	15%	Tumours (e.g. meningioma, neurofibroma, ependymoma, metastasis, lymphoma, leukaemia) Epidural abscess
Spinal cord (intradural, intramedullary)	5%	Tumours (e.g. glioma, ependymoma, metastasis)



25.80 Symptoms of spinal cord compression

Pain

- Localised over the **spine** or in a root distribution, which may be aggravated by coughing, sneezing or straining

Sensory

- Paraesthesia, numbness or cold sensations, especially in the lower limbs, which spread proximally, often to a level on the trunk

Motor

- Weakness, heaviness or stiffness of the limbs, most commonly the legs

Sphincters

- Urgency or hesitancy of micturition, leading eventually to urinary retention

Spinal cord compression

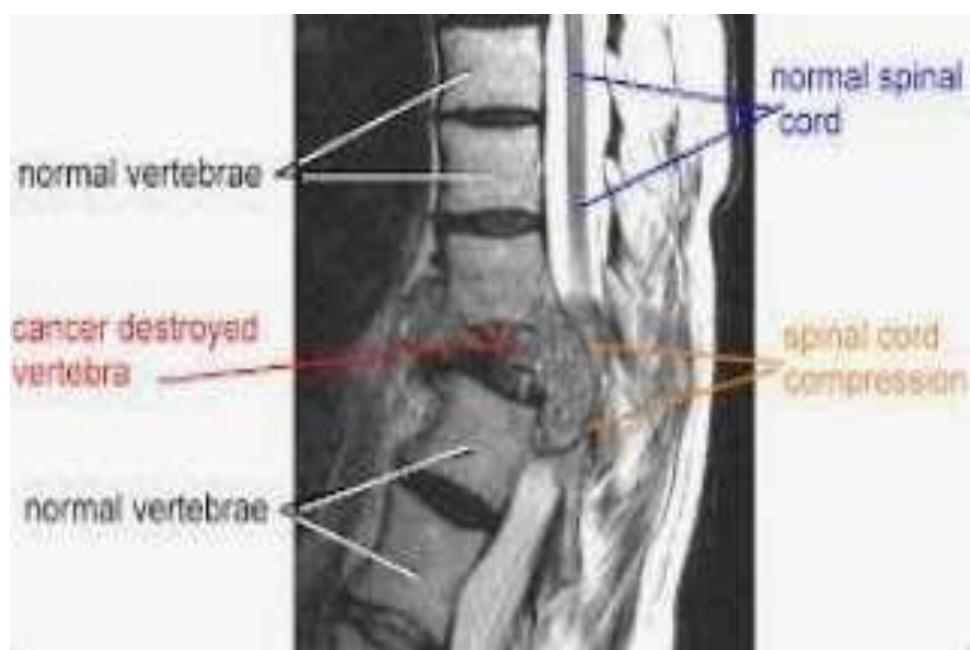
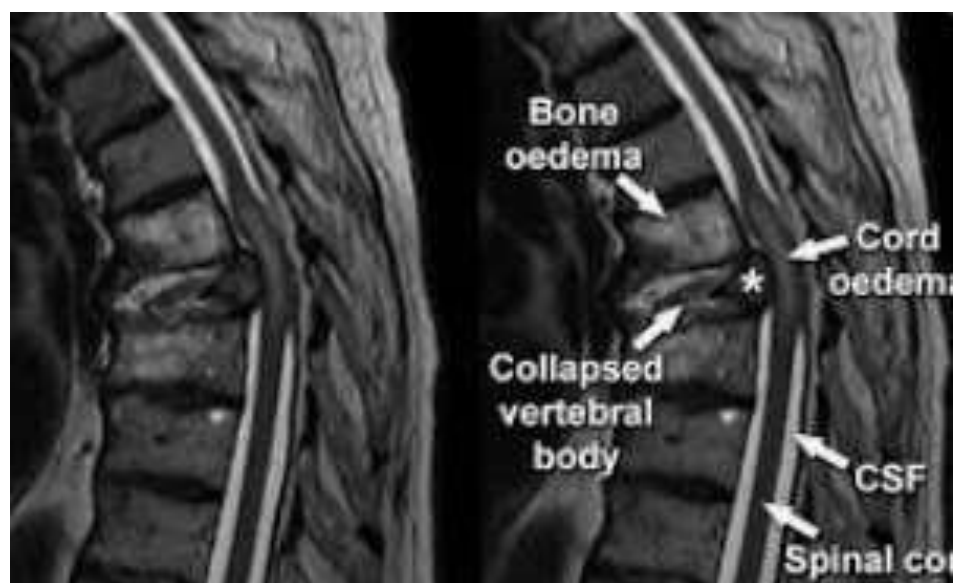
investigation of choice is **MRI** as it can define the extent of compression and associated soft-tissue abnormality.

Plain X-rays may show bony destruction and soft-tissue abnormalities.

Routine investigations, including chest X-ray, may provide evidence of systemic disease

Spinal cord compression

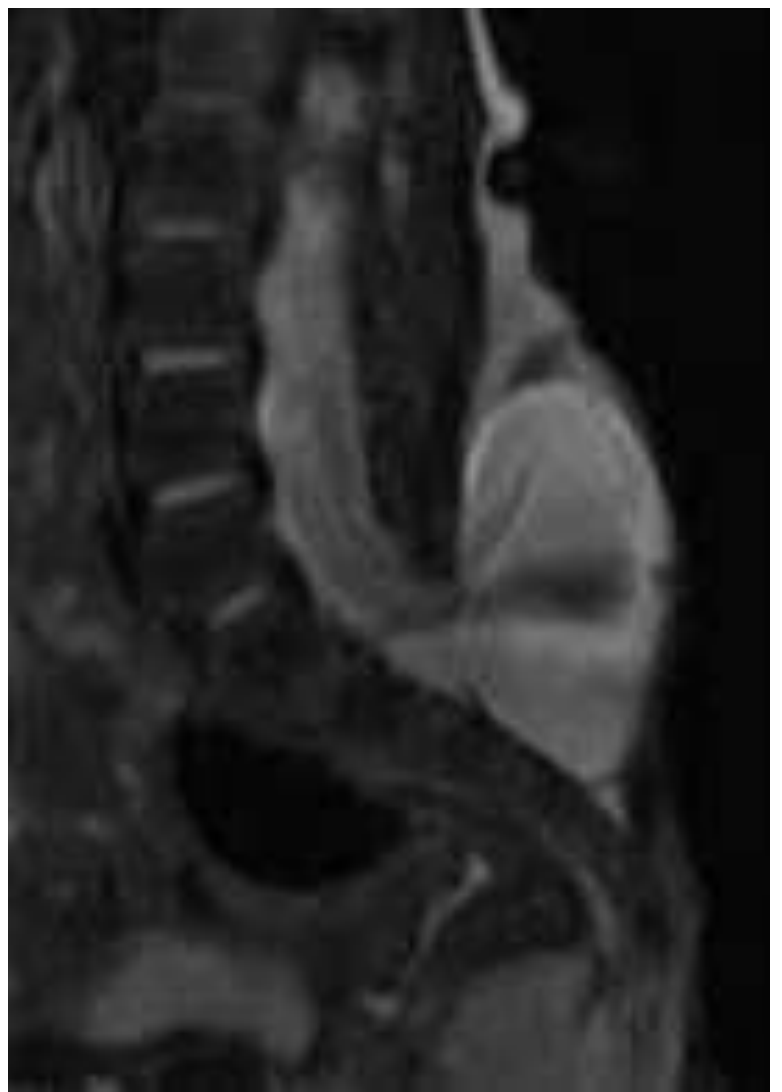
Management : Benign good functional recovery can be expected unless a marked neurological deficit has developed before diagnosis.
management should involve close cooperation with both oncologists and neurosurgeons.



Spina bifida

is a birth defect in which there is incomplete closing of the spine and the membranes around the spinal cord during early development in pregnancy.





Kyphosis

is an abnormally excessive convex curvature of the spine as it occurs in the thoracic and sacral regions



Scoliosis

- is a medical condition in which a person's spine has a sideways curve.
- The curve is usually "S"- or "C"-shaped over three dimensions.
- In some, the degree of curve is stable, while in others, it increases over time.
- Mild scoliosis does not typically cause problems, but more severe cases can affect breathing and movement.
- Pain is usually present in adults, and can worsen with age.

