The spine

Disorders of the spine and spinal cord

* The spinal cord and spinal roots may be affected by intrinsic disease

* or by disorders of the surrounding meninges and bones.

* It is important to recognize when the spinal cord is at risk of compression so that urgent action can be taken.

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.

* Spondylosis may be associated with neurological dysfunction.

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.

Clinical features

The patient complains of pain in the neck that may radiate in the distribution of the affected nerve root. The neck is held rigidly and neck movements may exacerbate pain. Paraesthesia and sensory loss may be found .

Investigations

*** Where there is no trauma, imaging should not be carried out for isolated cervical pain. 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

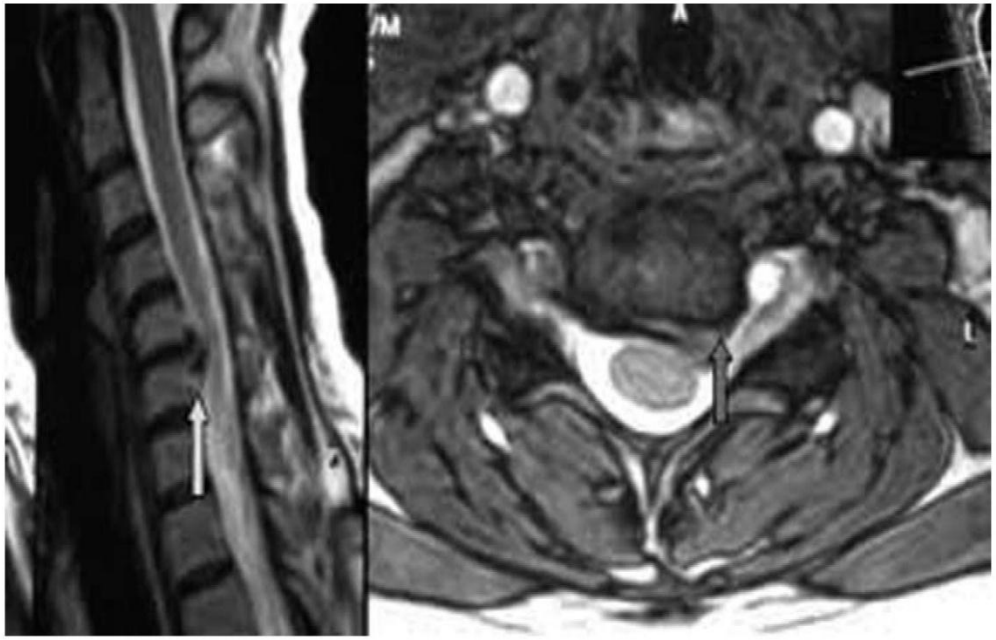


Fig. 28.44 Magnetic resonance image showing cervical cord compression (arrow) in cervical spondylosis.

Cervical myelopathy

Dorsomedial herniation of a disc and 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 .

Clinical features

*** The onset is usually insidious and painless but acute deterioration may occur after trauma especially hyperextension injury.**

*** Upper motor neuron signs develop in the limbs, with spasticity of the legs usually appearing before the arms are involved.**

*** Sensory loss in the upper limbs is common, producing tingling, numbness and proprioception loss in the hands.**

*** Sensory manifestations in the legs are much less common .**

*** Neurological deficit usually progresses gradually and disturbance of micturition is a very late feature.**

Investigations

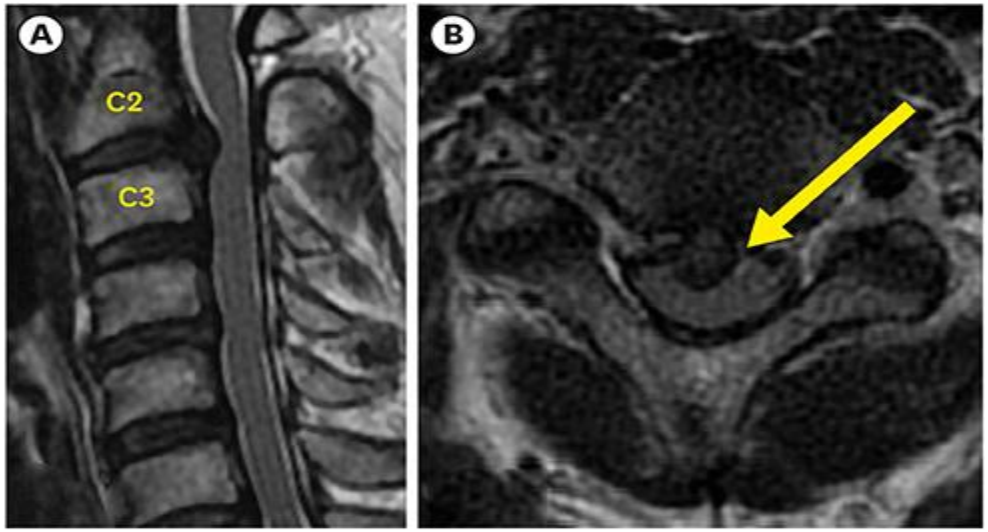
MRI provides information on the state of the spinal cord at the level of compression.

Management

Surgical procedures, including laminectomy and anterior discectomy, may arrest progression of disability but neurological improvement is not the rule.

Prognosis

The prognosis of cervical myelopathy is variable. In many patients, the condition establishes or even improves without intervention. If progression results in sphincter dysfunction or pyramidal signs, surgical decompression should be considered



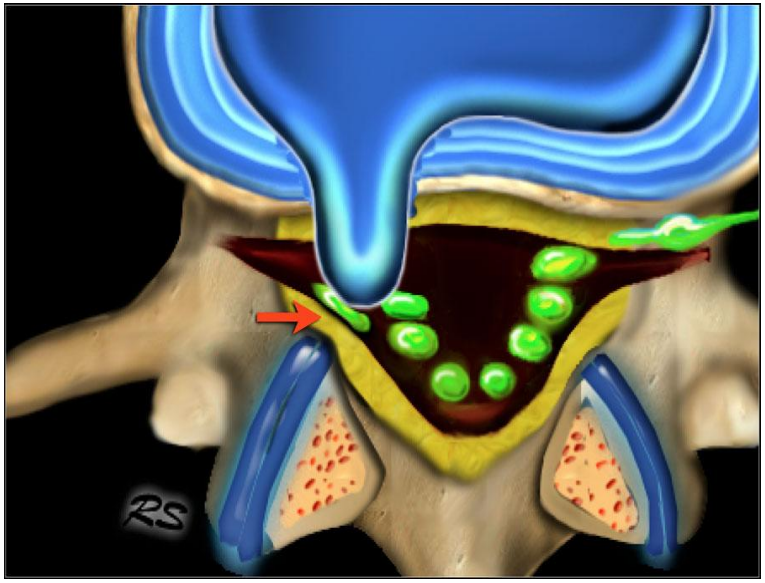
Lumbar spondylosis

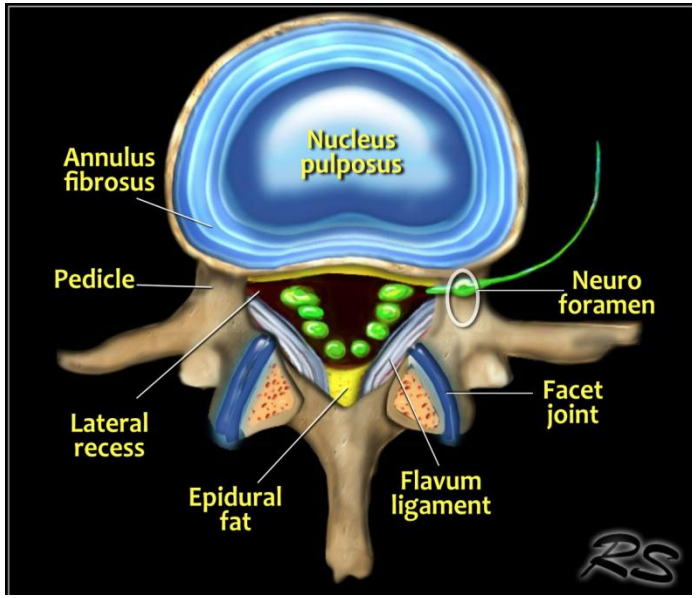
This term covers degenerative disc disease and osteoarthritic change in the lumbar spine.

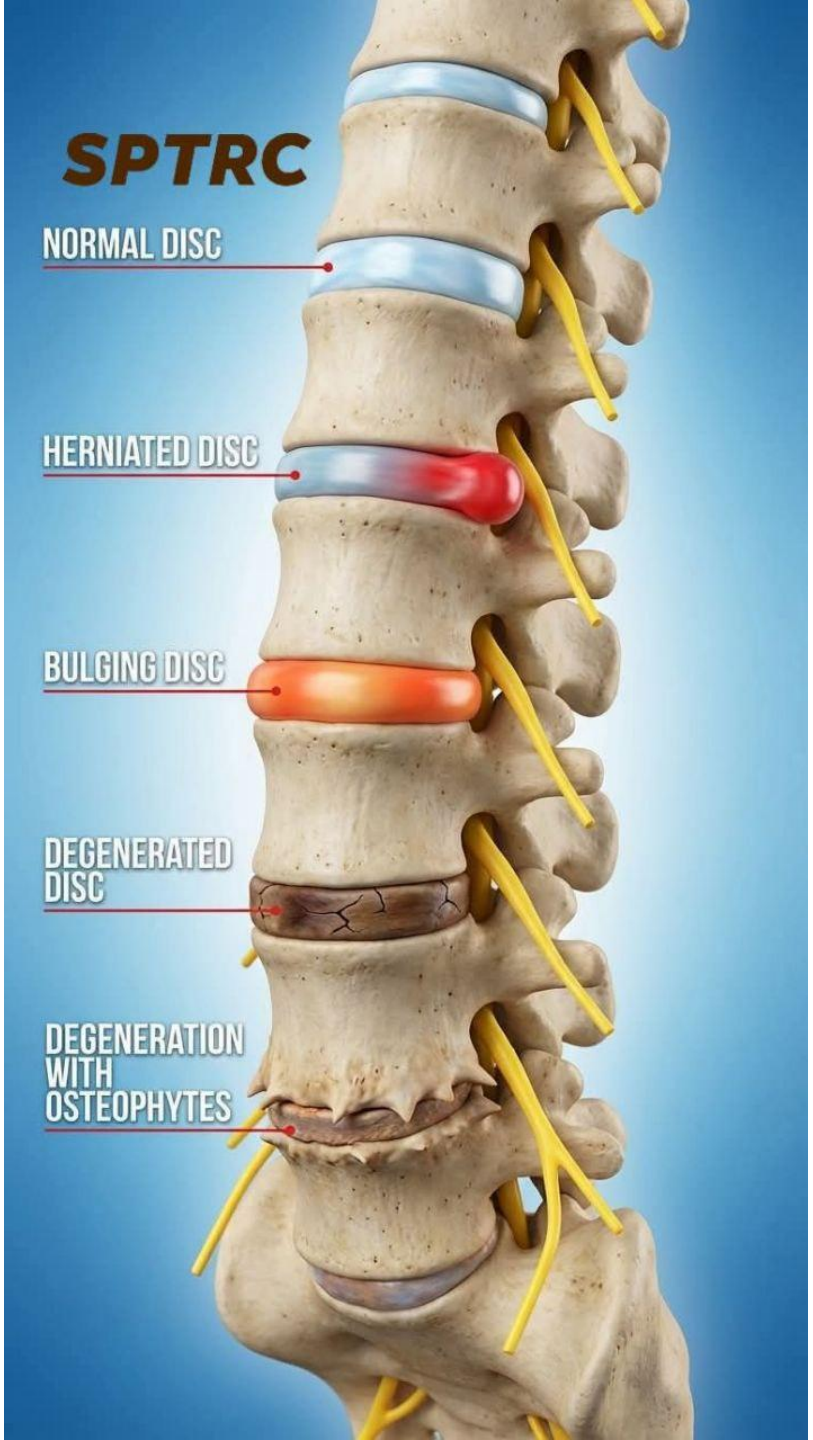
Pain in the distribution of the lumbar or sacral roots ('sciatica') is almost always due to disc protrusion but can be a feature of other rare but important disorders, including spinal tumor, malignant disease in the pelvis and tuberculosis of the vertebral bodies.

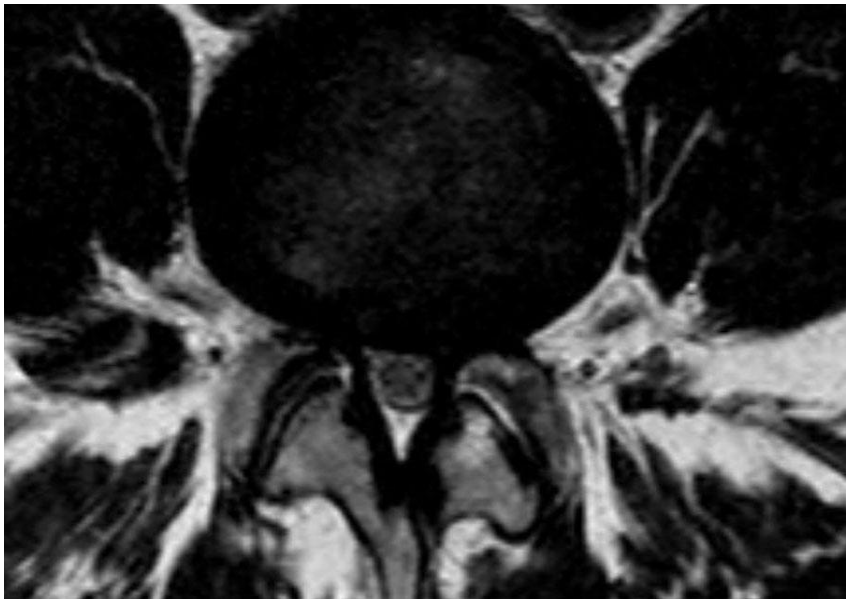
Lumbar disc herniation

While acute lumbar disc herniation is often precipitated by trauma (usually lifting heavy weights while the spine is flexed), genetic factors may also be important. The nucleus pulposus may bulge or rupture through the annulus fibrosus, giving rise to pressure on nerve endings in the spinal ligaments, changes in the vertebral joints or pressure on nerve roots.






SPTRC
NORMAL DISC
HERNIATED DISC
BULGING DISC
DEGENERATED DISC
DEGENERATION WITH OSTEOPHYTES



Clinical features

The onset may be sudden or gradual. Alternatively, repeated episodes of low back pain may precede sciatica by months or years. Constant aching pain is felt in the lumbar region 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

Some 90% of patients with sciatica recover following conservative treatment with analgesia and early mobilisation; bed rest does not help recovery. The patient should be instructed in back-strengthening exercises and advised to avoid physical manoeuvres likely to strain the lumbar spine.

Injections of local anaesthetic or glucocorticoids may be useful adjunctive treatment if symptoms are due to ligamentous injury or joint dysfunction. Surgery may have to be considered if there is no response to conservative treatment or if progressive neurological deficits develop.

Central disc prolapse with bilateral symptoms and signs and disturbance of sphincter function requires urgent surgical decompression.

Lumbar canal stenosis

This occurs with a congenitally narrowed lumbar spinal canal, exacerbated by the degenerative changes that commonly occur with age.

Clinical features

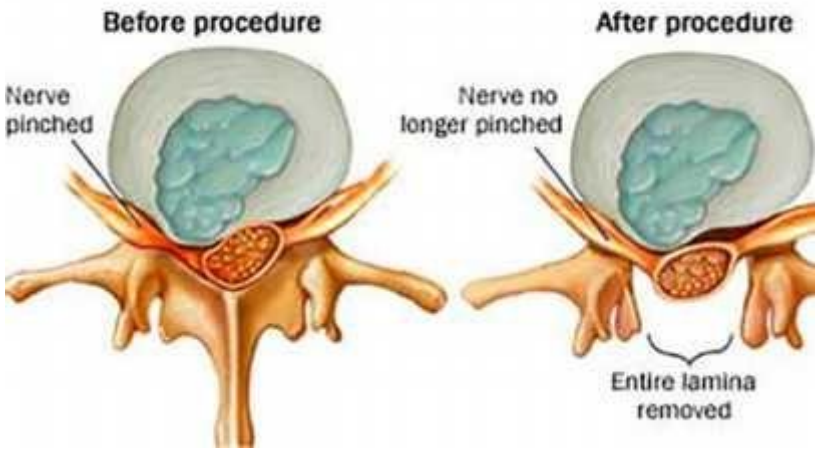
Patients, who are usually in old age, develop exercise-induced weakness and paraesthesia in the legs ('spinal claudication'). These symptoms progress with continued exertion, often to the point that the patient can no longer walk, but are quickly relieved by a short period of rest.

Investigations

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

Management

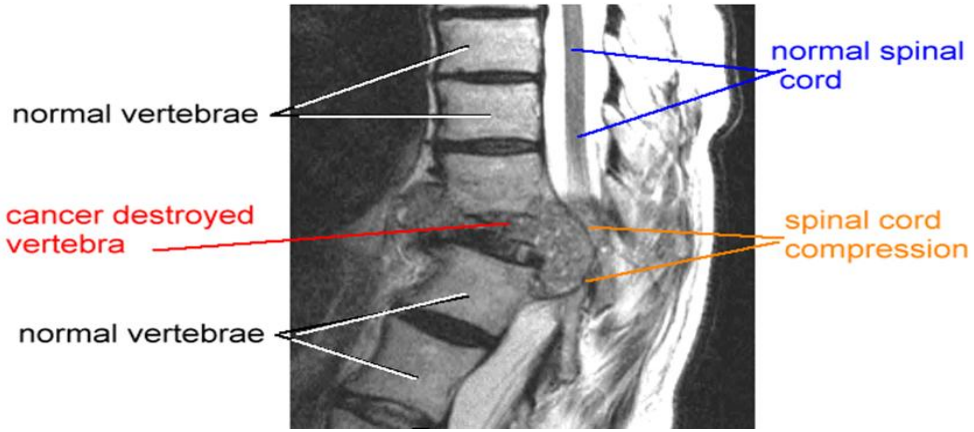
Lumbar laminectomy may provide relief of symptoms and recovery of normal exercise tolerance



Lumbar disc bulge before and after laminectomy

Spinal cord compression

Spinal cord compression is one of the more common neurological emergencies encountered in clinical practice .A space-occupying lesion within the spinal canal may damage nerve tissue either directly by pressure or indirectly by interference with blood supply. The early stages of damage are reversible but severely damaged neurons do not recover; hence the importance of early diagnosis and treatme



Clinical features

The onset of symptoms of spinal cord compression is usually slow (over weeks) but can be acute as a result of trauma or metastases especially if there is associated arterial occlusion.

Pain and sensory symptoms occur early, while weakness and sphincter dysfunction are usually late manifestations. The signs vary according to the level of the cord compression and the structures involved.

Investigations

Patients with a history of acute or subacute spinal cord syndrome should be investigated urgently .The investigation of choice is MRI as it can define the extent of compression and associated soft-tissue abnormality.

Intrinsic diseases of the spinal cord

There are many disorders that interfere with spinal cord function due to non- compressive involvement of the spinal cord itself.. The symptoms and signs are generally similar to those that would occur with extrinsic compression ,although a suspended sensory loss can occur only with intrinsic disease such as syringomyelia. Urinary symptoms usually occur earlier in the course of an intrinsic cord disorder than with compressive disorders.

Investigation of intrinsic disease starts with imaging to exclude a compressive lesion. MRI provides most information about structural lesions.