Cervical spondylosis:

- Radiological evidence of cervical spondylosis is present in 25-50% of people by the age of 50 years and 75% by the age of 65 years. The majority is asymptomatic and requires no treatment. When symptomatic patient can present with neck pain, radiculopathy , myelopathy or combination of the above
- Pathophysiology: Desiccation and degeneration of n.pulposus (water content decreases from 88% at birth to 70% at the age of 70)--- Decrease in the disc height---Overriding facet joints----Excessive segmental motion----reactive osteophyte formation and thickening of the lig. Flavum and facet joint capsules and fissuring of the annulus fibrosis and disc herniation--- cervical canal and or foraminal stenosis.
- Cervical pain can originate from facet joints, can be discogenic or result from cervical instability. The annulus of the disc and PLL, ALL are innervated by sinuvertebral nerve from primary ventral ramus or gray ramus communicans.
- Cervical radiculopathy most commonly involves C5-C6 and C6-C7 levels but any level can be involved.
- People with congenitally narrow canal are more likely to develop symptoms (Normal spinal canal at C3-C6 level is 16-18 mm, canal <13 mm or canal diameter to a-p vertebral diameter less than 0.8 is considered congenitally narrowed canal).
- Diagnostic studies 1. C spine plain films: AP, L,O and flexion extension views: looking for instability loss of lordosis, canal diameter and foramina,disc height and osteophytes

  2. CT scan and CT myelogram: The most informative method

  3. MRI: Signal changes in the cord at T2 is associated with poorer prognosis, good in showing soft tissues (lig. and discs).

- Myelopathy characterized by deterioration of gait (wide based stooped spastic gait, deterioration of hand function (writing and buttoning buttons), patchy sensory changes, hyperreflexia with +ve Hoffman's, upgoing plantar reflex and clonus, in 25% Lhermitte's sign . The severity of cervical myelopathy can be graded using Nurwick scale (0- radiculopathy, 1-signs no symptoms, 2-mild disability independent, 3-moderate disability requires some help4-severe disability dependent on others 5-bed ridden or chair bound) or the Japanese orthopedic association scale for motor sensory functions of upper and lower limbs and bladder function.

- Surgery is indicated for 1. Myelopathy 2. Radiculopathy not responding to conservative treatment and or associated with motor deficit 3. Rarely for cervical pain if it is due to instability.

- Approaches:

1. For cervical radiculopathy due to posteriolateral disc –posterior foraminotomy and discectomy. Safe operation 85-100% excellent outcome, avoids bone donor site complications and adjacent segment disease complications

2. For central and paracentral disc prolapse-- anterior discectomy with or without fusion. For single level disease there is no evidence to support the use of plates. Fusion opens the foramina .50-95% excellent results. Plating is indicated for multiple discectomy. Disc replacement is another option.
3. For myelopathy the choice of approach depends on the site of compression and the presence or absence of kyphosis. Normally there is 5-14 degrees of lordosis. (If a line that runs between dorsocaudal C2 and dorsocaudal C7 intersects any part of C3-C6 bodies then there is loss of lordosis)

A. In the presence of Kyphosis or and anterior compression anterior approach using single or multiple discectomy with or without corpectmy and fusion is the treatment of choice.
B. In the case of maintained lordosis and posterior compression –laminectomy. If there is preoperative instability or decompression involves > 50% bilateral facetectomy the procedure should be combined with posterior fusion using lateral mass plates. Laminoplasty is another option.

Discuss the controversies surrounding the management of asymptomatic radiological cord compression for degenerative disease:

There are two schools:

1. Advocates of prophylactic decompression argue that these patients are at increased risk of spinal cord injury from falls (hyperextension central cord syndrome), once neurological deficit develops there is no guarantee for full recovery with decompression and with current GA and surgical technique the risk of major complications are high. This approach is probably appropriate in relatively young, medically fit patients
2. Advocates of conservative treatment: argue that there is poor correlation between radiological stenosis and the development of symptoms. Surgery carries small but significant risk, particularly in elderly with medical problems. This approach is probably suitably for elderly with multiple medical problems. If this approach is chosen close follow up is of paramount importance. The patient and the family should be advised to contact the neurosurgeon if symptoms of myelopathy develop.

If patient presents with central cord injury and stenosis some surgeons advocate early surgical decompression, others allow the patient to recover (physiotherapy and rehabilitation) and perform surgical decompression at later date.