Cervical Disc Herniation

Dr. Nidal Abuhadrous
Consultant Neurosurgeon & Head of Neurosurgery - EGH
Arab Board of Neurosurgery
Member of the Royal College of Surgeons in Ireland
Member of the American Association of Neurological Surgeons
Member of the Congress of Neurological Surgeons, USA
nidal_hadrous@yahoo.com

Remember these facts

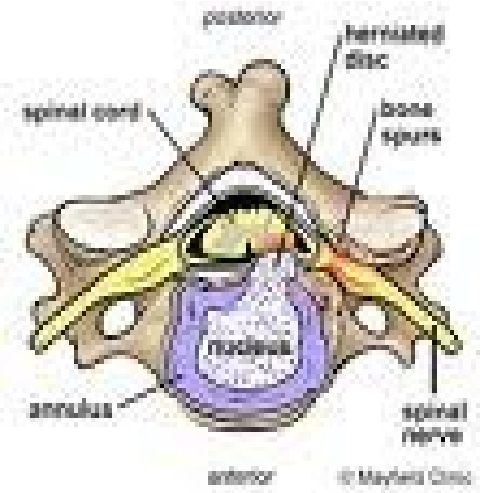
- In the C-spine, the nerve root exits above the pedicle of the like-numbered vertebra
- The intervertebral disc space is close to the inferior portion of the pedicle & the root exiting under it.
- For example: C5-C6 disc herniation will compress the C6 root & so on.

Cervical Disc Syndromes

	Level of herniated cervical disc			
	C4-C5	C5-C6	C6-C7	C7-T1
%	2%	19%	69%	10%
Root	C5	C6	C7	C8
Reflex	Biceps	Brachioradialis	Triceps	---
Motor	Deltoid	Forearm flexion	Forearm ext.	Finger flexion
Hypesthesia	Shoulder	Thumb	Fingers 2,3	Fingers 4,5

Clinical Picture

- Neck pain
- Radiculopathy (lateral disc)
- Myelopathy (central disc)



Clinical Signs

- Painful limitation of neck motion
- Extension usually aggravates the pain
- Abduction relief sign (Shoulder)
- Spurling's sign
- Axial manual traction
- ± Lhermitte's sign
- ± Myelopathy (UMN lesion in botl LL)

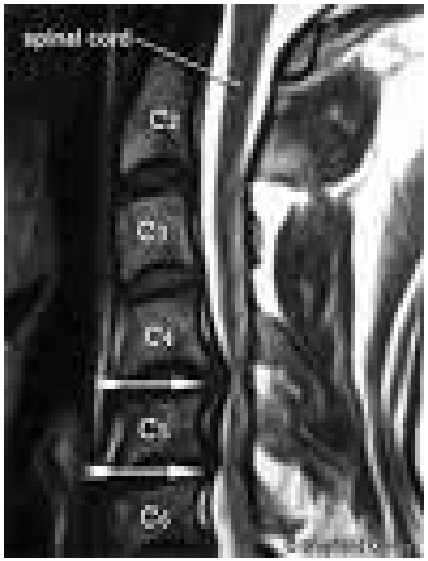
Evaluation

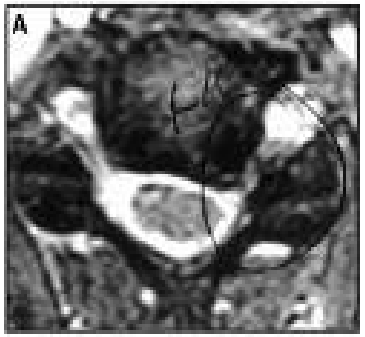
- MRI (good, noninvasive)
- Myelo CT (good, invasive)
- Plain CT (poor, esp. at lower cervical discs)

MRI









Which investigation is this?



Treatment

Conservative

> 90% of cervical discogenic radiculopathy will improve with conservative treatment in few weeks

- Analgesics
- NSAIDs
- Sometimes short course of steroids
- Physiotherapy

Treatment

Surgical

Indications:

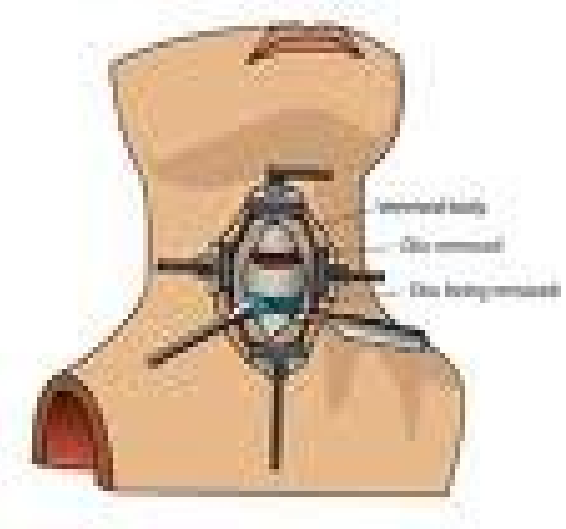
- Failure of conservative treatment

- Progressive neurodeficit while on conservative treatment

Surgical Treatment
Options

- Anterior approach:
  - Discectomy alone (ACD)
  - Discectomy + Fusion (ACDF)
    - Without plating
    - With plating
  - ACD + artificial disc (arthroplasty)
- Posterior approach:
  - Cervical Laminectomy
  - Keyhole Laminotomy

Anterior Cervical Discectomy



Advantages of anterior approach

- Safe removal of osteophytes
- Fusion
- The only approach for central disc

Disadvantages of anterior approach

- Adjacent level disease (if fusion is performed)
- In Multiple level ACDF, devascularization of the vertebral bodies my occur

Post op check

- Hematoma (surgical site)
  - Resp. Distress
  - Swallowing difficulty
  - Tracheal deviation
- Weakness (involved nerve root)
- Long tract signs
- Hoarseness

Complications of ACDF

- Exposure injuries (esophagus, trachea, RLN, carotid & vertebral arteries, thoracic duct, internal jugular v., CSF fistula, Horner syndr.)
- Cord or root injuries
- Fusion problems (failure, extrusion, donor site complications)
- Others (hematoma, infection, dysphagia, hoarseness, adj. level degeneration)

Anterior cervical plating





Artificial Disc







Posterior cervical decompression

Cervical laminectomy

Indications:

- Multiple cervical discs (≥ 3)
- Where is cervical stenosis in addition to the anterior pathology
- In professional speakers & singers (where is the 4% risk of permanent RLN damage with ACD is unacceptable

Posterior cervical decompression

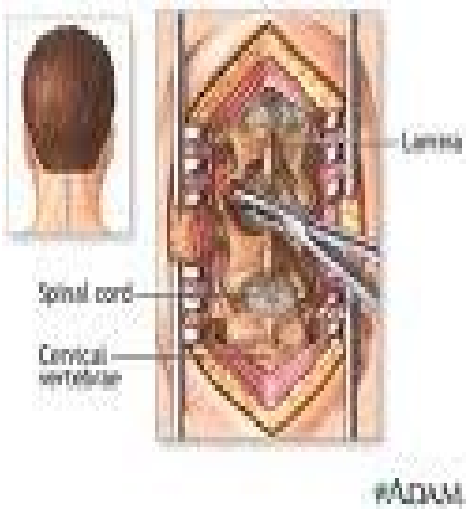
Cervical laminectomy - Indications

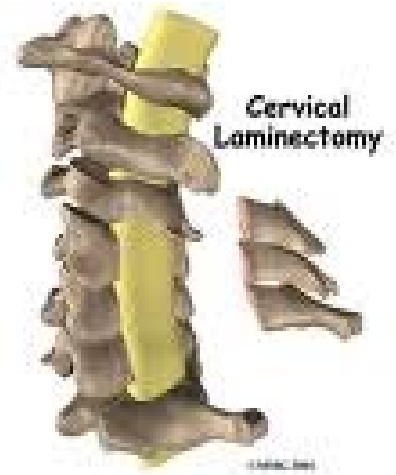




Posterior cervical decompression

Cervical laminectomy





Posterior Keyhole laminotomy

Indications:

- Monoradiculopathy with posteriolateral soft disc herniation
- Professional speakers or singers (with lateral disc)
- For lower (C7,C8,T1) or upper (C3,C4) discogenic radiculopathy in a patient with a short neck (difficult ant. approach)

Thanks



Any Questions?