Cervical Spine Dysfunction vs. Rotator Cuff Tear

Disc herniation - a rupture and/or bulge of a vertebral disc

Full Thickness Rotator Cuff Tears
Objectives

- Brief review of cervical spine and shoulder anatomy
- Present common signs and symptoms of cervical nerve root compression
- Review video demonstration of evaluations on cervical spine and shoulder patients
- Present an early management process.
Why this topic???

- Extremely high number of nerve root compression cases that mimic rotator cuff pathology
- Stress the importance of early recognition of both to prevent long term problems (i.e. retracted cuff or permanent nerve damage and loss of motor function)
- Need for an identification system for these types of patients.
Why so difficult to differentiate?

Cervical Disc vs. Rotator Cuff
Can they both cause…

- 1) Pain in the shoulder? Yes
- 2) Pain in the neck? Yes
- 3) Nighttime pain? Yes
- 4) Loss of sensation? No
- 5) Loss of strength? Yes
- 6) Loss of reflex? No
Cervical disc herniation

- Radiculopathy past the elbow
- Loss of reflex
- Loss of strength
- Dec. sensation
- + Compression test
- + Spurling’s
- Pain laying supine (no pillow)
- Inc. strength with traction
- + Marquis Maneuver
Rotator Cuff Tear/Impingement

- Palpable tenderness in the shoulder
- Pain with resistance
- + Neer’s
- + Hawkin’s Kennedy
- Weak ER, abd, flex.
- Reflexes normal
- Sensation normal
Cord Compression

Herniated Disc
Nerve Root

Sagittal T2-weighted MRI
Causes of nerve root irritation

- Acute injury
- Repetitive strain
- Degenerative changes
- Poor postures
TOS

- “Heaviness” in the arm
- Difficulty with overhead activity
- Globalized paresthesia
- “Cold/dead” feeling
- Decreased pulse with Allen maneuver & Roos test
Thoracic Outlet Syndrome
Where do most people with RCT’s have referred pain?

location 1

location 2
Referred pain from the c-spine

Composite pain patterns (solid red areas are the essential pain reference zones, and stippled red areas are the spillover reference zones) with locations of some trigger points (Xs) in the right scalene muscles (medium red). Scalene anterior, medius, and posterior. Some trigger points may have only one essential reference zone.
Why do people with RCT’s have pain in the upper trapezius?
Rotator Cuff Function

- Compresses the Gleno-humeral joint
- Elevates the humerus
- IR & ER of the humerus
- Depression of the humerus on the glenoid
- Accelerate & decelerate the arm
Orthopedic Evaluation of the Cervical Spine

- Specific history (MOI)
- Symptoms
- ROM
- Posture & Movement
- DTR’s
- Sensation
- Strength
- C-spine compression
- Inhibitive distraction
- Spurling’s test
- Vertebral Artery
- Palpation
Orthopedic Shoulder Evaluation

- History
- Clear the c-spine
- AROM
- PROM
- Manual Muscle Test
- Neer’s Impingement
- Hawkins – Kennedy
- Palpation
Neck or Shoulder?
Neck or Shoulder?
Management of Mild Nerve Root Compression

- NSAID D’s
- Physical Therapy – C-spine muscle relaxation, inhibitive distraction (traction), postural program
- Ergonomic evaluation
- Periodic re-evaluation
Scenario #2

- Severe pain anterior shoulder, med. border of the scapula, and lateral epicondyle.
- Loss of sensation middle finger
- 3/5 strength triceps
- Unable to lay on back and extend neck due to pain
- Diminished triceps reflex
Management of Scenario #2

- Timeliness is key!!!!
- MRI
- Steroid pack followed by NSAIDS
- P.T. to take pressure off of nerve root
- If inhibitive distraction proves successful, try home traction unit
- Consult with neurosurgeon on call
- Possible LESI or surgery
What are the goals if the patient responds conservatively or surgically?

- Regain motor strength
- Avoidance activities
- Ergonomic assessment
- Restore cardiovascular endurance
- Postural program
1) If there is motor weakness, try manual traction and retest strength. If strength improves then it is cervical and there is nerve root compression.

2) If resistance of a muscle is weak and smooth throughout the range and does not vary in intensity it is probably due to neurological compromise.