Cervical Trauma and Sport

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Conflicts

• I have no conflicts
Learning Objectives

• Review Cervical Anatomy
• Discuss Traumatic Cervical Spine Injury
• Review return to play guidelines
Incidence

• Estimated 1000 sports related severe cervical spine injuries annually
• 1/100,000 high school and college athletes annually
• 1976 complete quadraplegia 2.5/100,000
• 1991 complete quadraplegia 0.5/100,000
• Sports rank as the fourth most common cause of spinal cord injury
Anatomy
Transient Upper Extremity Neuropraxia

- “Stingers” “Burners”
- Transient
- Unilateral
- Loss of strength
- Painful
- May lose sensation
- Related to trauma
- Does not always follow a dermatome
Stingers

• Very Common contact sport injury
• Traction or compression of brachial plexus or exiting nerve root
• Treatment
  – Observation
  – Recurrent problem
    • MRI cervical spine and possibly brachial plexus
    • EMG
Stingers

• Return to play
  – When symptoms resolve
  – Normal imaging and resolution of symptoms if recurrent
Transient Quadraparesis

- Mechanism – Axial loading or hyperextension
- Force results in transient compression of spinal cord resulting in symptoms and possible cord contusion or edema
- Can last in reports 2 minutes to 48 hours
- MRI of cervical cord recommended
- If persistent can give corticosteroids
Transient Quadraparesis

- Return to play
  - Complete resolution of symptoms
  - Normal imaging
  - Return of preinjury strength
  - Full cervical ROM
  - Spinal canal >13mm AP diameter
  - First episode of transient quadraparesis
Cervical Herniated Disc

• Increased risk for football players and wrestlers

• Soft Disc – acute herniation of the nucleus pulposus through the posterior annulus causing neurologic symptoms

• Hard Disc – chronic degenerative change with loss of disc height and formation of degenerative osteophytes
Cervical Herniated Disc

• Initial Treatment
  – Rest
  – Activity modification
  – NSAIDs
  – Traction
  – Consider injection therapy
  – Possible immobilization
Cervical Herniated Disc

• Progressive Treatment
  – Light Exercise and strengthening
  – ROM
  – Return to sport when asymptomatic with full strength and ROM
  – Surgical intervention if worsening symptoms despite conservative care or failed 6-8 weeks of conservative care
Cervical Stenosis

- Congenital or Acquired or Both
- Acquired is the result of repeated trauma resulting in ligament and facet hypertrophy with or without disc encroachment
- Midsagittal measurement less than 13 mm is considered stenosis (Magnification error)
- Torg-Pavlov Ratio – Less than 0.8 (0.7?)
  - Midsagittal diameter/AP diameter of corresponding vertebral body
Special Cases

• Downs Syndrome - ~30% have atlantoaxial instability

• Rheumatoid Arthritis – Cervical subluxation can be found in ~15% of patients within 3 years of diagnosis

• Klippel-Feil Anomoly
  – Type 1 – multilevel fusion – no contact sport
  – Type 2 – One or two levels fused below C3 - clear
Cervical Spine Fractures

- Any Upper or Lower extremity neurologic symptoms with associated cervical trauma should be considered a cervical fracture until clearance warrants.
- Evaluate for spinal tenderness.
- If tenderness and symptoms or severe symptoms that are not resolving, IMMobilize AND IMAGE.
Immobilization

- Maintain Head position in neutral
- Recommendation is changing on immobilization in pads or not. Now dependent on the amount of trained help on site.
- Also using a spine board in a cognitively and neurologically intact individual is changing due to pressure sore related to prolonged immobilization and is trauma center protocol dependent.
Thank You?