Ryan Murdock, M.D.

Back Pain in the Pediatric & Adolescent Population
Most Common Causes

- Trauma
- Curvature
  - Kyphosis
  - Scheuermann’s
  - Postural
  - Scoliosis
- Instability
  - Spondylolysis\Spondylolisthesis
Other Causes

- Infection
  - Discitis
  - Osteomyelitis
  - Epidural Abscess
- Lesion
- Abdomen & Pelvis Pathology
Evaluation

- History
  - Length of Time
  - Time of day
  - Trauma
- Location
  - Upper Back
  - Lower Back
- Physical Exam
History

- **Length of Time**
  - Days to weeks
  - Trauma

- **Months to years**
  - Anatomic variation
    - Instability (C1-C2, Spondylolysis/Spondylolisthesis)
    - Curvature (Scoliosis, Kyphosis)
  - Lesion
  - Trauma
History

- Neurologic Symptoms
  - Parasthesia
  - Weakness
  - Fatigue
- Character
  - Radiating
  - Sharp
  - Dull
- Aggravating factors
- Alleviating factors
Location

- Upper Back
  - Cervical
  - Thoracic
- Lower Back
  - Lumbar
  - Sacral
  - Pelvic
Upper Back: Cervical

- Muscular
- Ligamentous
  - Instability: C1-C2
  - Interspinous ligament
    - Flexion or extension injury or strain
- Bony
  - Fracture
    - Vertebral Body
    - Spinous process
      - Apophyseal fracture
    - Transverse process
- Congenital
- Lesion
Upper Back: Thoracic

- Muscular
  - Paraspinal
    - Scoliosis / Kyphosis
    - Strain
  - Periscapular
- Ligamentous
  - Interspinous ligament
    - Kyphosis
    - Flexion or extension injury or strain
Upper Back: Thoracic

- Bony
  - Fracture
    - Vertebral body
    - Spinous process
    - Rib
  - Structural
    - Scheuermann’s Kyphosis
    - Congenital vertebrae
- Lesion
Scheuermann’s Kyphosis

- **Definition**
  - 3 consecutive vertebrae with > 5 degrees of wedging on lateral thoracic x-ray

- **Characteristics**
  - **X-ray**
    - Loss of intervertebral disc height
  - Acute kyphosis

- **Clinical**
  - Kyphotic deformity
  - Loss of flexibility in thoracic spine
Lower Back: Lumbar

- Muscular
  - Paraspinal
    - Scoliosis
    - Strain
  - Abdominal
- Ligamentous
  - Interspinous ligament
    - Flexion or extension injury
Lower Back: Lumbar

- Bony
  - Fracture
    - Transverse Process
    - Spinous Process
    - Spondylolysis (pars interarticularis defect)
- Structural
  - Spondylolysis
  - Spondylolisthesis (may be progressive)
  - Congenital vertebrae
- Lesion
Spondylolysis

- **Definition**
  - Bony defect of the pars interarticularis
    - L5-S1 most common
- **Diagnosis**
  - x-ray
  - CT/SPECT
  - MRI
- **Clinical Findings**
  - Pain with extension
Lower Back: Sacrum & Pelvis

- Sacrum
  - Muscular
    - Gluteal
    - Sacroiliac joint
- Pelvis
  - Muscular
    - Abdominal
    - Paraspinal
    - Gluteal
  - PSIS
  - Iliac apophysis
Physical Exam

- Inspection
  - Shoulder & Scapula
  - Chest wall
  - Skin
  - Pelvis
- Palpation
- Spine mobility
  - Cervical
  - Thoracic
  - Lumbar / Lumbosacral
Physical Exam

- Extremity Mobility
  - Hamstring tightness
  - Spasticity
- Gait
  - Antalgic
  - Trendelenberg
  - Leg length discrepancy
- Neurologic
  - Muscle Strength
  - Reflexes
Work Up

- Muscular
  - PT Evaluation
- Bony or Ligamentous
  - Standing X-ray of affected region
    - AP & Lateral
  - Inflammatory Labs
- Neurologic Symptoms
  - MRI
Treatment

- Muscular
  - Activity restriction
  - NSAIDS
  - PT

- Bony or Ligamentous
  - Fracture: Immobilization
  - Ligamentous: Immobilization v. activity restriction
  - Lesion: Immobilization, activity restriction, and further work up
Thank You