

## Scoliosis and Other Pediatric Spinal Conditions

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## Scoliosis & Other Pediatric Spine Conditions

- General considerations
- Spinal stress syndrome
- Scoliosis
- Kyphosis

## History

- Back pain?
- Associated neuro symptoms?
- Activity level, weight training, supplements?

## Physical

- Need to observe the whole spine, even if there is focal pain
- Gown and shorts for all back examinations
- Accommodations for the natural shyness of the adolescent

## Imaging

- Less is more!
- Limit number of films
  - Single PA for scoli
  - AP, lat for lumbar pain
- Include iliac crests for Risser staging



## Pediatric Back Pain

- Associated with true pathology more often than adults
- Diff trauma, neoplasm (ABC or osteoid osteoma), spondylolysis or –listhesis
- Disc disease (HNP) is very rare
- ?Effect of heavy load carrying, i.e. bookbags

## Treatment – General Considerations

- In general, treat inflammation first before starting exercise or manipulation
- Chiropractic is okay if full diagnostic work-up is complete
- Activity modification is a nice idea, but doesn't work in real life

## Medications

- NSAIDs are appropriate, but remember that use under age 18 is off-label for COX-IIs (tell parents this)
- Antispasmodics (Skelaxin, Flexeril, etc) may have paradoxical effects
- Valium is a most effective for spasm
- NO DOSE PACKS



## Spondylolysis & Spondylolisthesis ("Lumbar Stress Syndrome")

- Stress fracture at the pars intrarticularis
- Acute LBP with pain on hyperextension
- Often associated with very tight hamstrings (bowstringing)
- $\pm$  Forward slip of adjacent vertebra



## Lumbar Stress Syndrome – Treatment

- Bracing – flexible corset vs. rigid antilordotic orthosis
- PT – begin after brace regimen decreases inflammation
- ?Bone stimulator
- Surgery (in situ fusion) if all else fails

## Scoliosis - Definition

- Abnormal curvature in the frontal plane (side to side)
- Associated deformity of sagittal alignment (front to back)
- Rotation of the spine causes deformity detected on most exams



## Scoliosis – Presentation

- Generally painless
- School screening or well child visits
- Shoulder asymmetry or rib prominence

## Etiology

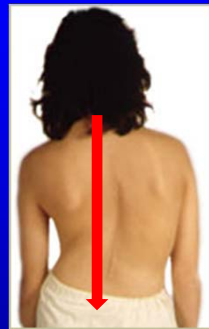
- Unknown
- Congenital malformation rare
- Genetic – “Scoliscore”
- ? Vestibular abnormality
- Association with eating disorders

## Idiopathic Scoliosis

- Females > males
- Family tendency, multifactorial
- 2.5 per 100 prevalence
- Assess growth remaining for risk of progression
- Infantile, pediatric or adolescent

## Scoliosis Examination

- Shoulder heights
- Scapular contours
- Rib prominence upright and forward bend
- Scoliometer or height of prominence
- Leg lengths (ASIS to medial malleolus)
- Neurologic exam (including abdominal reflexes)
- Plumb line

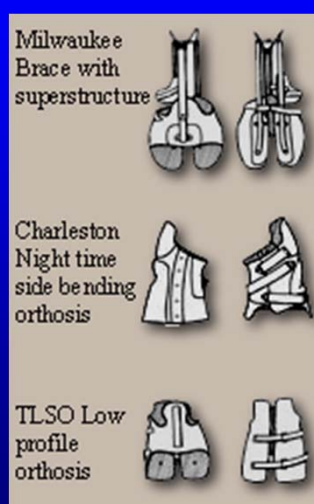


## Scoliosis – Red Flags

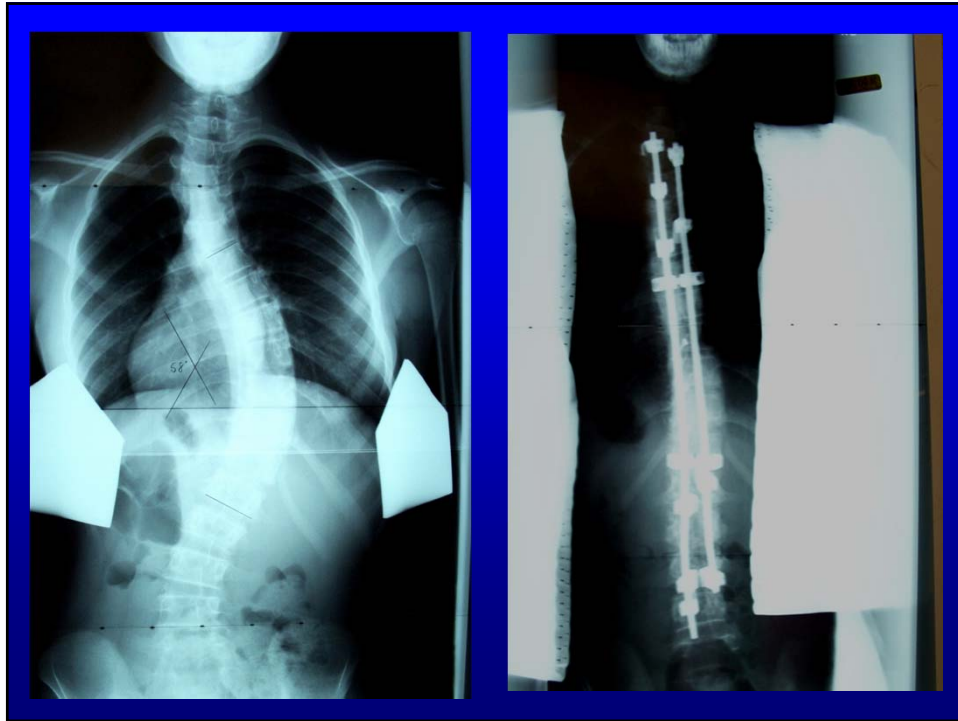
- Painful curvature
  - Rapidly worsening curves
  - Neurologic symptoms
  - Left thoracic curve apex
  - ?Male gender
- 
- Consider MRI for any of these to rule out tethered cord, syrinx, etc.

## Scoliosis - Treatment

- $<20^\circ$  - observation
- $25^\circ$ - $40^\circ$  or progressive  
- bracing
  - Upright vs. bending brace
- $>45^\circ$  - spinal fusion



From SRS Handbook of Scoliosis



## Sagittal Deformity

- Mostly postural
- Hyperlordosis may be associated with trunk weakness (muscular disease), hip dysplasia, spondylolisthesis
- Postural hyperkyphosis is very common in adolescence

## Scheurmann's Kyphosis

- Painful kyphosis
- Diff postural roundback
- Wedging and endplate irregularities
- May be a true osteochondrosis
- Rx – brace for pain, surgery for severe deformity



## Summary

- Treat pediatric back pain with respect because more often there is organic pathology
- Limit x-rays only to necessary studies

