Scoliosis

• What is it?
  – Conditions where the spine is curved sideways due to asymmetrical growth

Scoliosis

• Abnormal curvature of spine on coronal plane
Types of Scoliosis

- **Types**
  - “Idiopathic” means no one exactly knows why it occurs. It usually occurs during the growth spurts such as puberty, particularly in girls. It can also be hereditary.
  - Congenital-structural defects from a failure of formation such as a Hemivertebra (one half of the vertebral body fails to develop).
  - Neuromuscular-usually a muscle imbalance from the underlying condition which initially causes a non-structural scoliosis that can progress to a structural scoliosis.

Classification

- Infantile: age 0 to 3
- Juvenile: age 4 to 10
- Adolescent: age 11 to 18

Scoliosis Screening

- Females-twice at age 10 and 12 years in order to capture variation in maturity. Females require treatment three to four times more frequently than males due to onset of puberty.
- Males-once at age 13 to 14 years.
Scoliosis Clinical Indicators

- The shoulders are at different heights
- The head is not centered directly over the pelvis
- One hip appears higher than the other
- The rib cage is uneven
- The entire body is leaning to one side

Signs of Scoliosis

Forward Bending Test
X-rays

Cobb angle

- Named after John Robert Cobb, MD
- Measuring the angle of the vertebral body used on x-rays

Possible treatments

<table>
<thead>
<tr>
<th>Angle</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10 degree</td>
<td>Observation</td>
</tr>
<tr>
<td>10-20 degree</td>
<td>X-rays Regularly</td>
</tr>
<tr>
<td>10-45 degree</td>
<td>Brace</td>
</tr>
<tr>
<td>&gt;45 degree</td>
<td>Consider Surgery</td>
</tr>
</tbody>
</table>
Spondylolysis

• A crack or stress fracture resulting in a defect of the *pars interarticularis*
  — a small, thin portion of the vertebra that connects the upper and lower facet joints.
• Usually in the fifth vertebra of the lumbar (lower) spine.

Spondylolysis

• The *pars interarticularis* is the weakest portion of the vertebra. This area most vulnerable to injury from the repetitive stress, overuse and/or hyperextension of the spine.
• Spondylolysis can occur in people of all ages but, because their spines are still developing, children and adolescents are most susceptible.

Spondylolysis

• Scottie-dog appearance on plain film,
  — Obtain oblique and lateral films
• Complaints of low back pain, worse with palpation.
The X-ray taken from the side shows a pars fracture in the fifth lumbar vertebra.


Spondylolisthesis

- If left untreated, spondylolysis can weaken the vertebra so much that it is unable to maintain its proper position in the spine. This is called spondylolisthesis.
- In spondylolisthesis, the fractured pars interarticularis separates, allowing the injured vertebra to shift or slip forward on the vertebra directly below it.
- In children and adolescents, this slippage most often occurs during periods of rapid growth—such as an adolescent growth spurt.

  • Reference AAOS

Scheuermann’s disease

- Juvenile kyphosis
- Painful in 50% of cases
- Usually affects boys 13-17 years of age
- 75% of cases affect the thoracic spine
- Fixed dorsal kyphosis
- Compensatory lumbar lordosis
Scheuermann’s disease

- Lateral x-ray reveals Schmorl’s nodes and vertebral wedging with irregular vertebral endplates
- The disease is self-limiting with a benign course
- Treatment- nonsteroidal analgesics
  - Severe cases may require bracing with an external Milwaukee brace for comfort

Illustration and x-ray show the vertebral wedging that occurs in patients with Scheuermann’s kyphosis.
(Right) Reproduced from JF Sarwark, ed: Essentials of Musculoskeletal Care, ed 4. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2010

Nonspecific Back Pain

- Most back pain in adolescents
- Slightly higher incidence in girls
- Common threads
  - Poor physical conditioning
  - New activity
  - Poor core strength
  - Impaired flexibility
  - Family history
Shriners Hospitals for Children
Overview

- Shriners Hospitals for Children is changing lives every day through innovative pediatric specialty care, world-class research, and outstanding medical education. The 22 hospitals in the United States, Canada and Mexico provide advanced care for children with orthopaedic conditions, burns, spinal cord injuries, and cleft lip and palate.

Shreveport Catchment Area
Children up to age 18 are eligible for care at Shriners Hospitals for Children and receive services within a family-centered care environment. Our facility is affiliated with a variety of major insurance plans. No insurance? No problem. We treat any child regardless of ability to pay.

How to refer a patient:

It has never been easier for healthcare professionals to refer a patient to Shriners Hospitals for Children for evaluation or treatment.

To refer a patient to Shriners Hospitals for Children- Shreveport, please fax your referral or call our hospital:

Toll Free: 1-800-830-0606
Local: 318-226-3314
Fax: 318-226-3316
Information to fax

When faxing information, please be sure to include:

- face sheet
  - referring providers name (MD, NP, PA)
- last two doctor’s notes
- any radiology reports