Scoliosis: What and Why
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1. The best next step in management is?
   A. Interval follow-up in 6 months to evaluate curve progression.
   B. Lateral bending films
   C. Magnetic resonance imaging
   D. Correction of curve with spine fixation hardware.

   **Correct Answer: C**

   **Rationale**
   Explanation: The finding of multilevel interpediculate distance widening needs MRI to evaluate for tumor. Answer A is incorrect. Interval follow-up for curve progression would be appropriate only if there was no suspicion of tumor. Answer B is incorrect. Lateral films are helpful in assessment of structural vs. non-structural curves in older children with larger curves. Answer D is incorrect. Not enough of a curve, too young, and there is a tumor.

   **References**

2. What distinguishes a structural curve from a non-structural curve?
   A. Correction on lateral bending film
   B. A >25% curve on ipsilateral side-bending radiographic view
   C. A lack of wedging or rotation of the vertebra
   D. A lack of progression during skeletal growth

   **Correct Answer: B**

   **Rationale**
   Explanation: A structural curve is defined as a >25% curve that does not correct on ipsilateral side-bending radiographic view. Answers A, C and D are incorrect. This is the definition of a non-structural curve.

   **References**
3. This alignment is called?
   A. Clubfoot
   B. Pes planus
   C. Metatarsus adductus
   D. Hallux valgus

   **Correct Answer: C**

   **Rationale**
   Explanation: The only alignment abnormality is forefoot adductus. The tibiocalcaneal and talocalcaneal angles are normal. Answer A is incorrect. There is forefoot adductus only, without hindfoot varus (decreased talocalcaneal angle) or equinus (increased tibiocalcaneal angle) alignment. Answer B is incorrect. There is no hindfoot valgus. Talocalcaneal alignment is normal. Answer D is incorrect. There is normal alignment at the first metatarsal-phalangeal joint.

   **References**

4. Findings associated with congenital vertical talus include:
   A. Decreased tibiocalcaneal angle
   B. Talonavicular association
   C. Flexible flatfoot
   D. Hindfoot valgus

   **Correct Answer: D**

   **Rationale**
   Answer A is incorrect. Congenital vertical talus has an INCREASED tibiocalcaneal angle with a plantarflexed calcaneus (equinus alignment). Answer B is incorrect. Congenital vertical talus has talonavicular DISSOCIATION. Answer C is incorrect. Congenital vertical talus is a RIGID deformity (“rigid rockerbottom”).

   **References**
5. A patient has the following radiographic findings:
- MINI-EPIPHYSES AT THE HIPS
- ROUNDED VERTEBRAL BODIES WITH MIDDLE TONGUE
- GENERALIZED EPIPHYSEAL HYPOPLASIA/DYSPLASIA
- BRACHDACTYLY

The most specific diagnosis is:
A. Short rib with/without polydactyly [SRP]
B. Pseudoachondroplasia [PSACH]
C. Diastrophic dysplasia [DD]
D. Multiple epiphyseal dysplasia [MED]

Correct Answer: B

Rationale
Explanation: In combination, these are the 4 most important radiographic diagnostic features of PSACH. Answer A is incorrect. SRP features include: moderate to severe rib shortening; no epiphyseal changes; normal spine. Answer C is incorrect. Diastrophic dysplasia features include: brachydactyly but hypoplastic first metacarpal; normal vertebral bodies but scoliosis; mild generalized epiphyseal dysplasia may be present. Answer D is incorrect. Although PSACH is within the MED group of disorders, PSACH is a more specific diagnosis here because of the characteristic spine, miniepiphyses and brachydactyly.

References
1. TAYBI & LACHMAN’S RADIOLOGY OF SYNDROMES, METABOLIC DISORDERS & SKELETAL DYSPLASIAS
   RS LACHMAN, 5TH EDITION, MOSBY/ELSEVIER 2007
2. BONE DYSPLASIAS, SPRANGER ET AL, 2ND EDITION OXFORD PRESS 2002

6. The most specific diagnosis in this case is:
A. Jeune dysplasia [ATD]
B. TRPV4-opathy
C. Type II collagenopathy
D. Spondyloepiphyseal dysplasia [SEDC]

Correct Answer: D

Rationale
Findings include: occipital ossification defect; hypoplastic cervical vertebrae; flat acetabular roofs; absent epiphyseal ossification at the knees; unossified pubic bones. Answer A is incorrect. Findings in Jeune dysplasia include a trident acetabulum, normal epiphyseal ossification, a normal spine, and no ossification defect at the skull base. Answer B is incorrect. TRPV4-opathy typically has metaphyseal changes at the hips, Halberd femurs, scoliosis and overfaced pedicles. Answer C is partially correct. Although these are the findings in a Type II collagenopathy, which one is it? SEDC.
References
3. TAYBI & LACHMAN’S RADIOLOGY OF SYNDROMES, METABOLIC DISORDERS & SKELETAL DYSPLASIAS RS LACHMAN, 5TH EDITION, MOSBY/ELSEVIER 2007
4. BONE DYSPLASIAS, SPRANGER ET AL, 2ND EDITION OXFORD PRESS 2002
5. NEMEC SF, COHN DH, KRAKOW D, FUNARI VA, RIMOIN DL, LACHMAN RS THE IMPORTANCE OF CONVENTIONAL RADIOGRAPHY IN THE MUTATIONAL ANALYSIS OF SKELETAL DYSPLASIAS... TRPV4-OPATHIES PEDIATR RADIOL (2012) 42;15-23