



Early Onset Scoliosis Podcast w/ Dr. Landrum Notes

Early onset scoliosis- spine curvature >10 degrees in frontal plane w/ age of onset before 10

- Congenital scoliosis
- Infantile scoliosis (<3 y/o)
- Juvenile scoliosis (4-10 y/o)

Congenital Scoliosis

- Etiology
 - Abnormalities of vertebral development in utero
 - May occur in isolation or with systemic diseases
 - Ex: VACTERL, Klippel- Feil Syndrome
 - Often progressive, may need earlier more aggressive treatment
- Mechanism
 - Failure of segmentation- bar
 - Failure of formation - hemivertebrae
 - Segmental defects w/ or w/o assoc rib fusion
- Imaging
 - Xray
 - Rib vertebral angle difference
 - Measures amount of rotation
 - >20deg = high risk progression
 - MRI - get in all patients prior to surgery
 - Look for: chiari malformation, syringomyelia, intradural lipoma, diastematomyelia

Infantile EOS- <3 y/o

- Often improves spontaneously

Juvenile EOS- 4-10 yrs

- Spinal growth
- Spine grows rapidly in 1st 5 years, slows from 5-10

Treatment

Untreated EOS

- Assoc w/ significant morbidity

- Cardiopulmonary compromise, respiratory failure and cor pulmonale

Treatment history

- casting/ bracing
- 1960's Harrington rod (worked via distraction across concavity)
 - Now vertical expandable prosthetic titanium device (VEPTR), hybrid systems
 - Complications: anchor malfunction, erosion through rib, rod breakage, kyphosis, wound complications
- Spinal fusion - young pts developed severe restrictive lung disease
 - Exception to early spinal fusion
 - Hemivertebra w/ contralateral bar
- Guided growth
- Compressive based strategies

Congenital scoliosis treatment

- r/o assoc anomalies
- If progression- surgery
- ASF/PSF w/o instrumentation
- Hemivertebrectomy

Infantile IOS Treatment:

- RVAD >25 - observe
- RVAD 25-40= cast/brace/MRI
 - Concern for multiple anesthesia events
 - Repeat every 8-12 weeks
- >55- MRI +/- surgery

Assoc w/ thoracic insufficiency?

- Osteotomy of rib fusions + place VEPTR or MAGEC expansion rods?

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Sources:

Yang, S., Andras, L. M., Redding, G. J., & Skaggs, D. L. (2016). Early-onset scoliosis: a review of history, current treatment, and future directions. *Pediatrics*, 137(1).