Infantile Idiopathic Scoliosis; Variations in Preferred Treatment Options

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From:

Growing Spine Study Group

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Disclosures

Infantile Idiopathic Scoliosis; Variations ……..

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Growing Spine Study Group	None

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d. Speakers' Bureau
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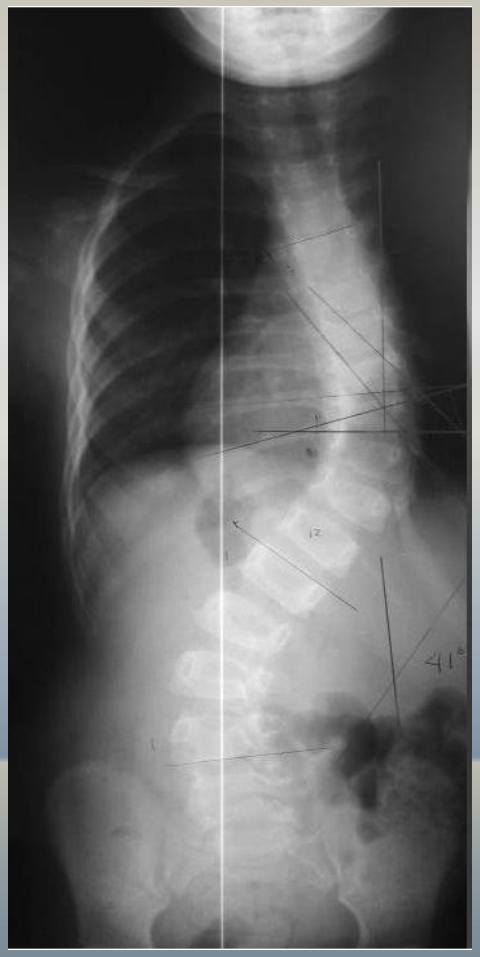
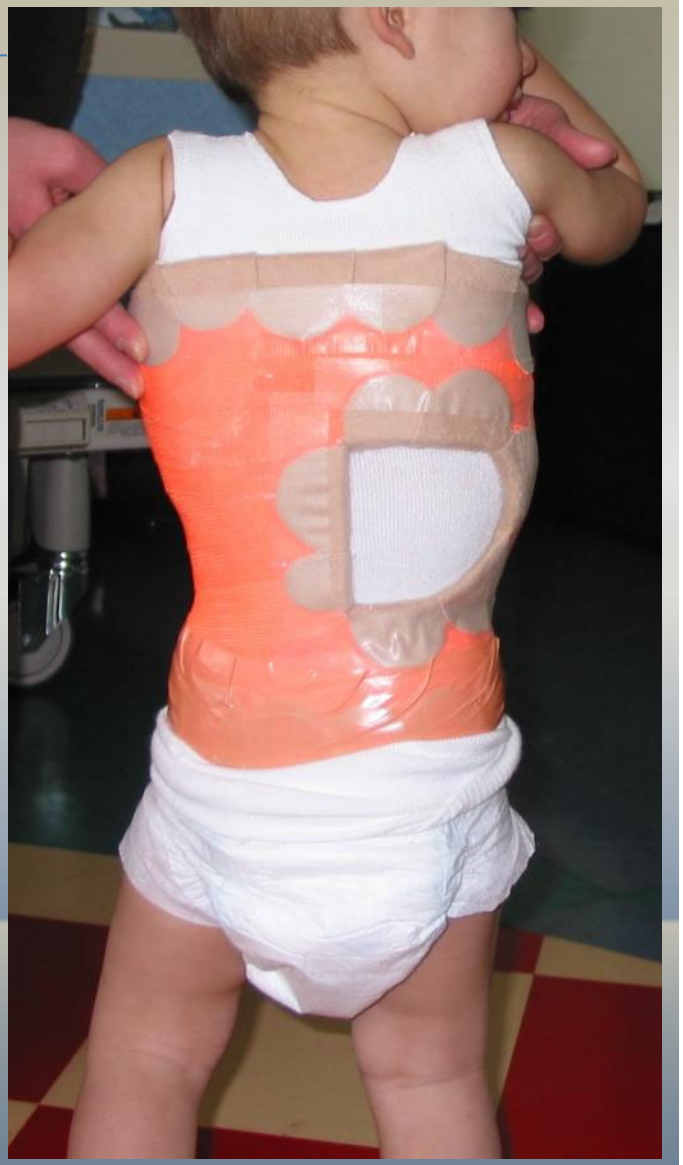
Introduction

- Treatment of early onset scoliosis is proven to be challenging
- Different surgical and non-surgical techniques have been used to treat this group of patients
- There is a paucity of data on definitive treatment of early onset scoliosis

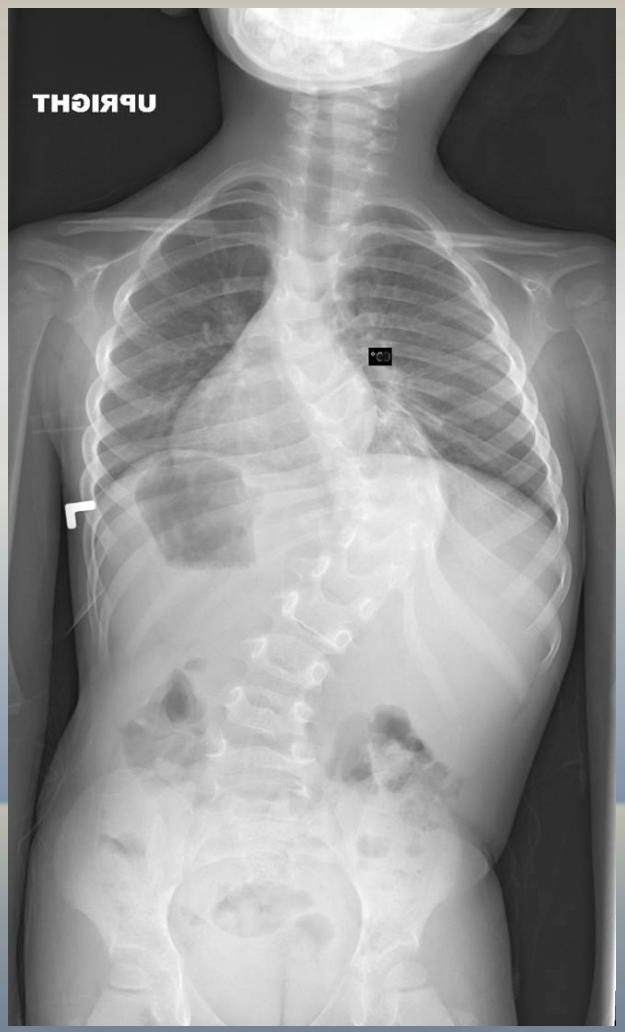
Non-Operative

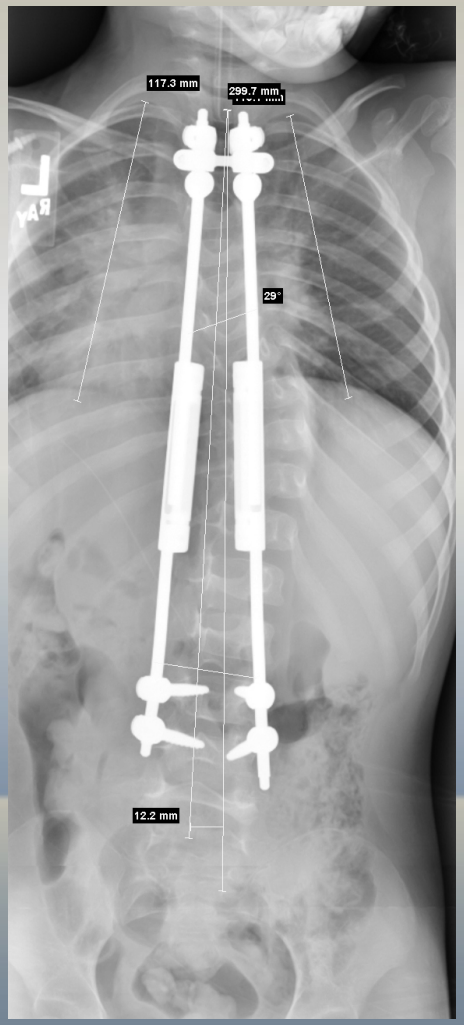


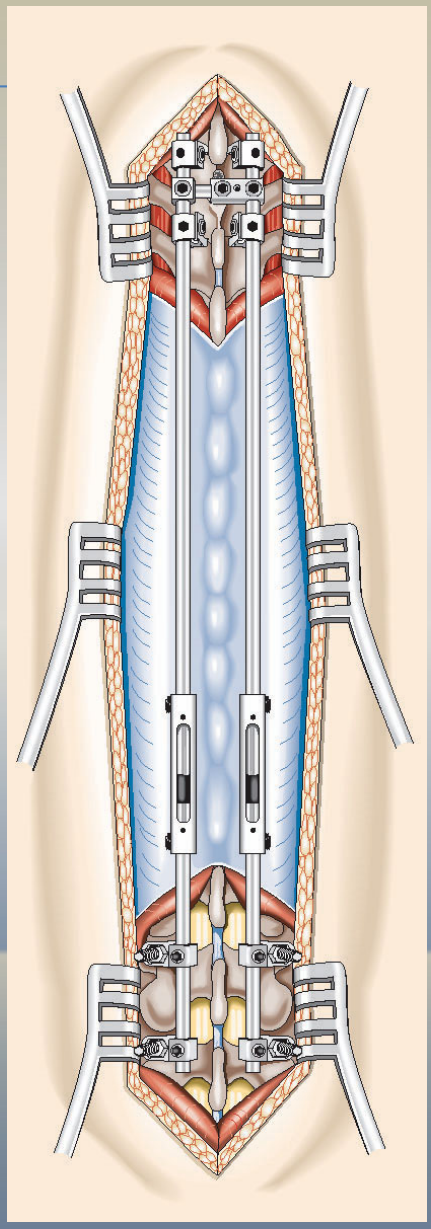


Photos curtsey of James O. Sanders, MD

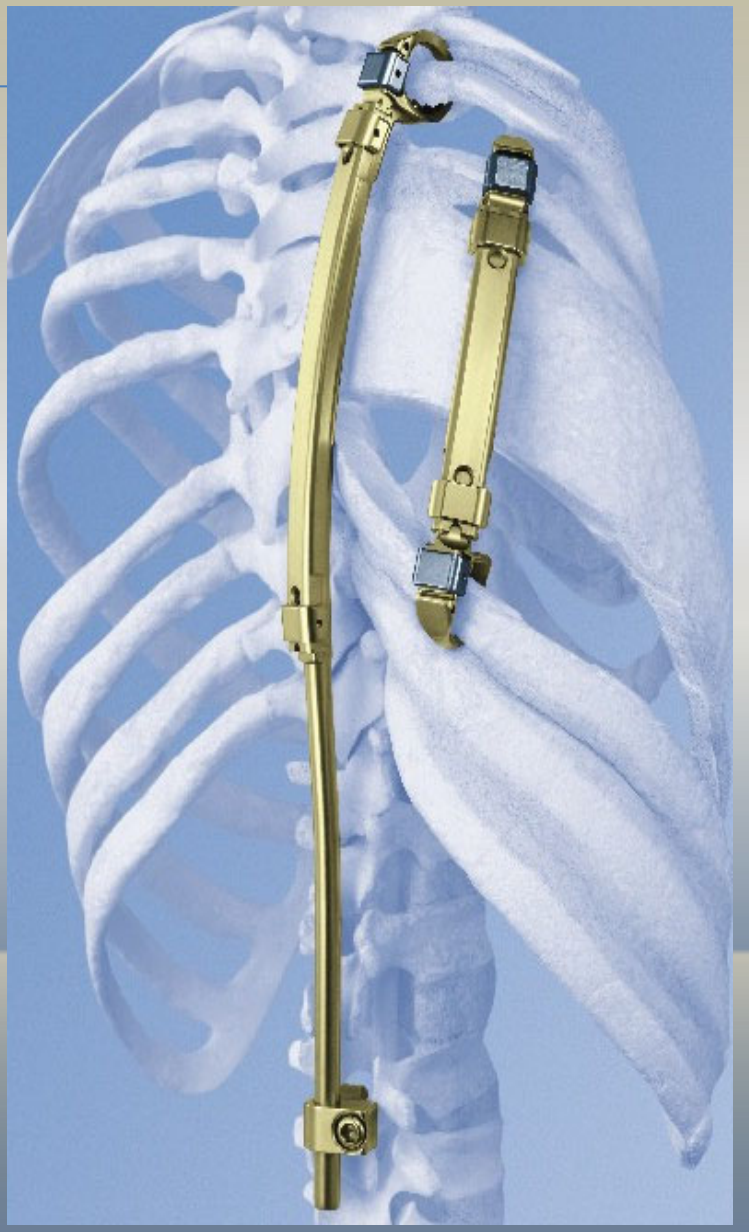
Growing Rods





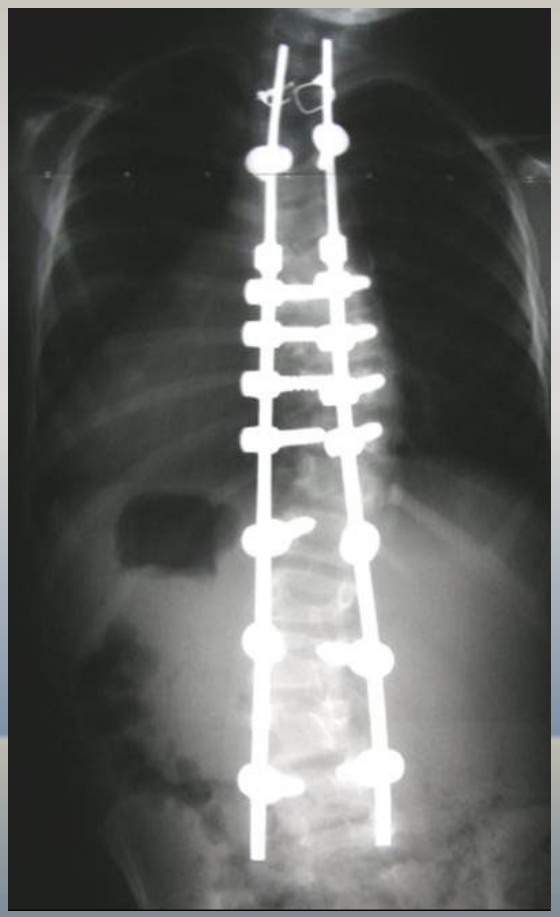


VEPTR



Photos curtsey of Synthes Spine

SHILLA



Photos curtsey of Richard McCarthy, MD

Purpose

- The purpose of this study is to evaluate the variation of preferred treatment options specifically for infantile idiopathic scoliosis among a contemporary group of specialized surgeons

Methods

- Eleven patients with infantile idiopathic scoliosis with mean curve size of 87.5° (72° -109°) were included
- Mean age was 51 months (20-84)
- A case scenario was created for each patient including the initial clinical photo and radiographs (AP and lateral)

Methods

- A power point presentation of all information on eleven cases and a response sheet were sent to forty surgeons
- Participants were asked to select the treatment option they would prefer for each patient

Case Num.	Distraction Based (Spine) ex: Growing rod							
	Single Rod	Dual Rod	Hooks proximal & distal	Screws proximal & distal	Hooks proximal Screws distal	Rod Size	Proximal Anchors Levels	Distal Anchors Levels

Distraction Based (Ribs) - ex: VEPTR					Growth Directed - ex: Shilla				Definitive Fusion Immediately	Non-Operative		
Rib to Rib	Rib to Spine	Rib to Pelvis	From	To	Screws	Wires	Shilla screws levels	Apex screws levels	(Levels)	Cast	Brace	Observe

Results

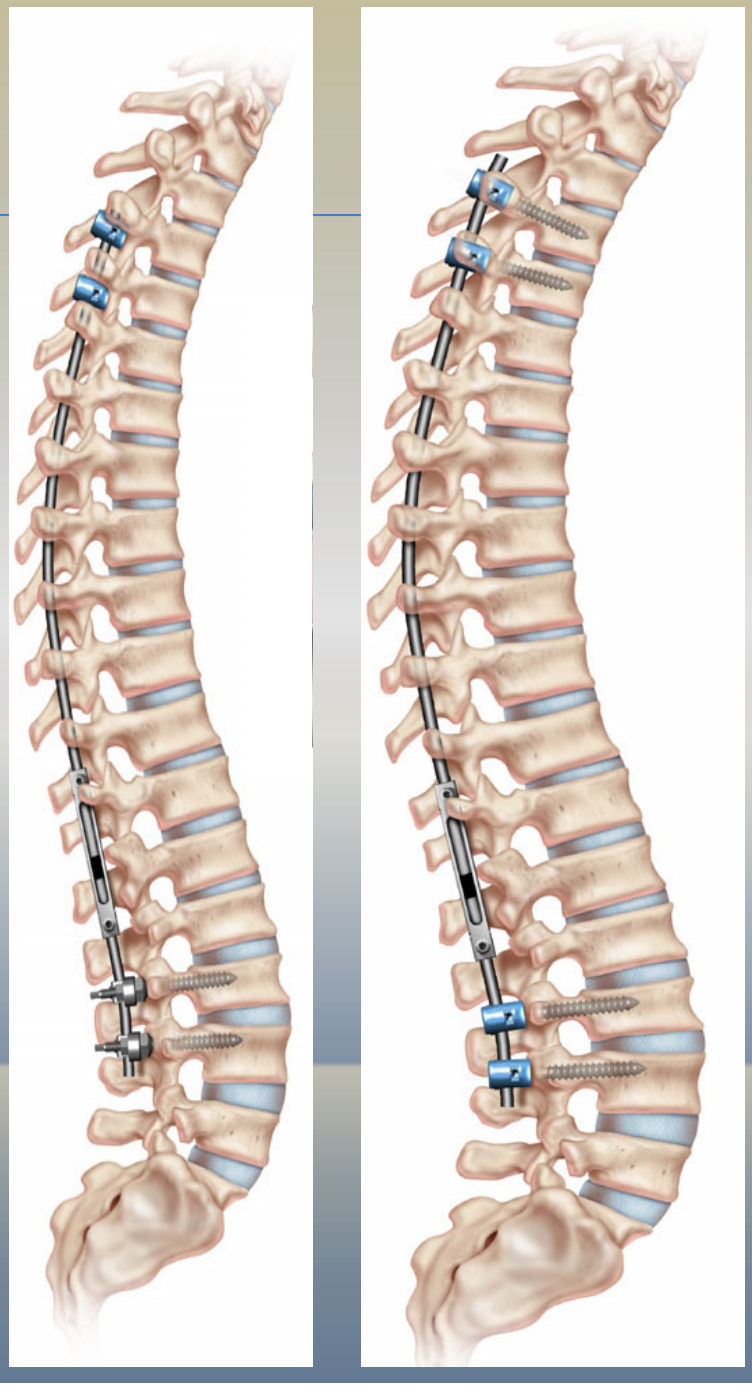
- 17 surgeons participated in the study
- Surgery was recommended in 83% of cases, most options involved off-label use of currently available pediatric implants
- 87% of all non-operative treatments were casting
- Mean curve size for patients treated non-operatively and operatively was 76° (72°-90°) and 81° (72°-109°) respectively

Results

- Growing Rod was the most commonly used technique (57%)
- In Growing Rod group, a single rod was suggested in 14% and 4.5mm rods were used in 50%
- There was a notable variation in type and level of anchors in the Growing Rod group

Results

- Screws in both proximal & distal: 48.1%
- Proximal hooks and distal screws: 37.7%



Results

- Hooks in both proximal & distal: 2.8%
- Did not specify anchors type:11.3%

Results

Variation in anchor level:

- Proximal
  - T1-T3: 10%
  - T2-T4: 59%
  - T3-T4: 23%
  - T4-T6: 8%
- Distal
  - T10-L1: 3%
  - L1-L3: 48%
  - L3-L4: 40%
  - L4-L5: 5%
  - Pelvic fixation: 4%

Results

- Shilla and VEPTR were recommended 15% and 7% respectively
- In VEPTR group, 85% used Spine to Rib anchors
- In SHILLA: 83% of selected foundations were between T2-T4 and L2-L5, there was a considerable variation between number and levels of apical fusion

Results

- The greatest agreement among surgeons polled was seen in a 6 y.o. with no kyphosis
- The greatest variation was in a 2+6 y.o. child with almost the same curve size and flexibility, but with thoracolumbar kyphosis of 35 degrees

Conclusions

- Significant variations exist in recommended treatment options for EOS
- Non-operative treatment continues to be recommended even in children with large size curves
- Most of surgical treatments involved off-label use of pediatric spine implants
- Long-term outcome based data is needed to elucidate which treatment option best serves this variable group of patients