

Treatment Outcomes in Early Onset Scoliosis

Did We Help This Child?

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Columbia University Medical Center



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Pediatric Orthopaedic Surgery

Case Presentations: Questions for Panelists

- What would you do ?
- What evidence (if any) supports your decision?
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 - Natural hx
 - Life expectancy
 - Pulmonary
 - Quality of Life
 - Other

Case One

18 mo Jehova's witness with HGPPS
(horizontal gaze palsy with progressive scoliosis)



Failed brace/ cast

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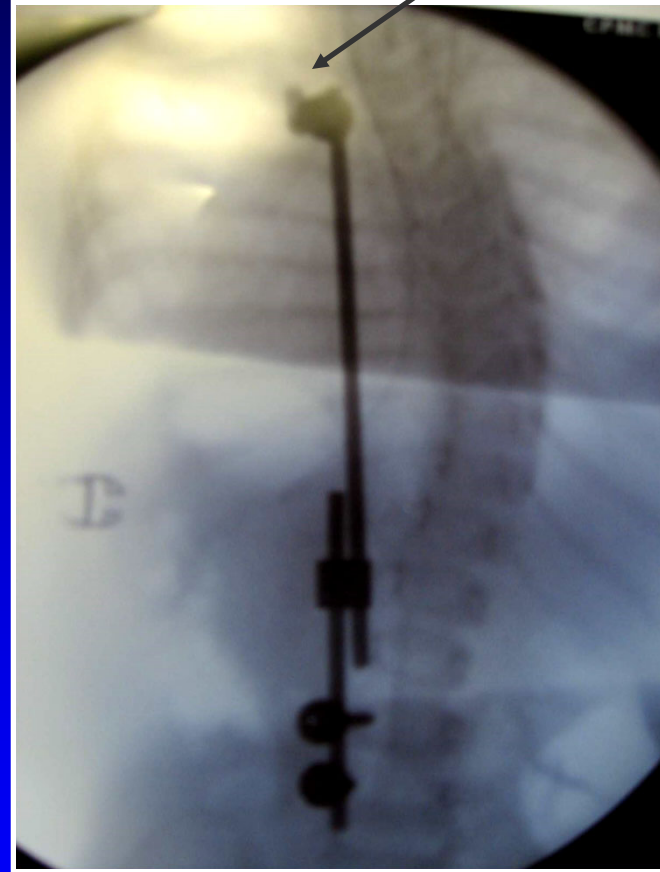
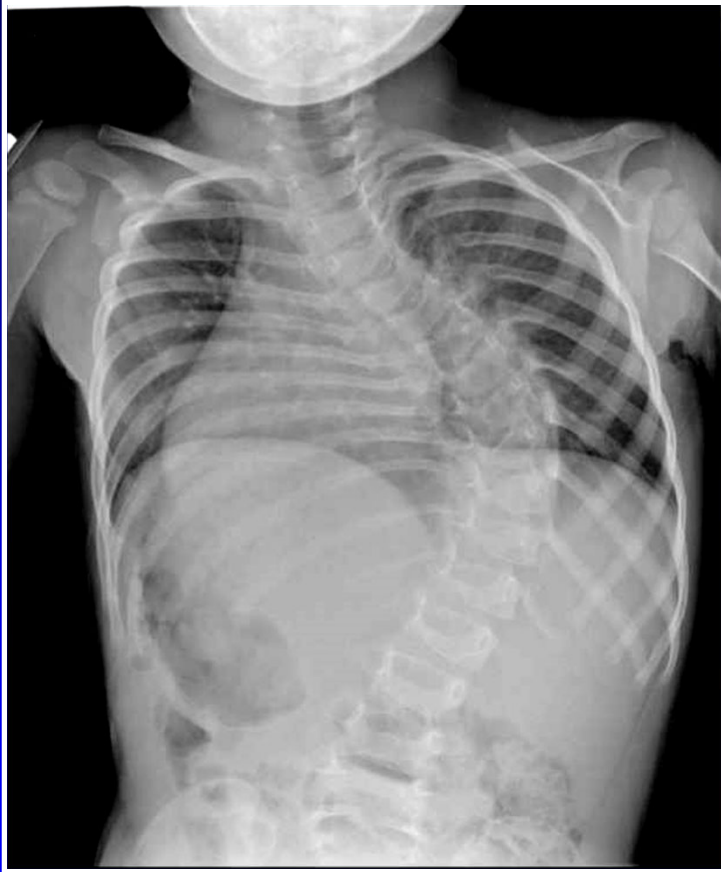
18 mo with progressive scoliosis



Pedicle Screws- L3 and L4

Intra Op Correction with rib/pedicle hybrid

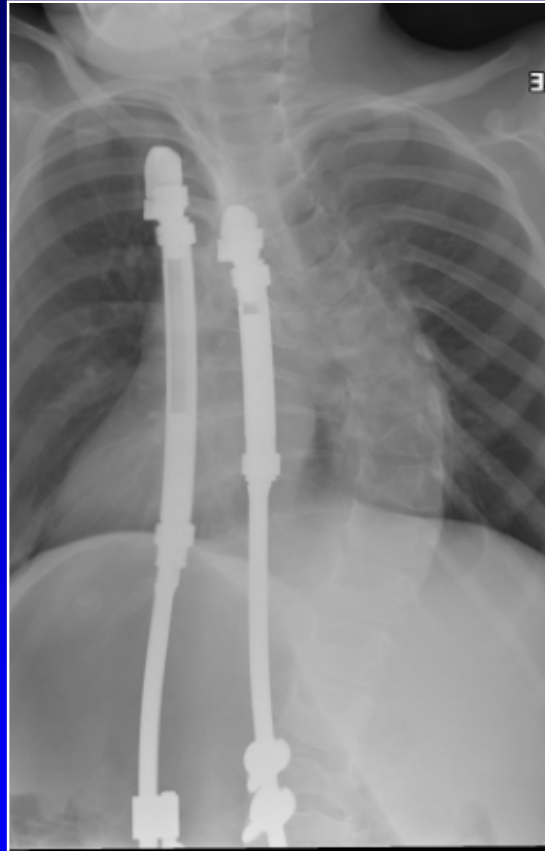
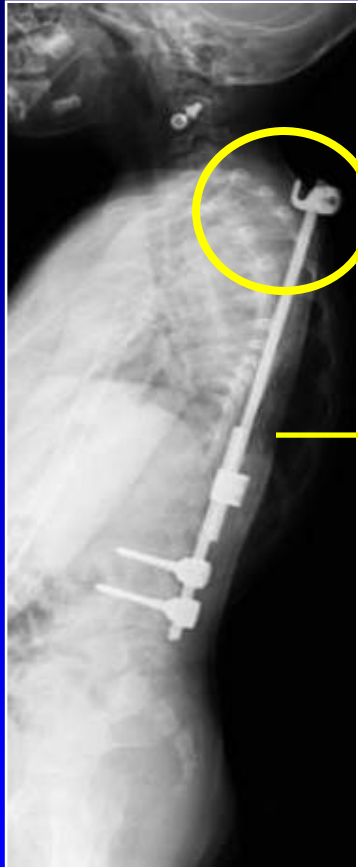
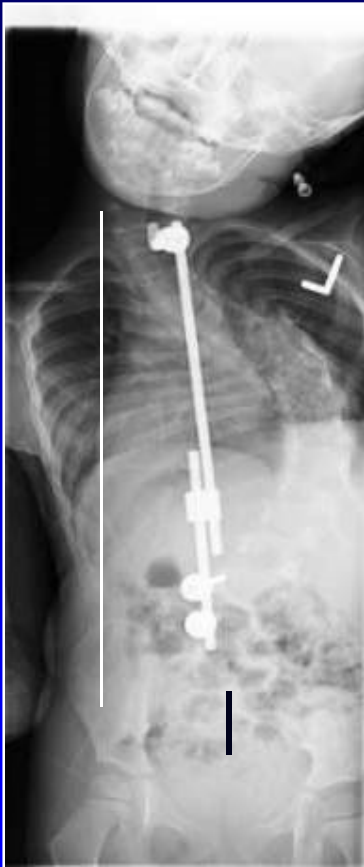
Avoid Spine
When Possible



One Week Post OP



2.5 years post op: Conversion to VEPTR Now 4 years post op



Next Case



46 deg

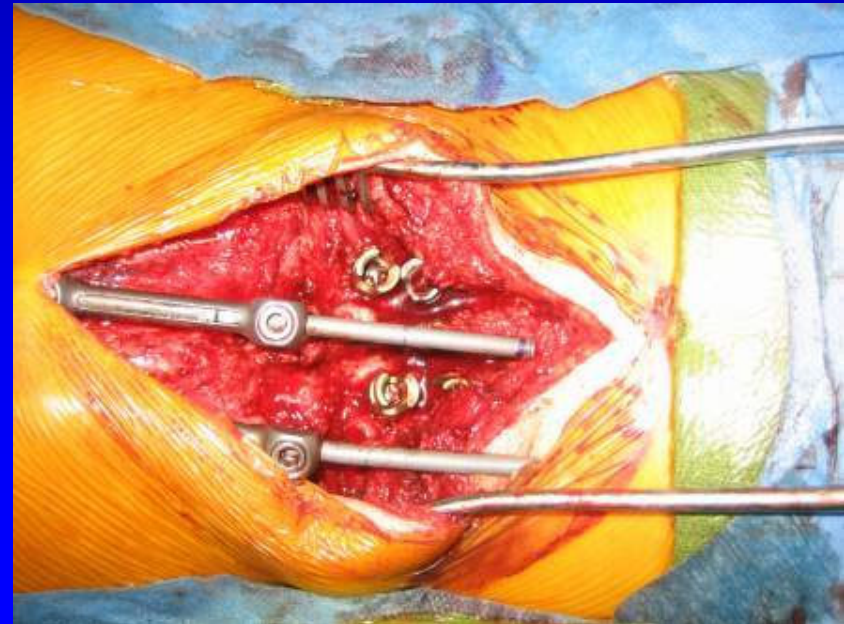
96 deg

**FC: 2 yo; CMD; Failed Brace
Significant Kyphoscoliosis**

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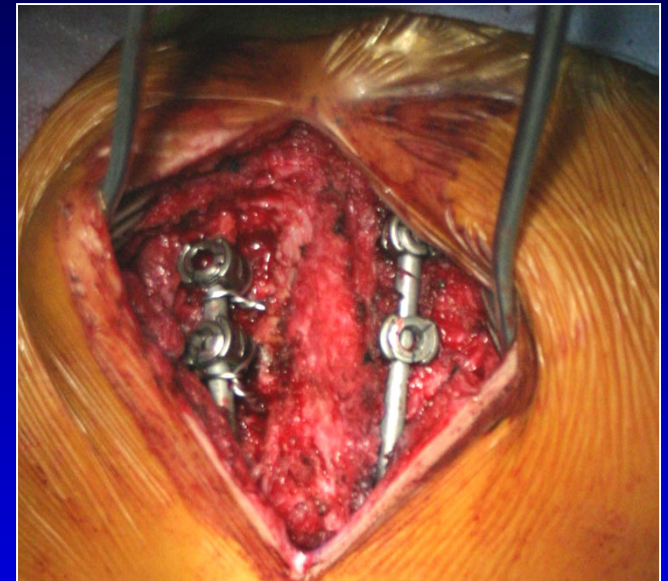
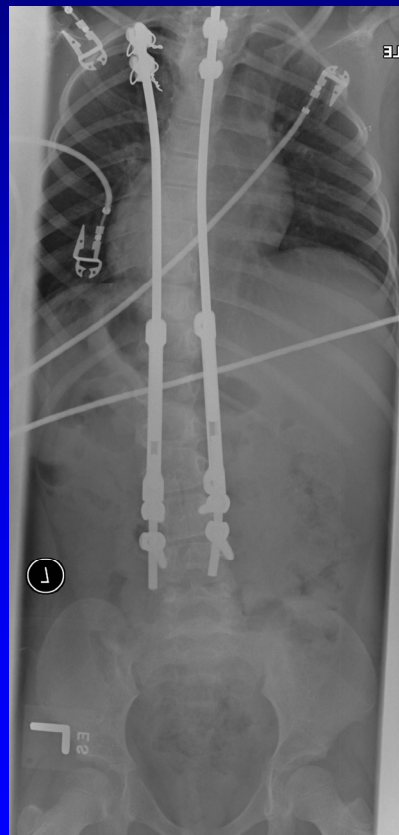
Growth Rod After Halo



Growing Rods for Kyphoscoliosis

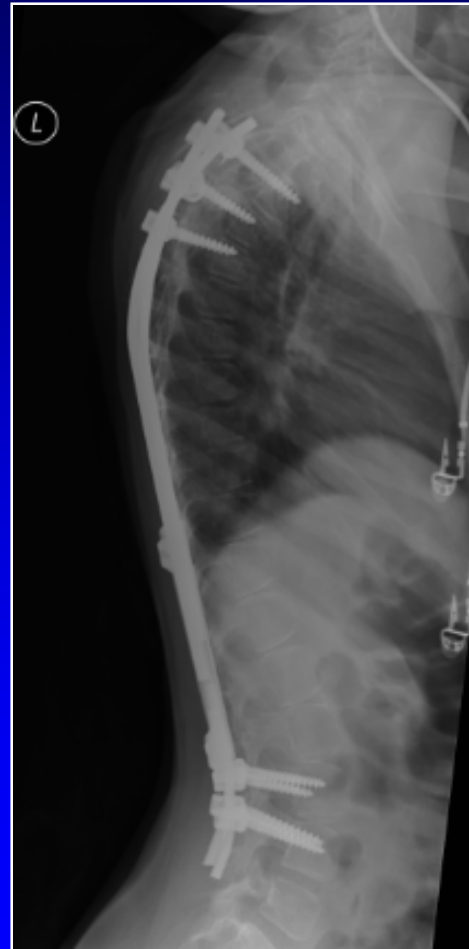
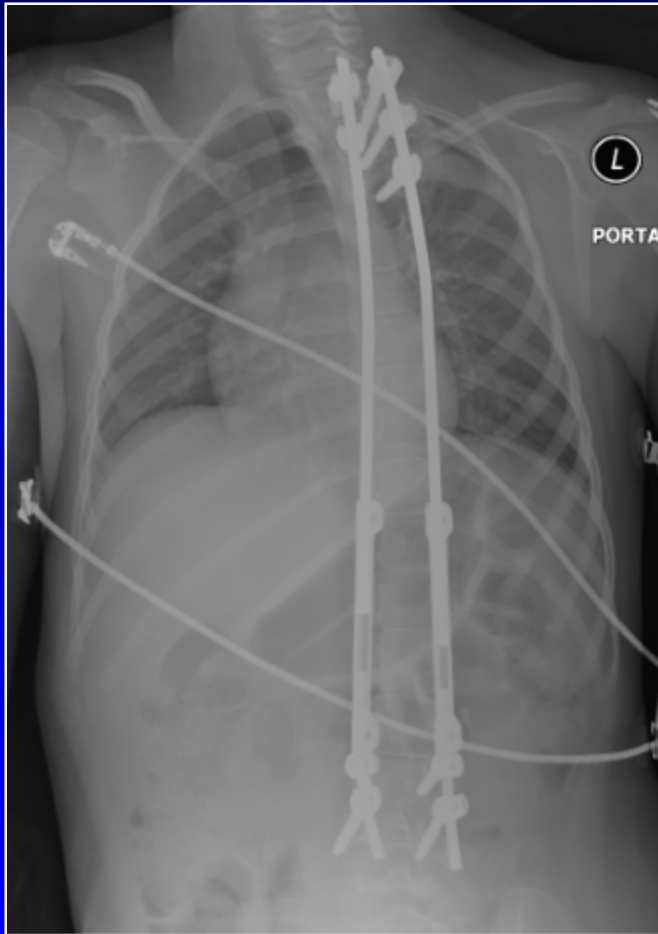


Failed Claw: Revision to Proximal Rib Construct



4.5 y/o

Failed Rib: Change to Proximal Screws @ 6 yo

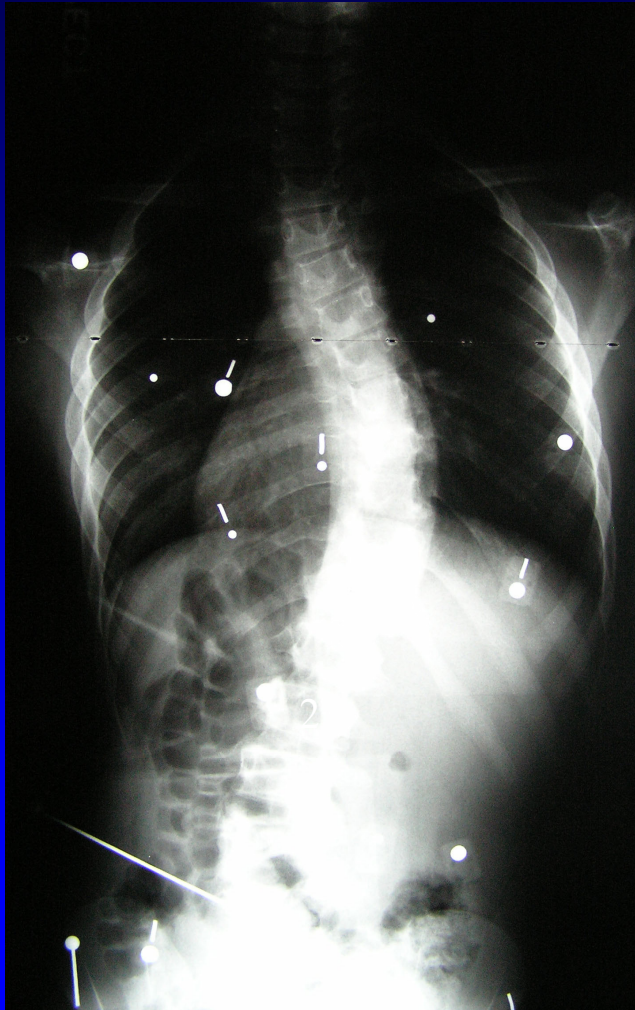


PJK

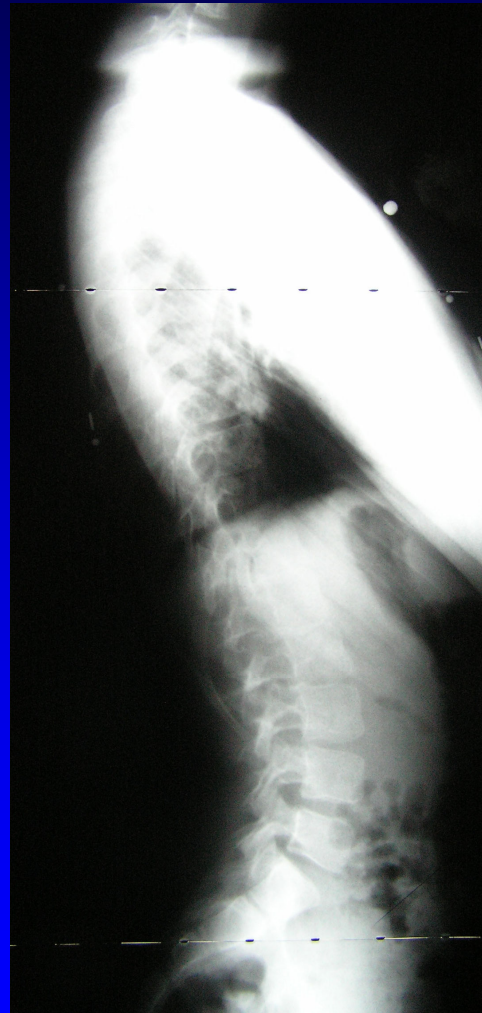
Next Case

9+8 years G

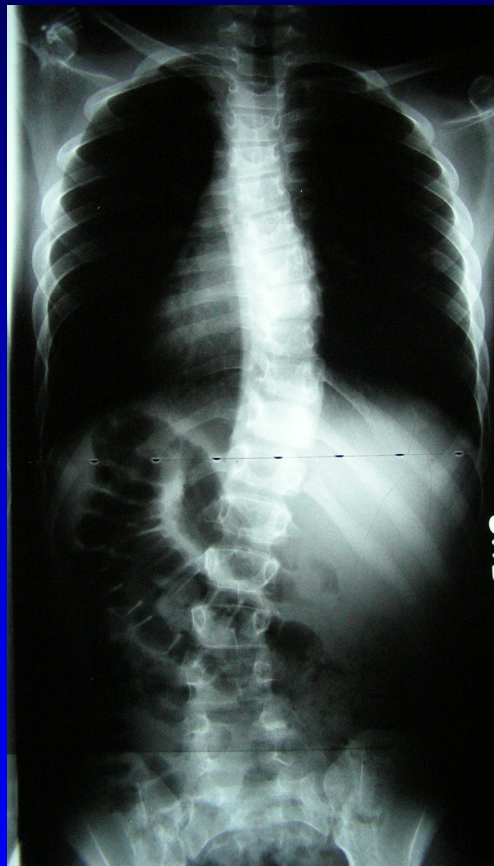
55°



24°



Supine



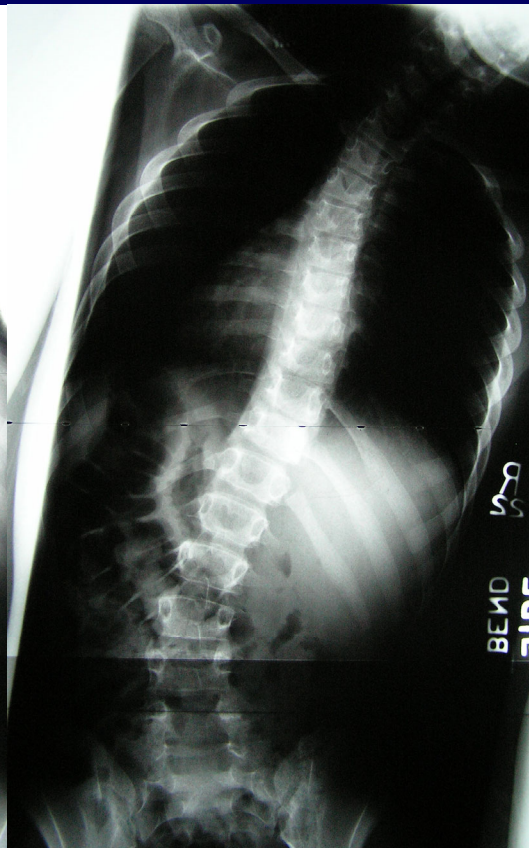
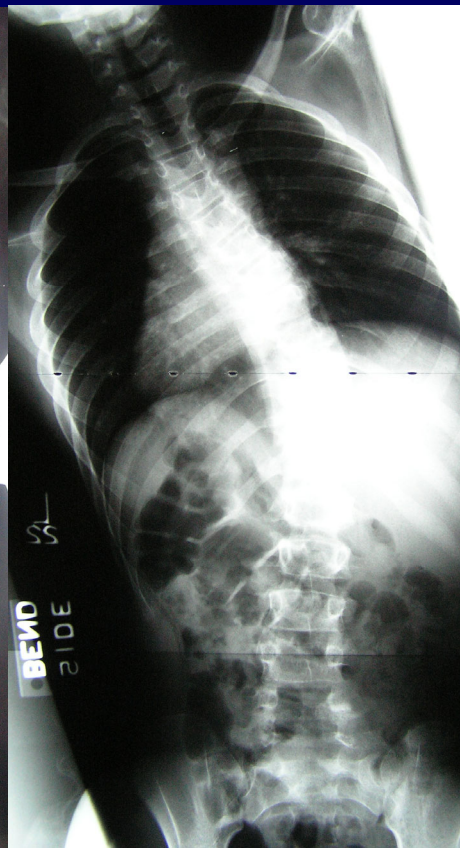
34°

Push prone

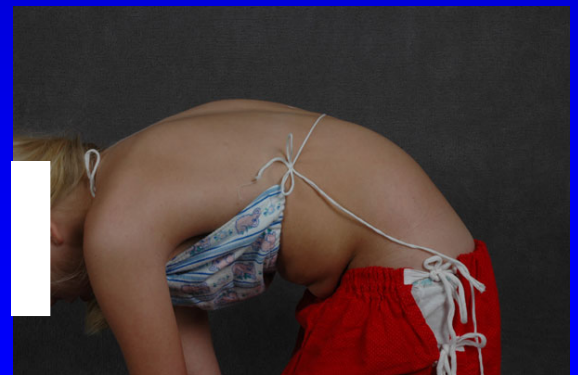


10°

Sidebenders



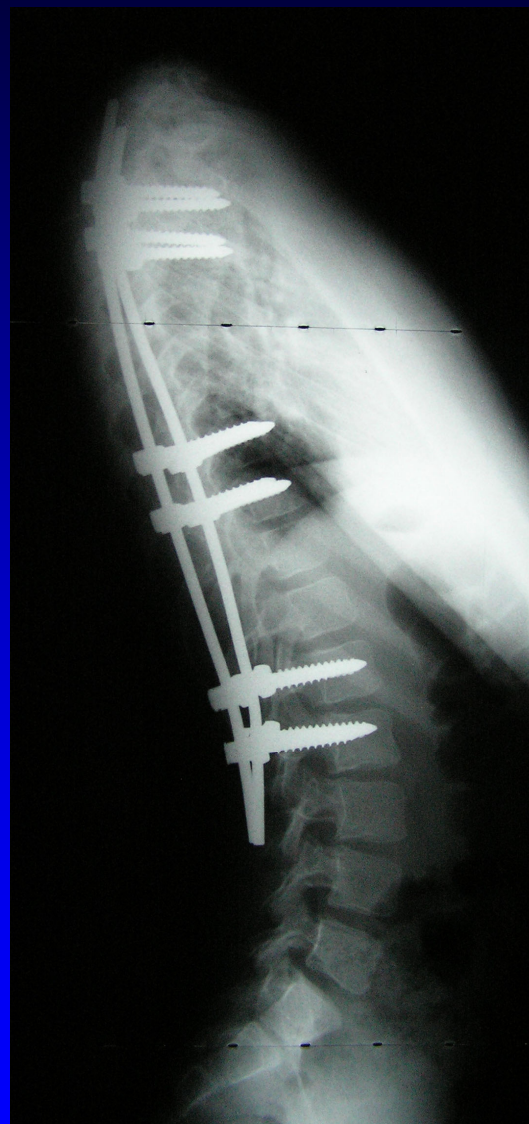
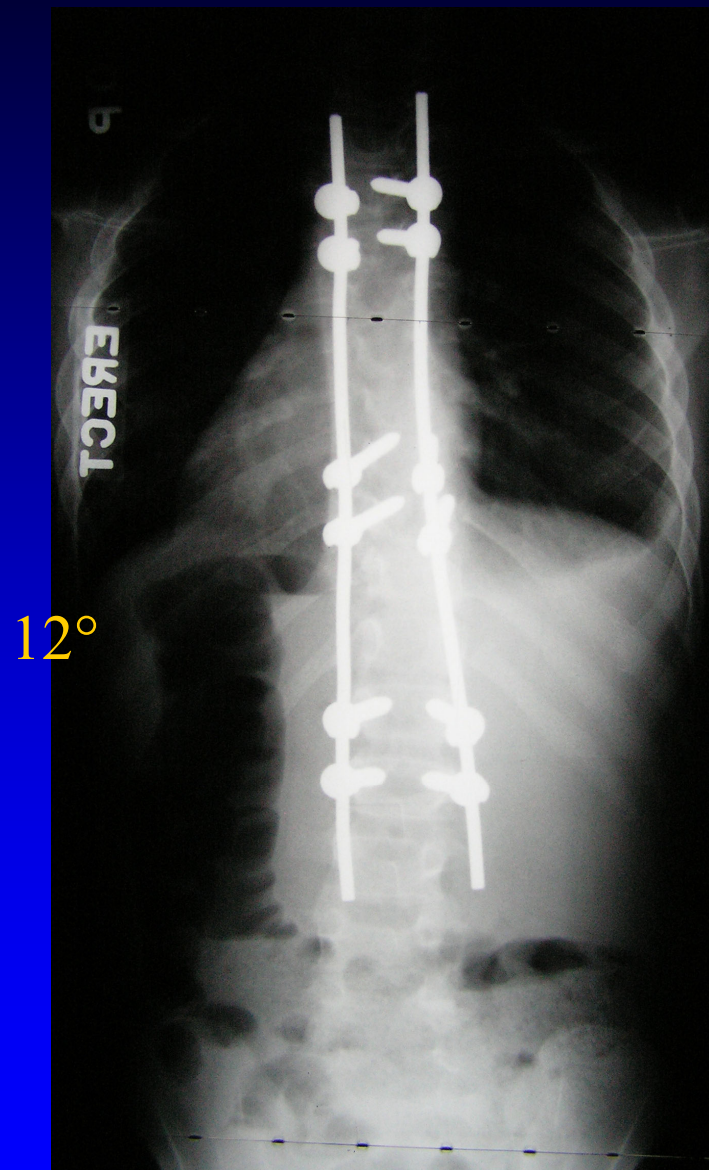
17°



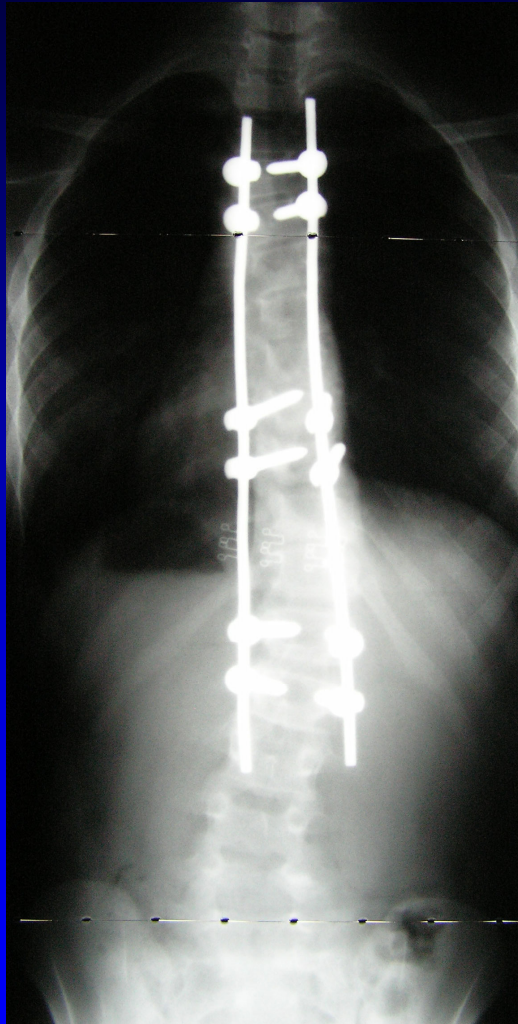
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SHILLA



1 year postoperative

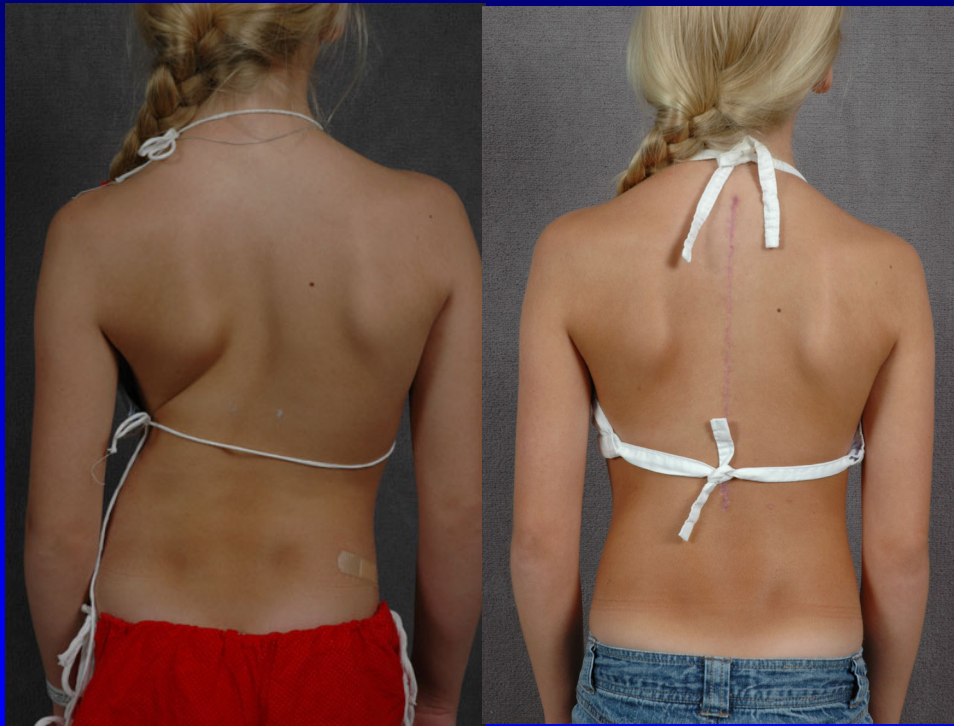


16°

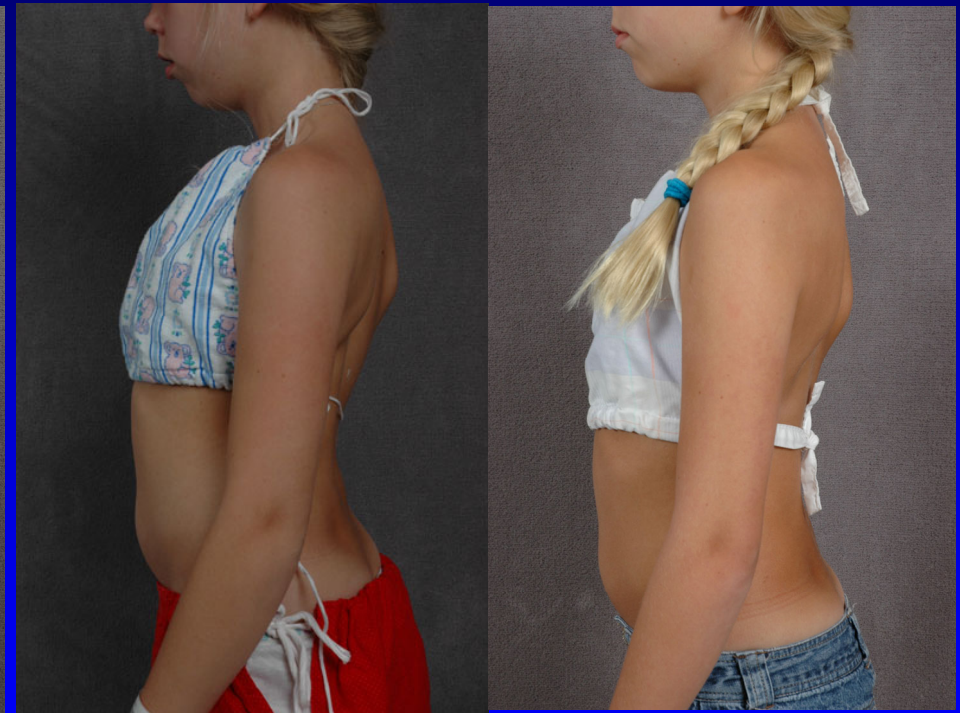


25°

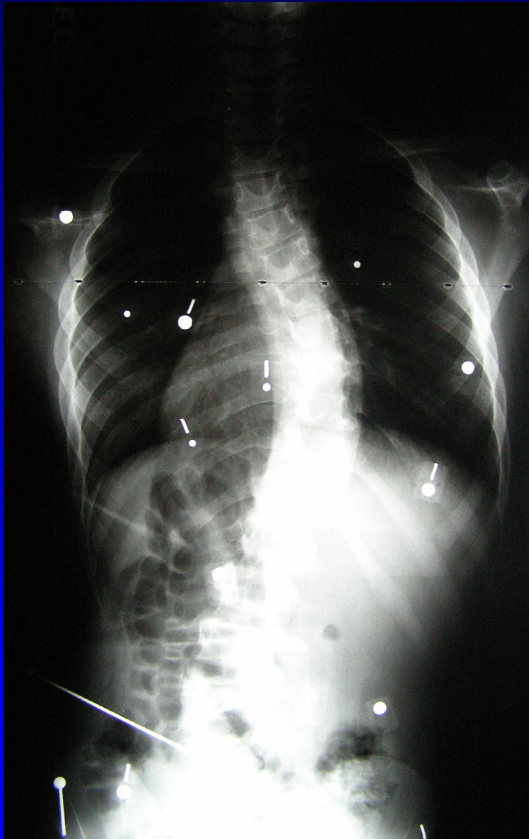
2 months
postop



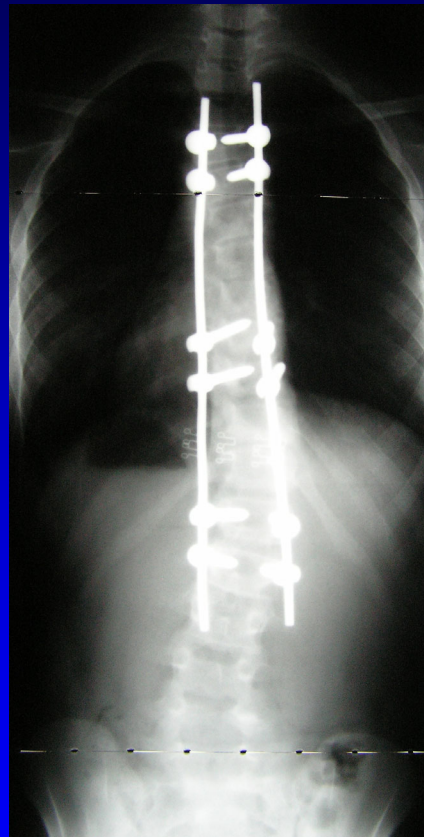
2 months
postop



1 year postoperative



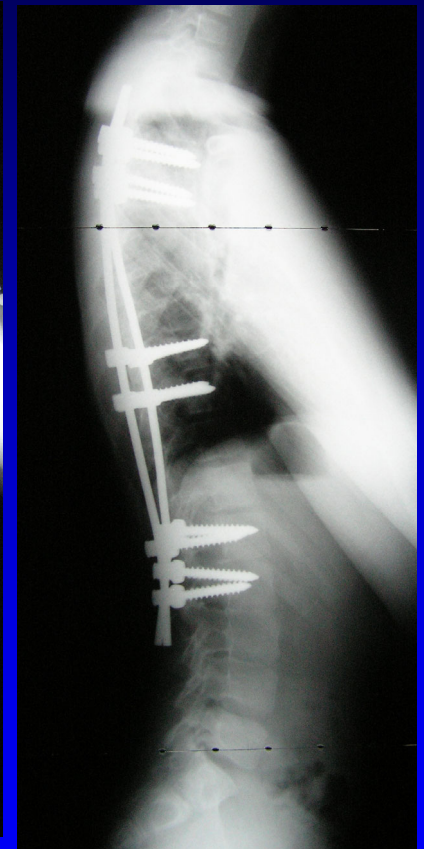
55°



16°



24°



25°

1 year postoperative

- Standing height

- Preop 148.0 cm

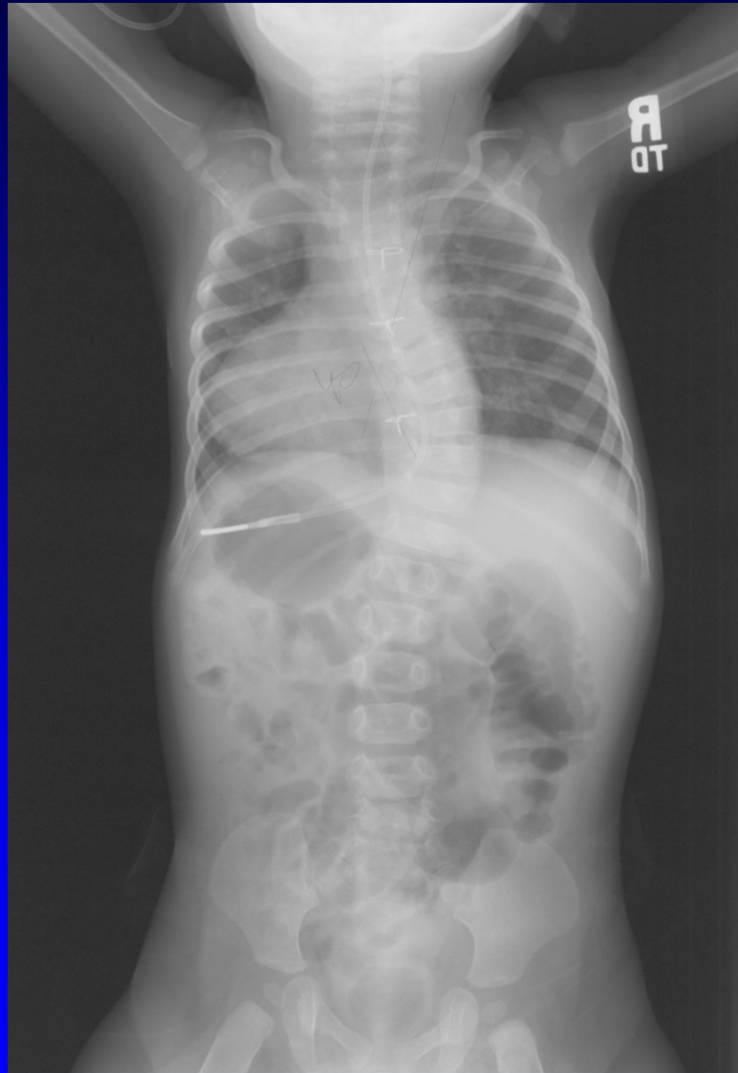
- 4 month f/u 152.0 cm

- 1 year f/u 156.8 cm

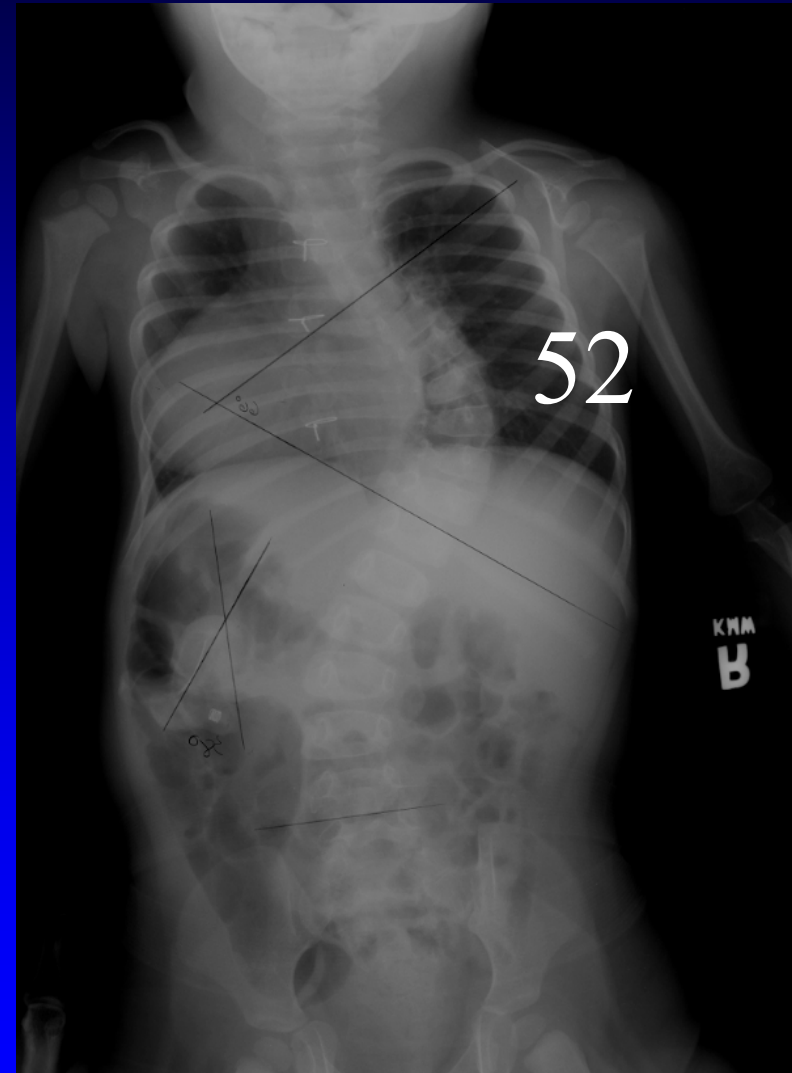
} 8.8 cm increase
postoperative

Next Case

April 2005

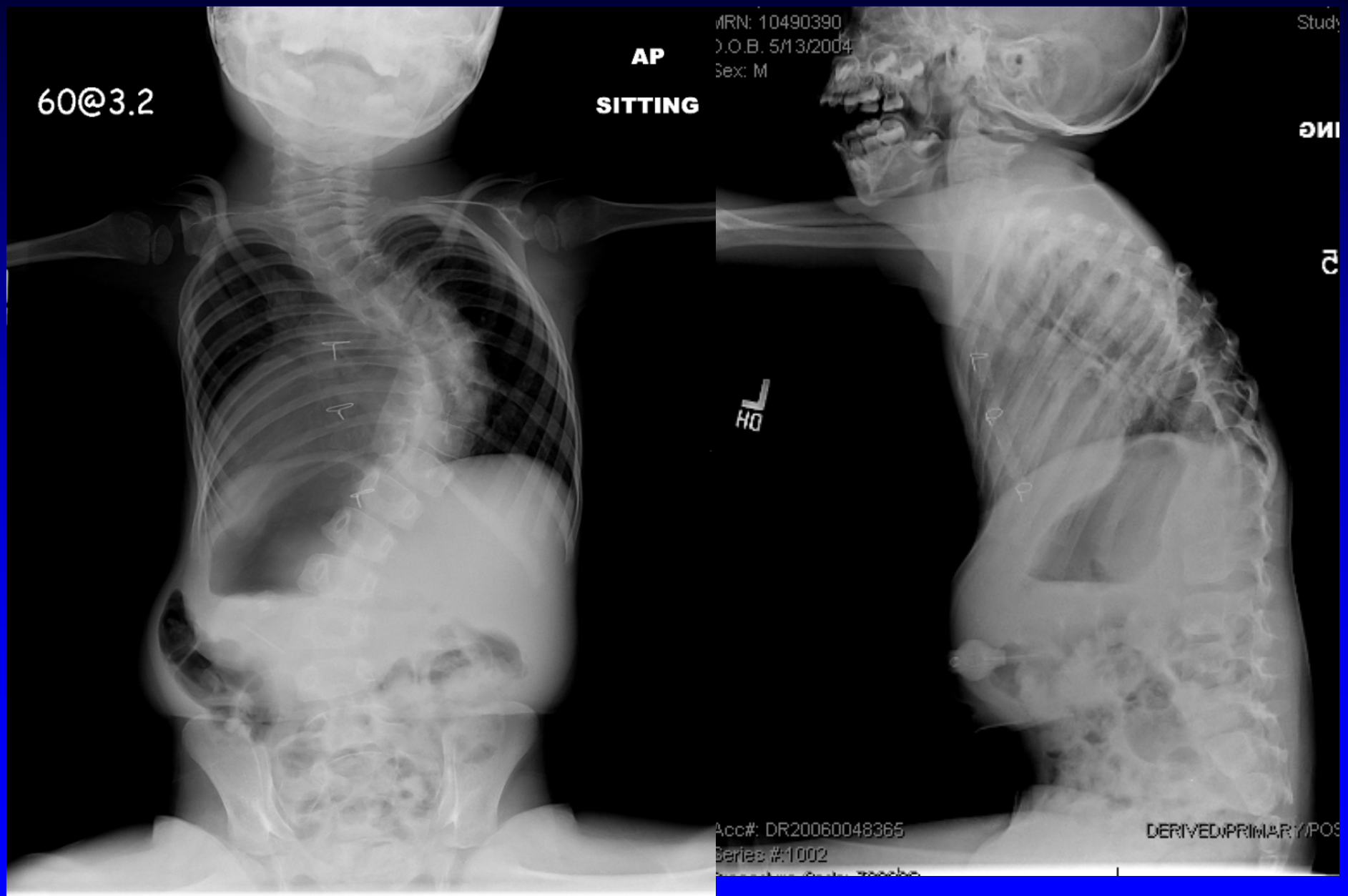


October 2005



2yo, thoracogenic scoliosis

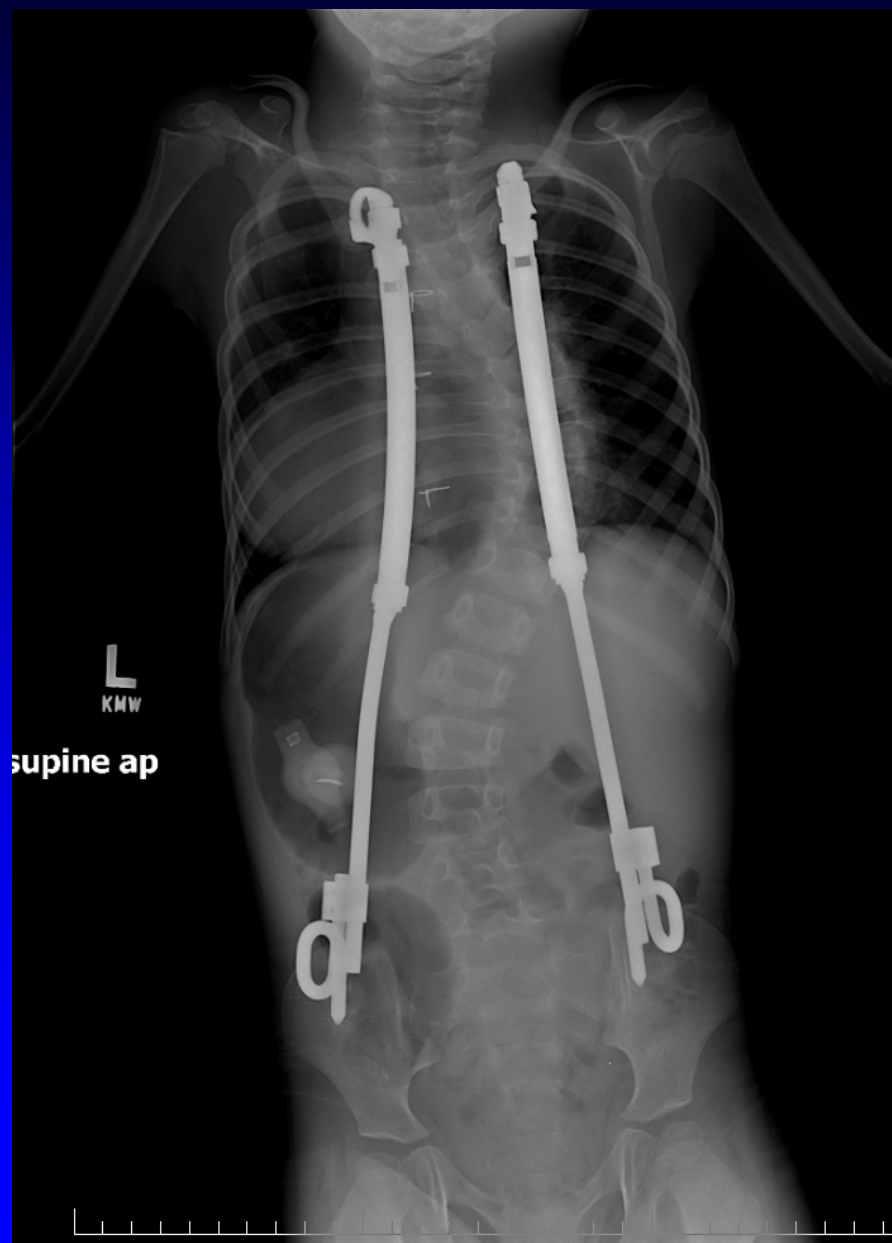
November 2006



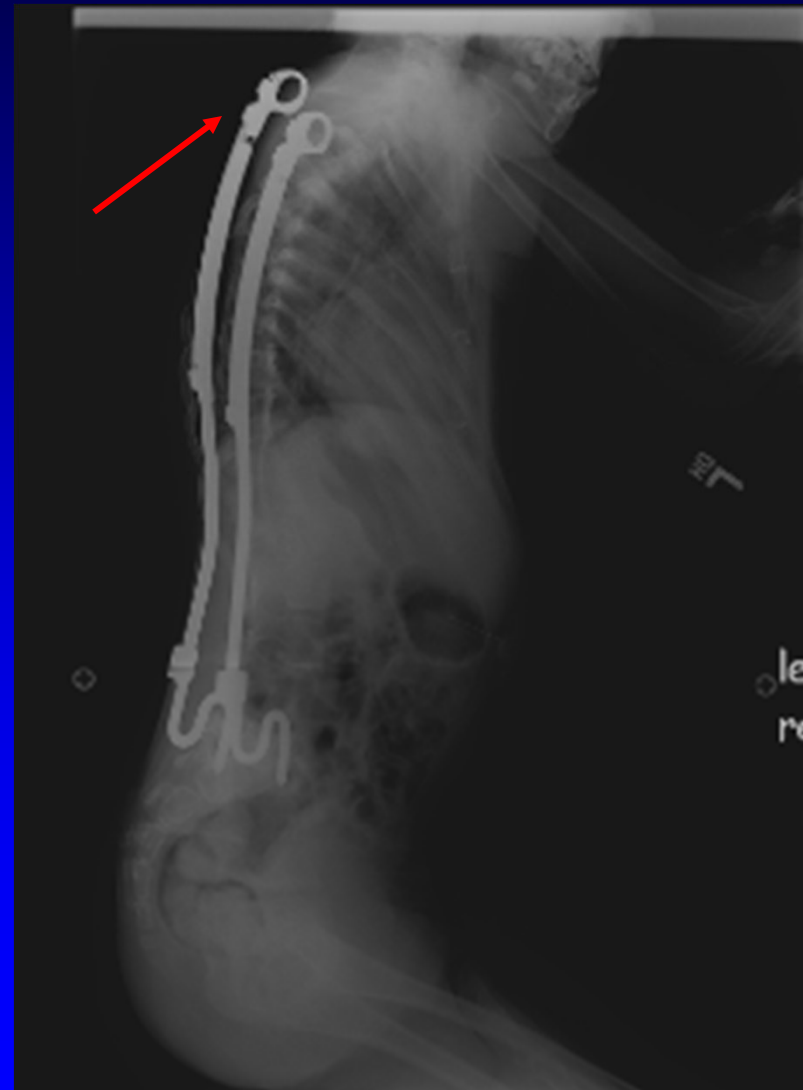
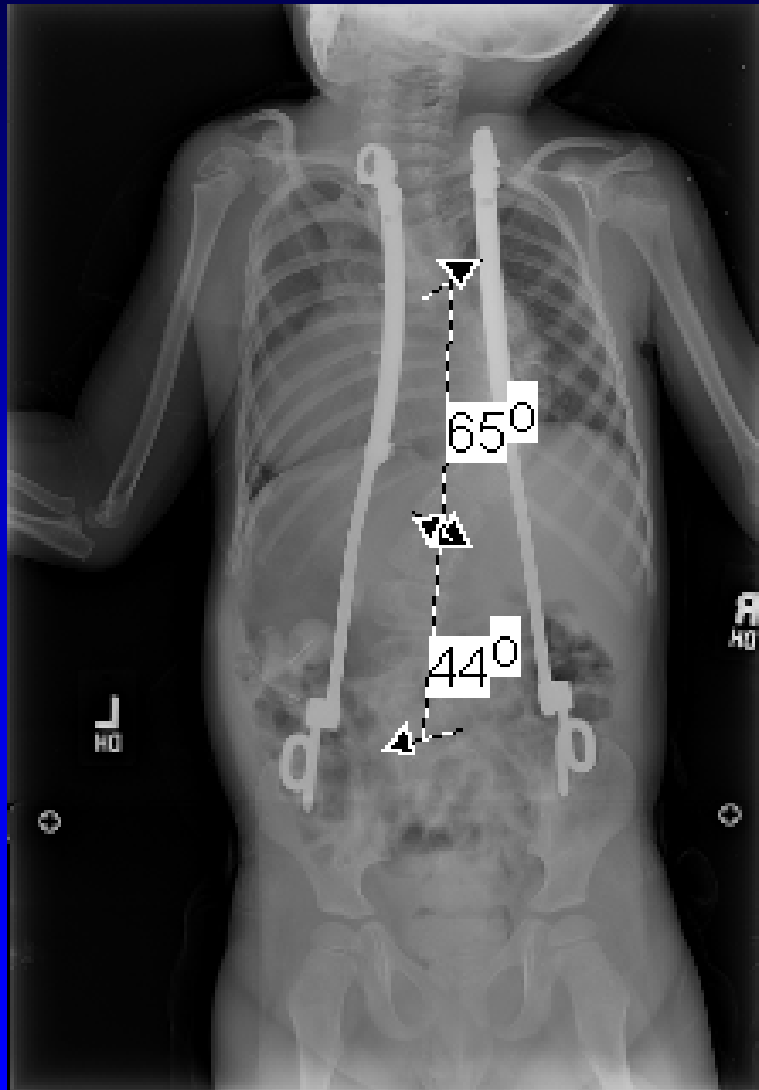
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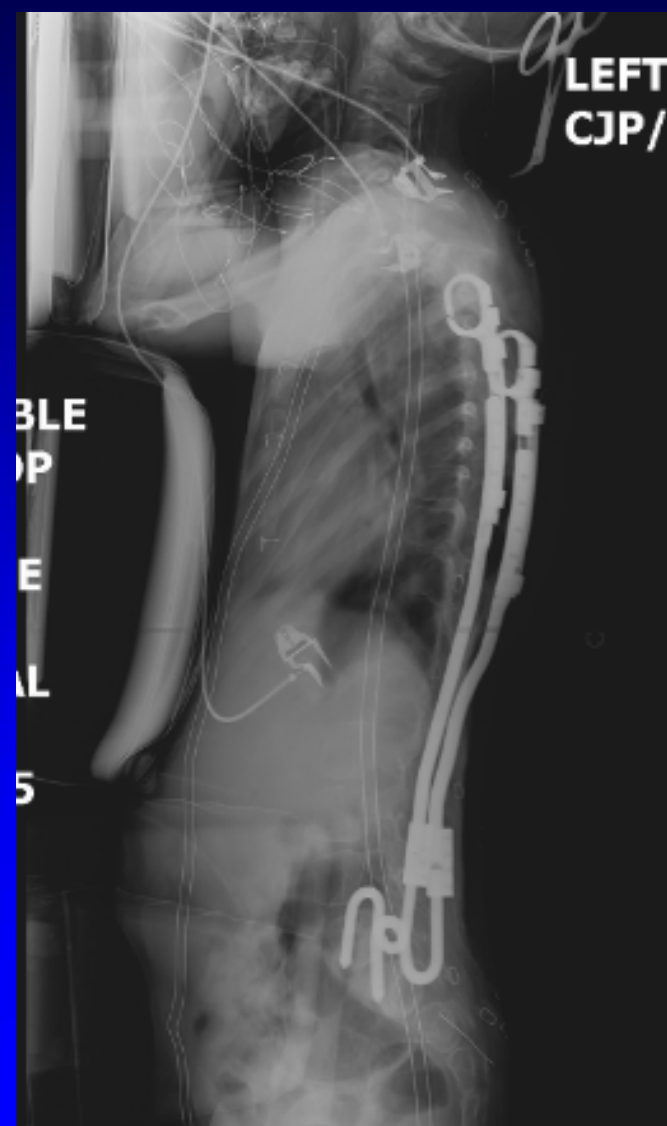
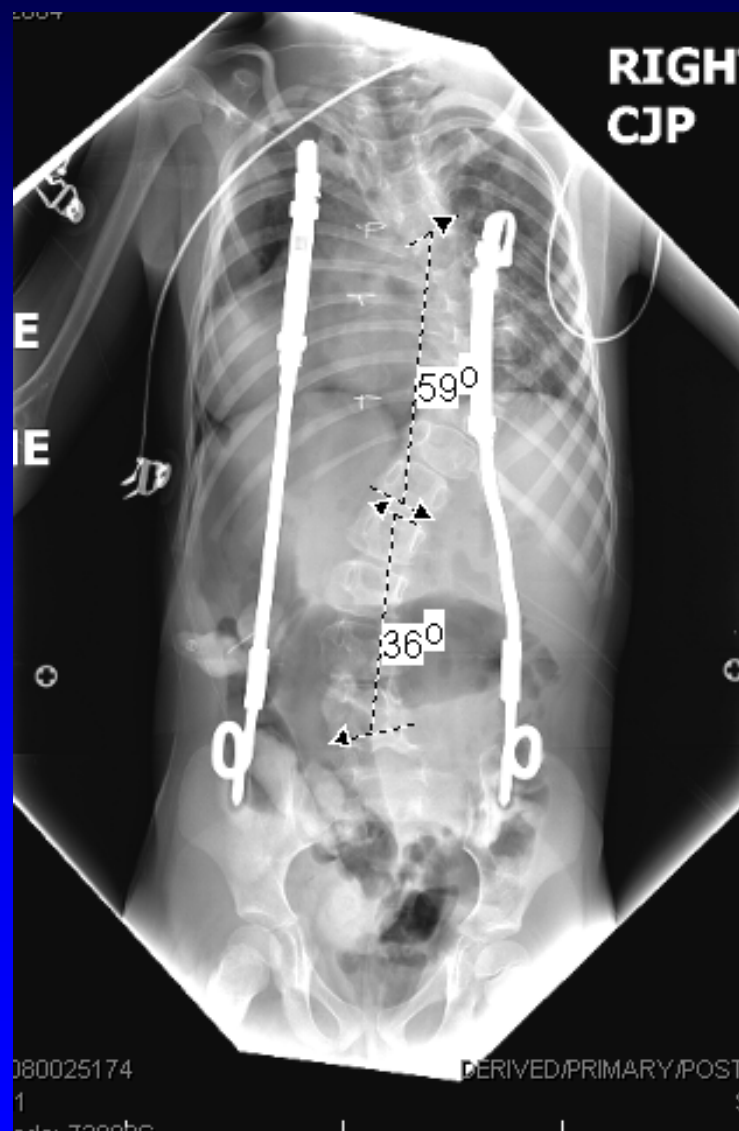
December 2006



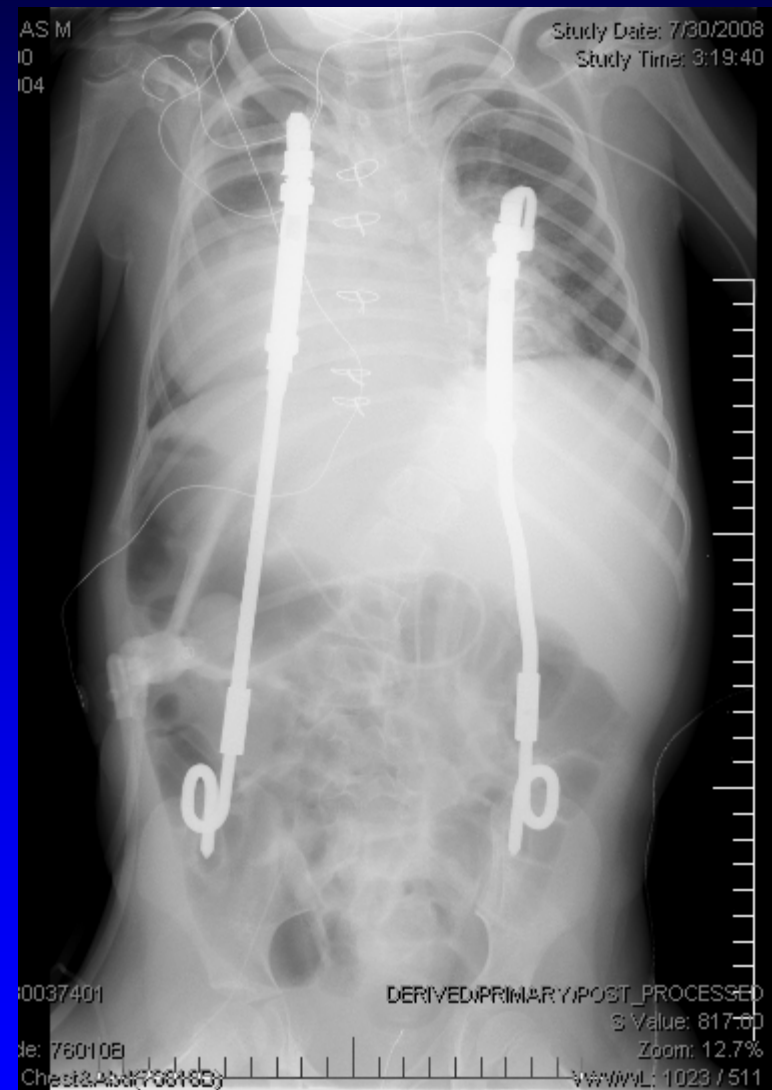
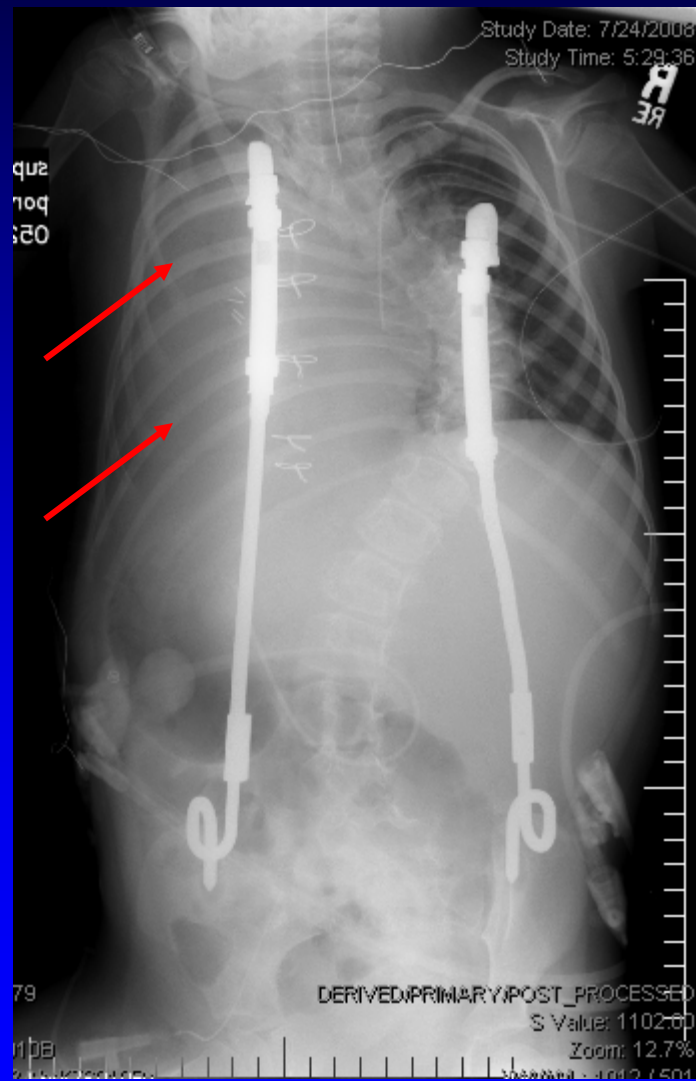
April 2008



May 2008

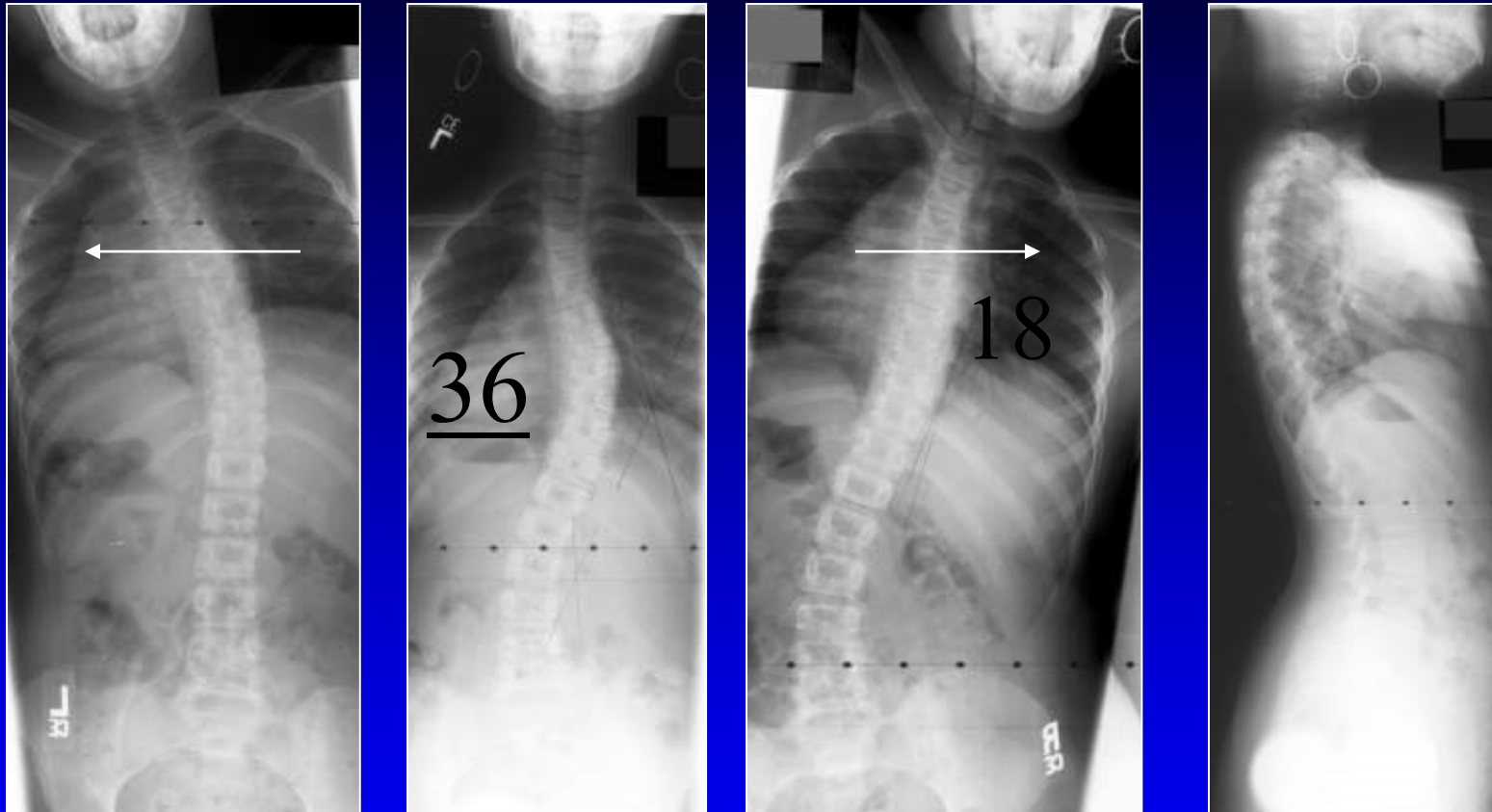


July/August 2008



Next Case

Caitlin – 8 yo



Despite bracing, $26^{\circ} \rightarrow 36^{\circ}$ in only 6 months

Progressive juvenile-onset scoliosis

Seizure disorder, mild speech delays

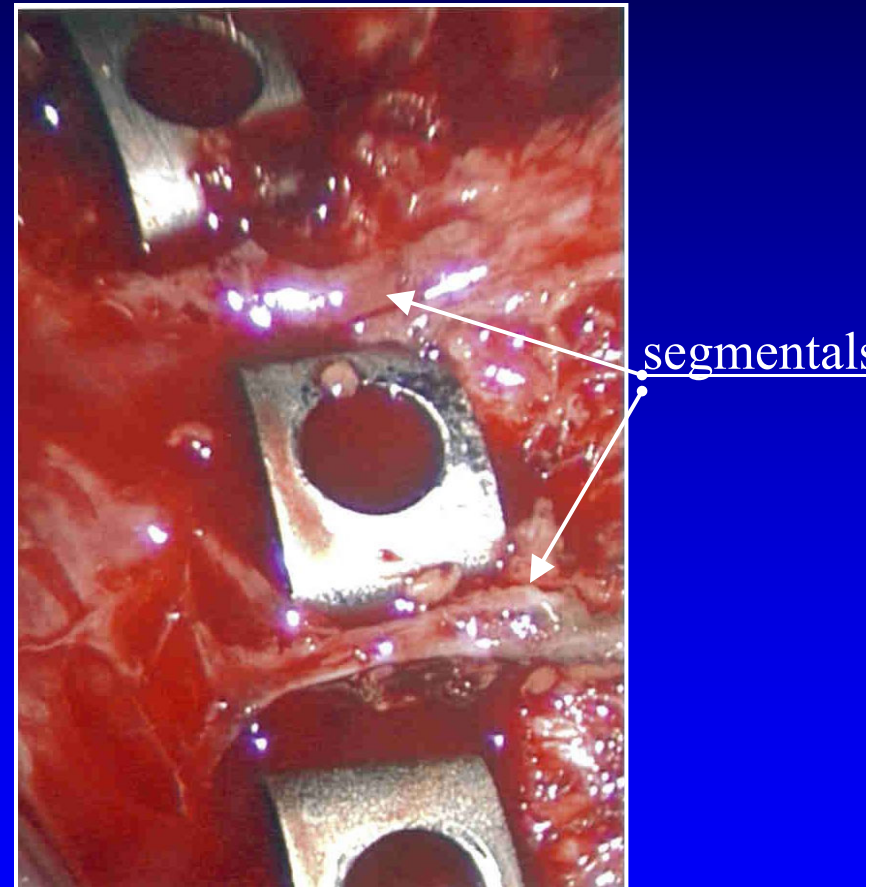
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Intraop Stapling



Correction on table



Anterior vertebral stapling, T6-T12

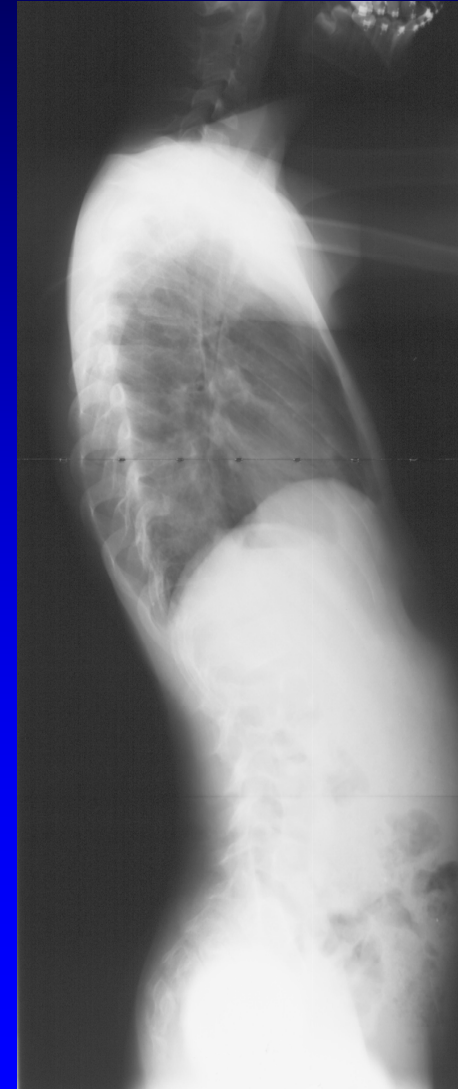
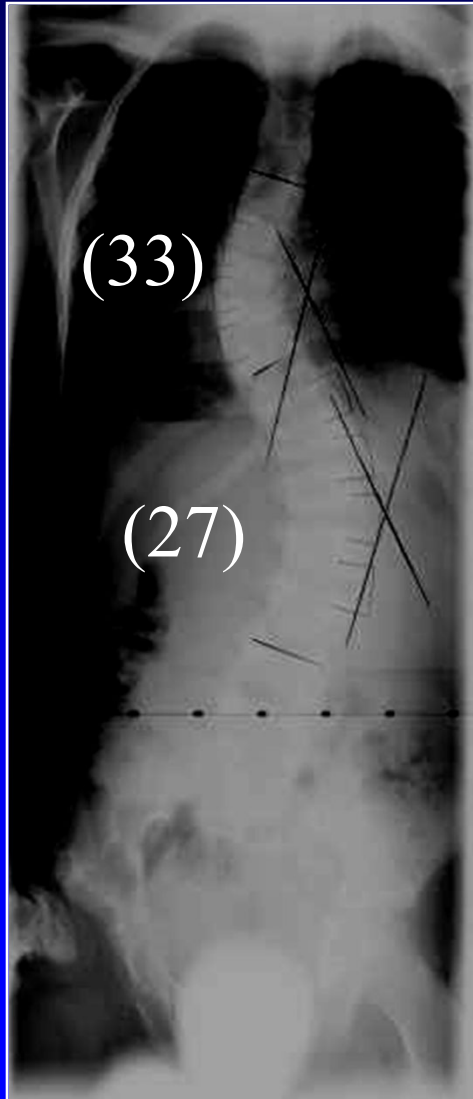


Nine days post op

Next Case

JR- 7 yo s/p troch arthroplasty

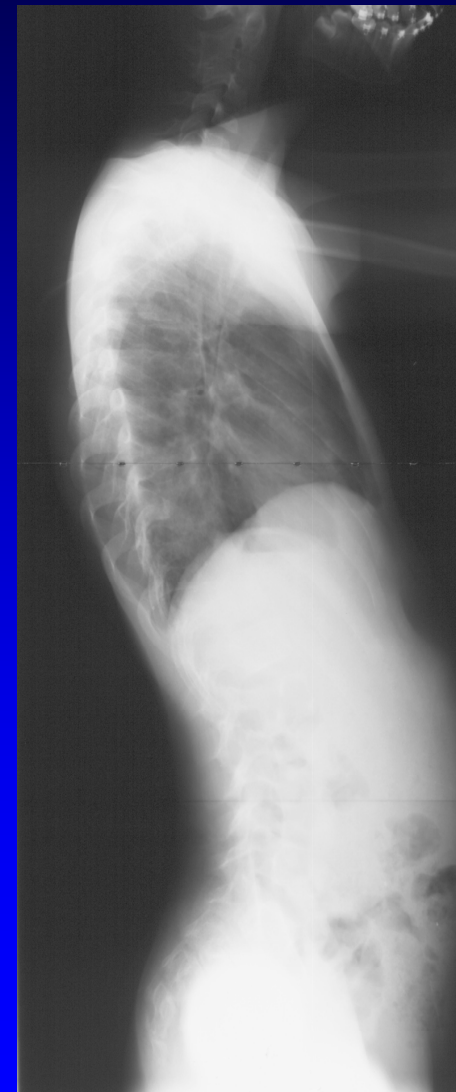
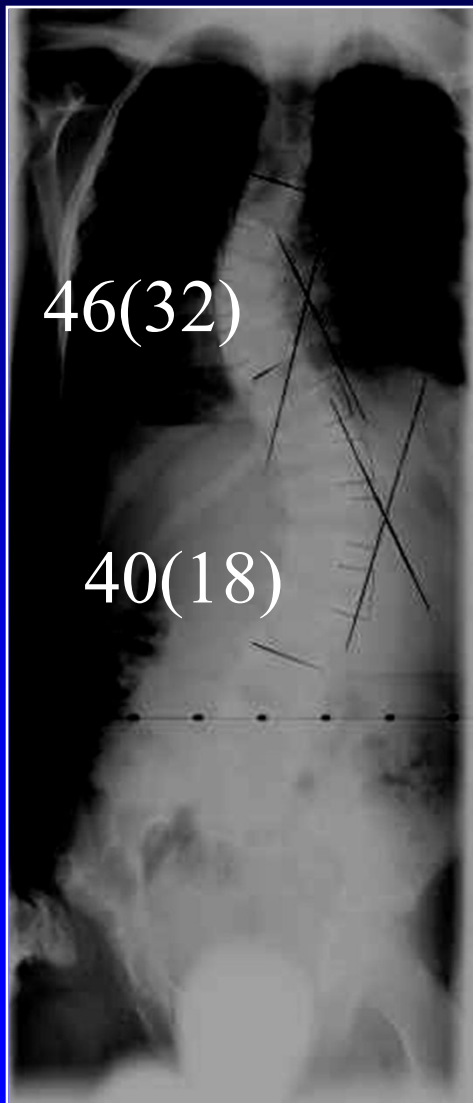
Trendelenberg gait relies on spine;
will not tolerate brace; ? fusion



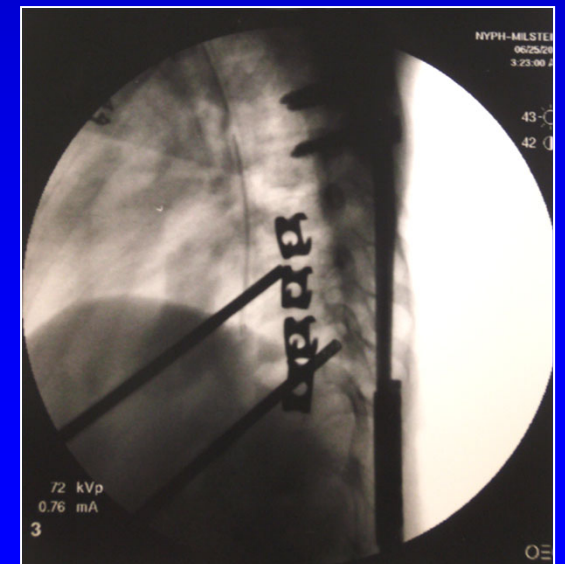
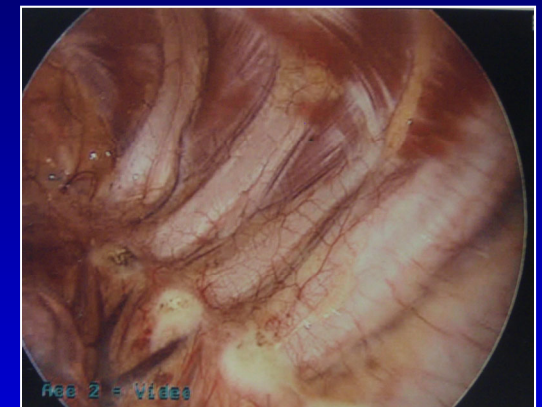
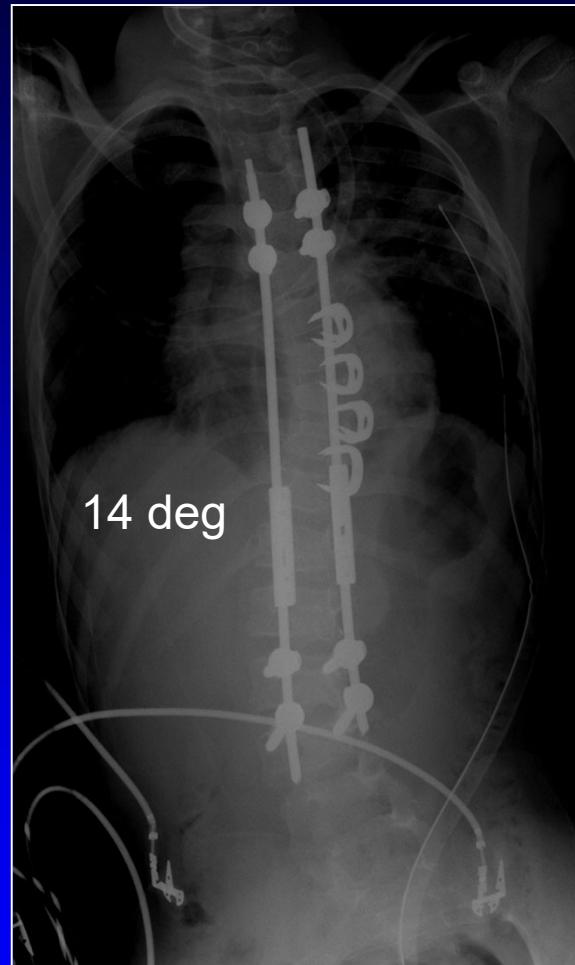
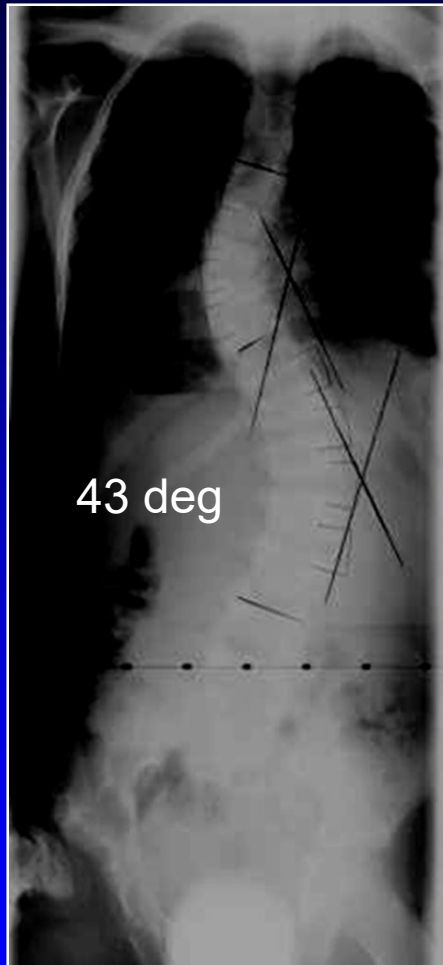
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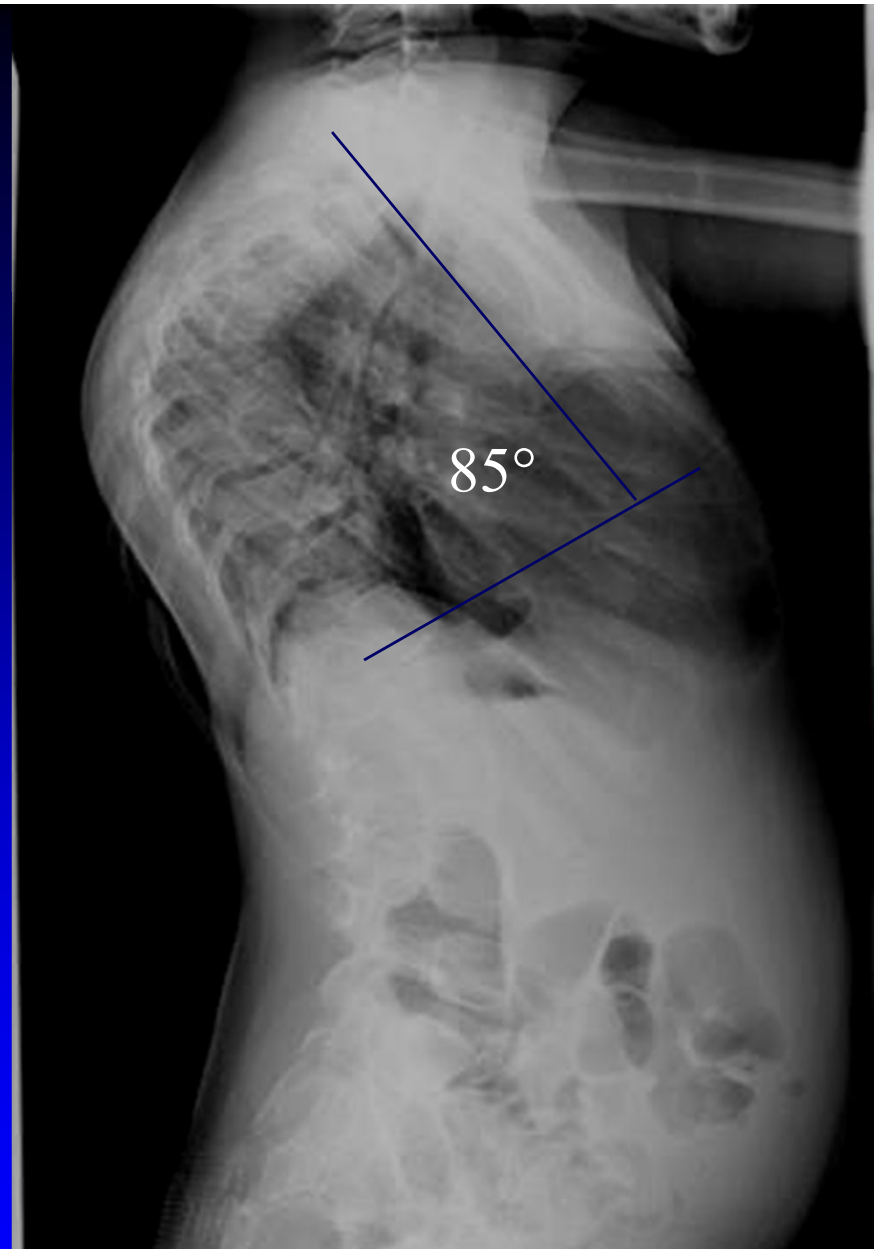
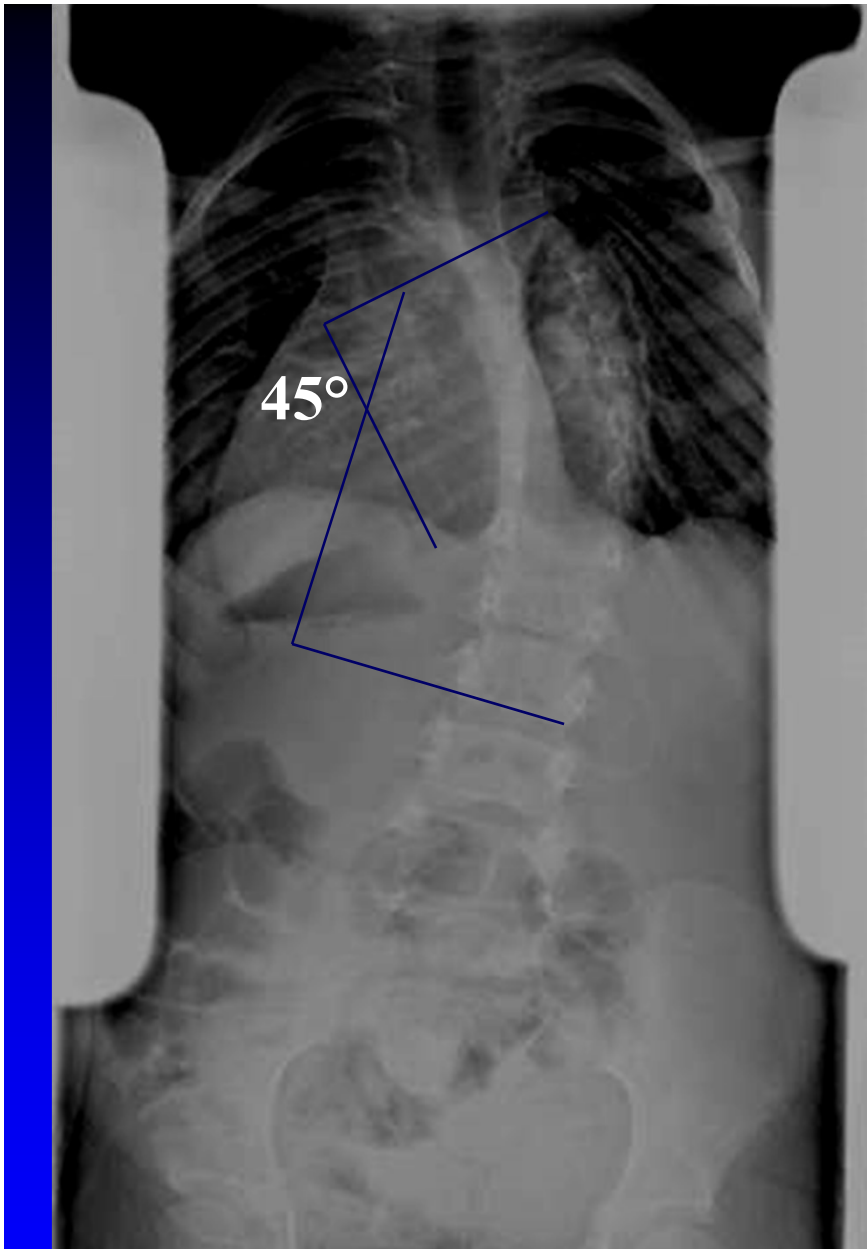


Hybrid Technique



Next Case

- K.H - DOB 6/9/00
 - split cord/ lipomyelomeningocele
 - 9/00 (3 mo) extensive untethering/
laminectomy C6-L2
 - 4/03 revision detherring /repair
lipomyelomeningocele
- Normal Exam !

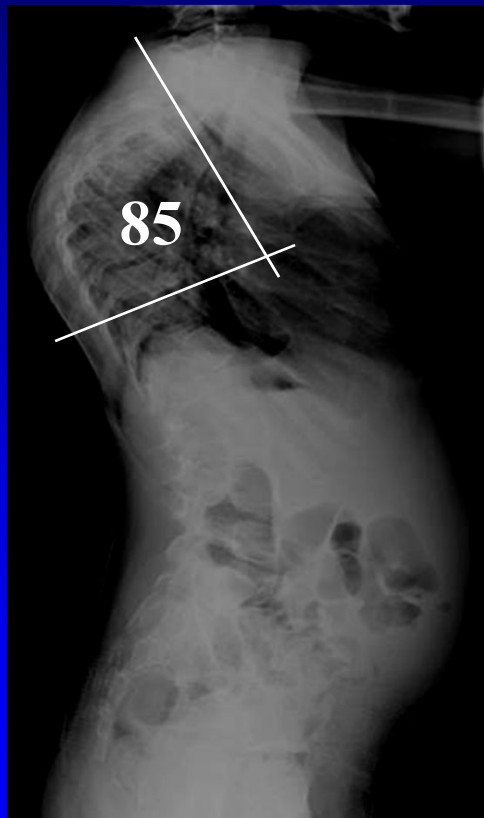


6/03 3 yo – progressive kyphosis

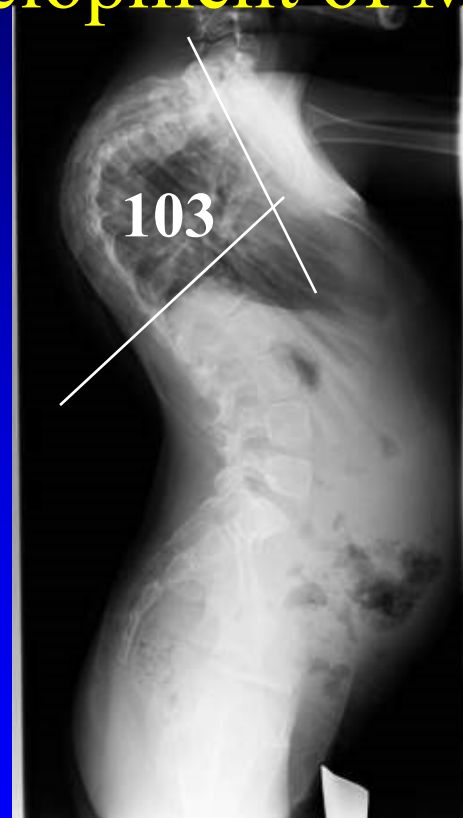
3 yo lipomeningocele with nl exam

Recurrent Kyphosis

Development of Myelopathy

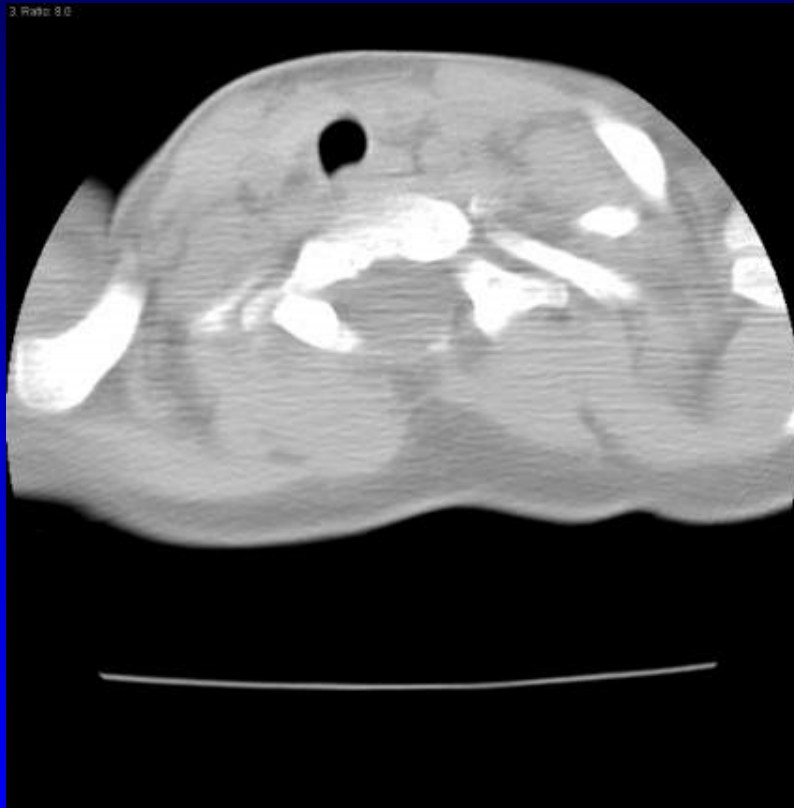


6/03 AP in situ fusion

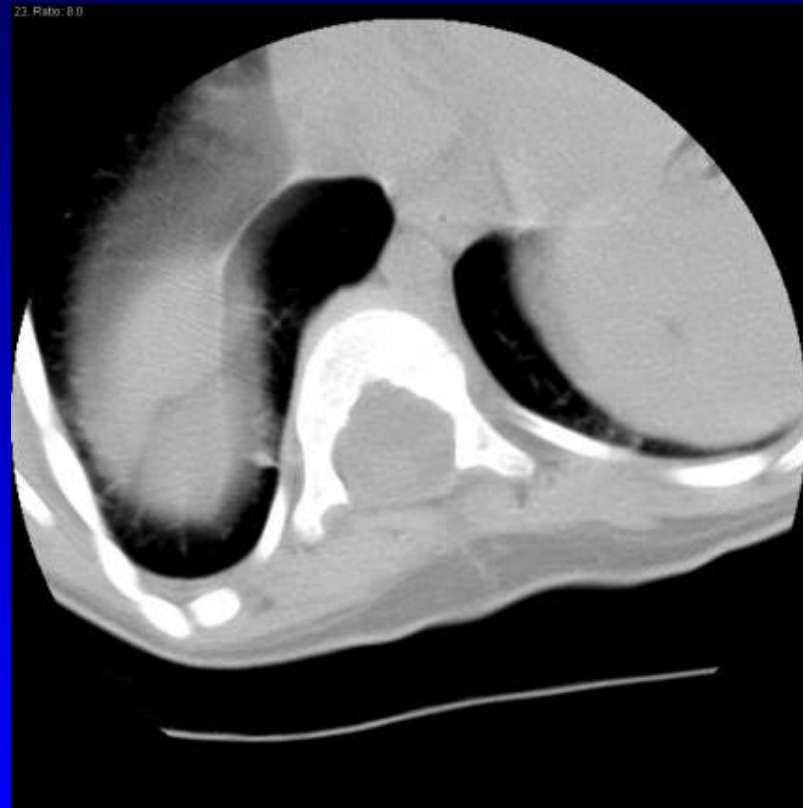


3/04

No Posterior Bone

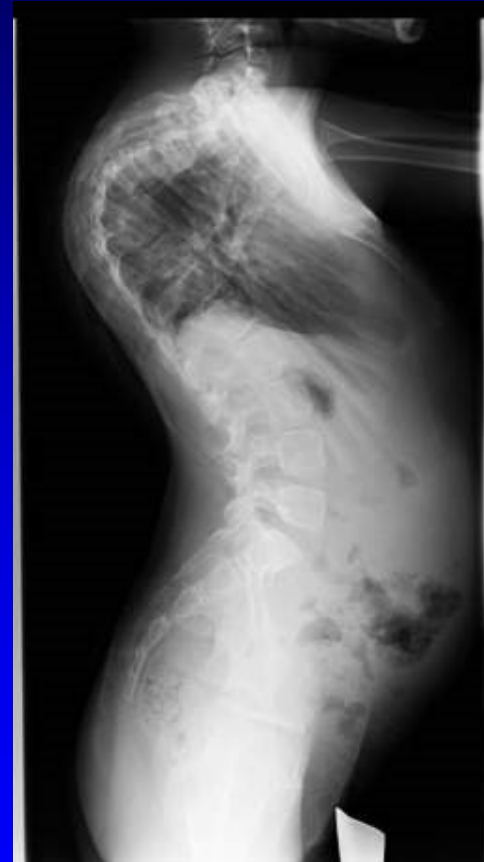
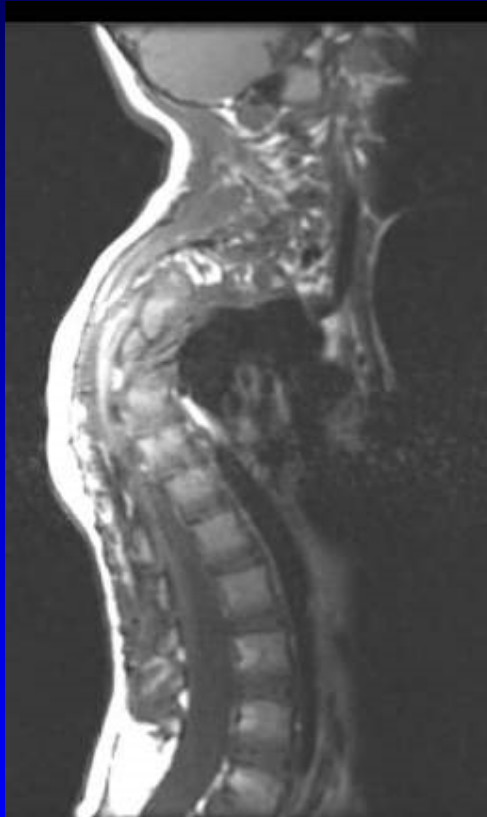


T1



L2

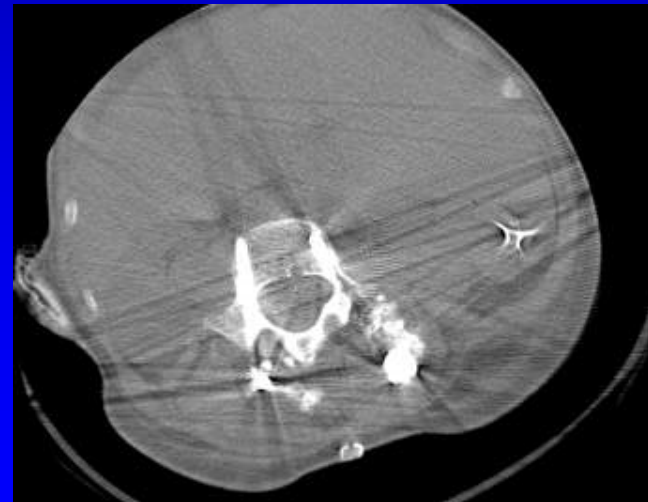
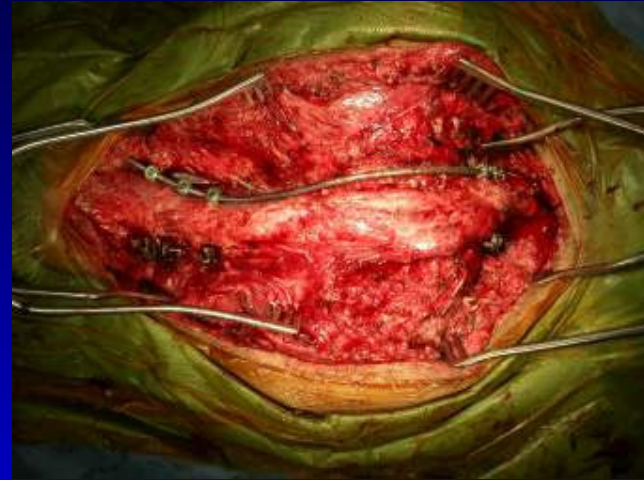
3/ 04 - ? Treatment Options 4 yo with myelopathy



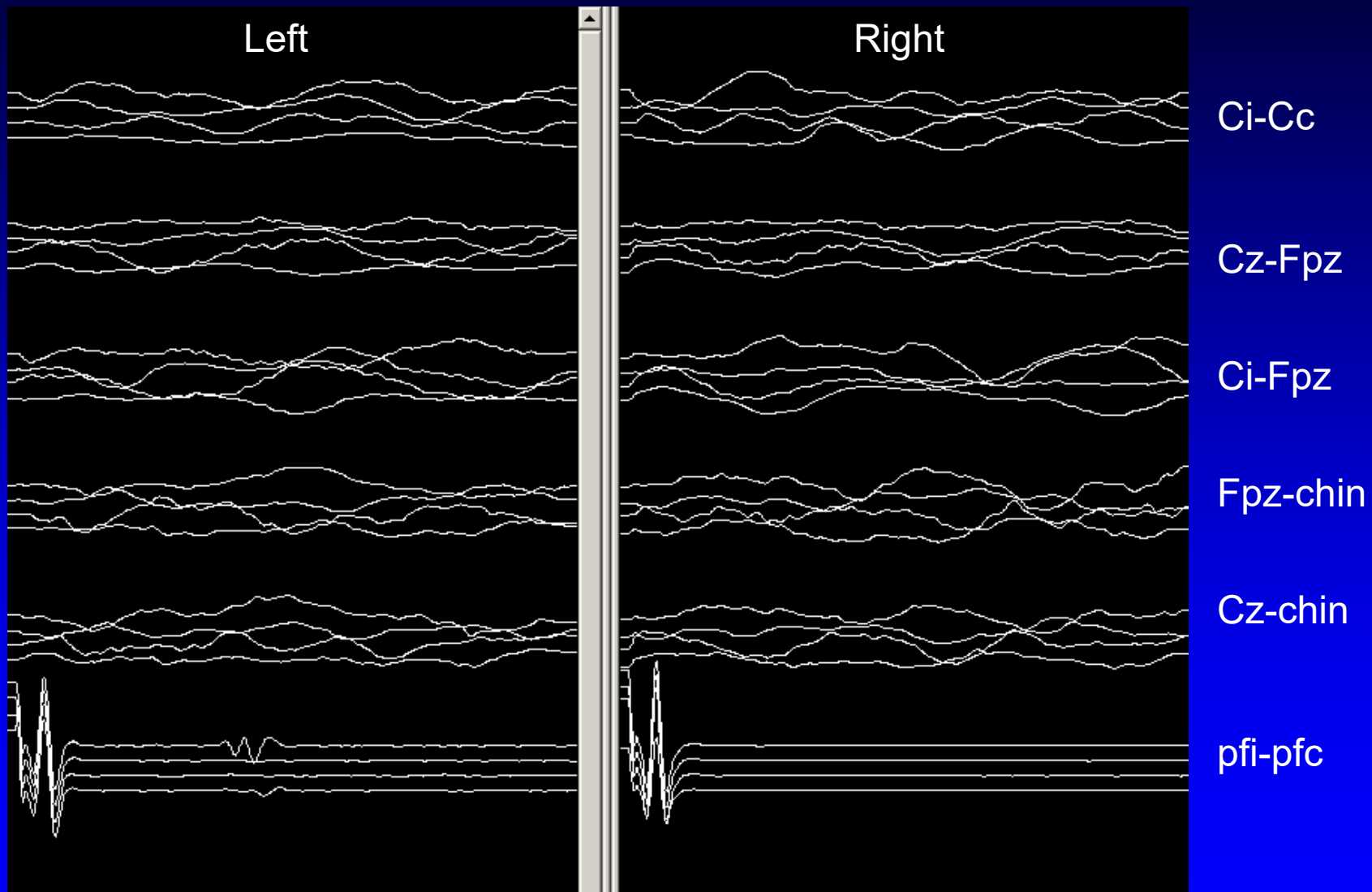
Any way to avoid fusion in 4 yo ?

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Intraoperative Tibial EPs Not measurable in 2004





Costotransversectomy/
Decompression



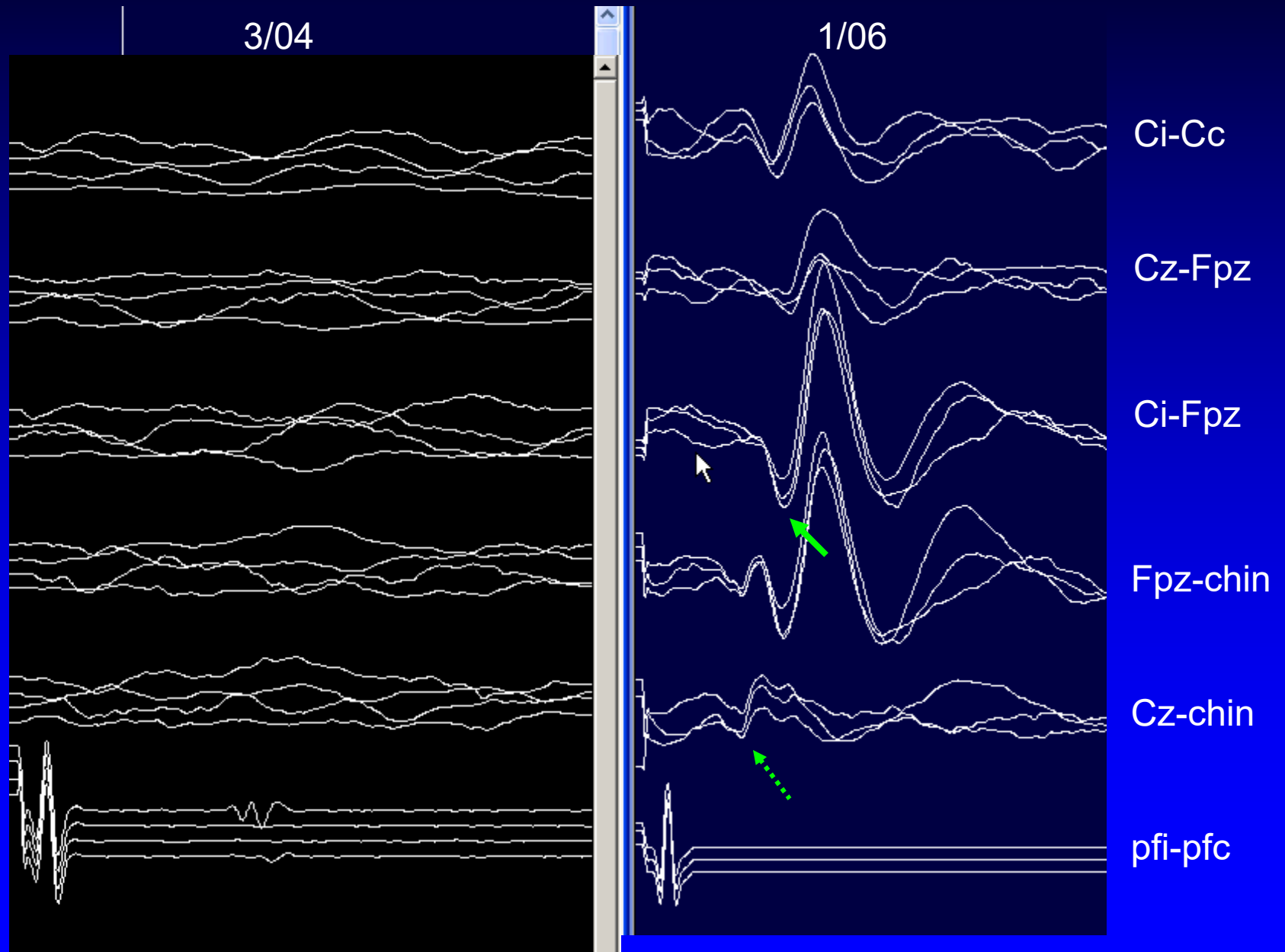
Anterior Thoracotomy,
Decompression and Fibula Strut

Jan 2006: Improve Fusion With OP1

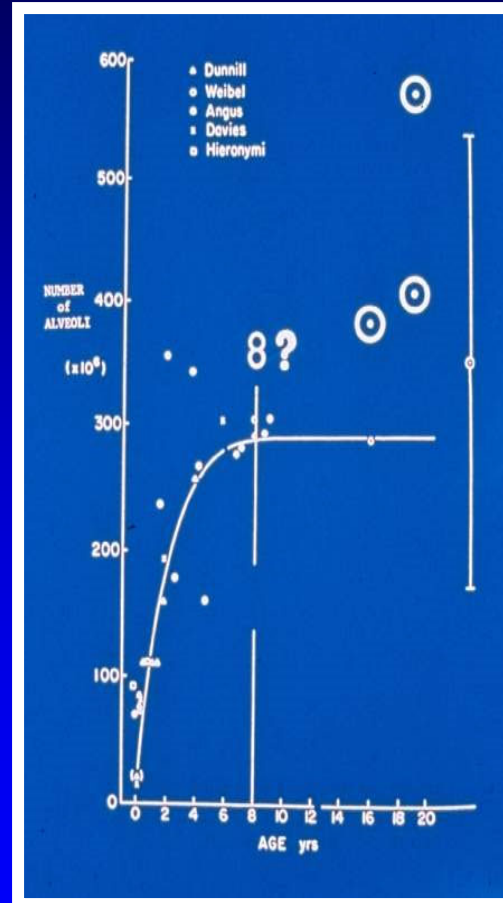
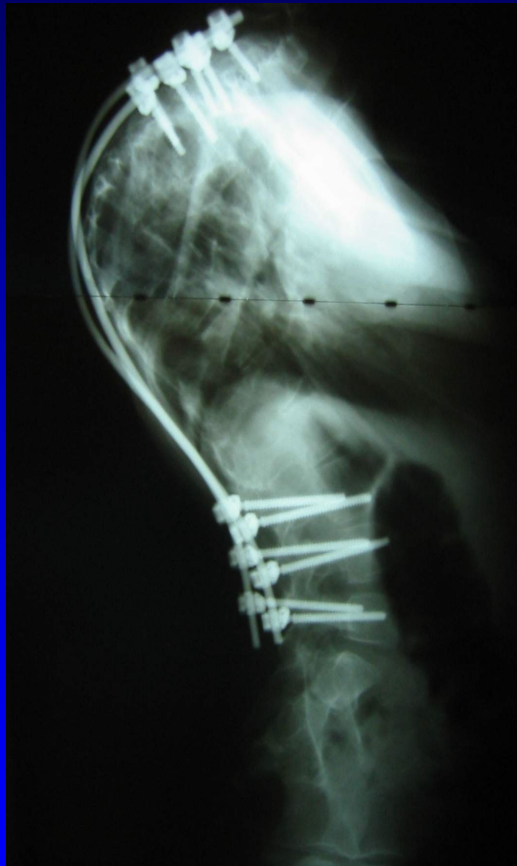


Oasis

SSEP and MEPs Normalized



Complete resolution of myelopathy moderate correction



? 4 yo

Thank You



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Morgan Stanley
Children's Hospital of NewYork-Presbyterian
Columbia University Medical Center



Columbia Orthopaedics
Pediatric Orthopaedic Surgery

Case Number 3

José Herrera-Soto, MD
Arnold Palmer Hospital for Children

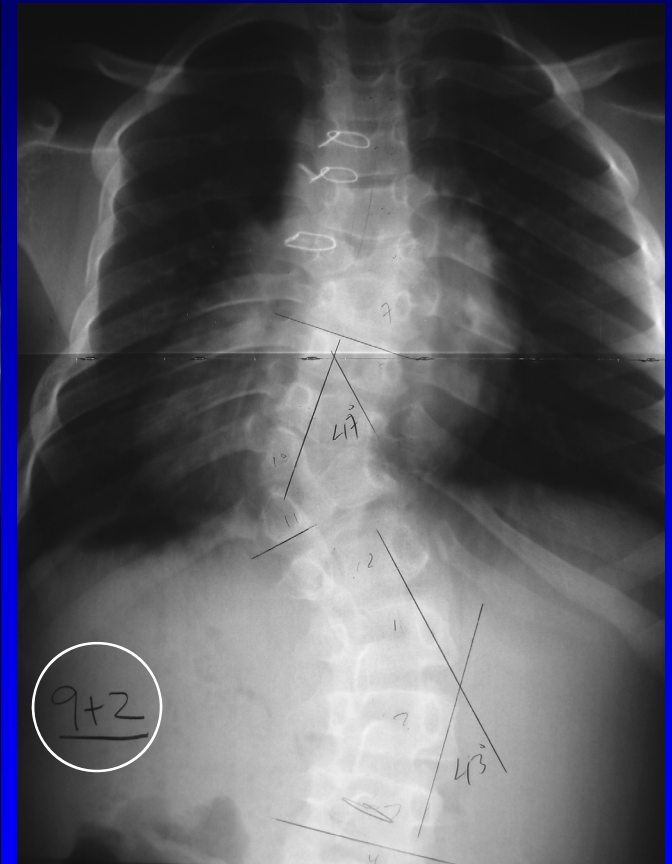
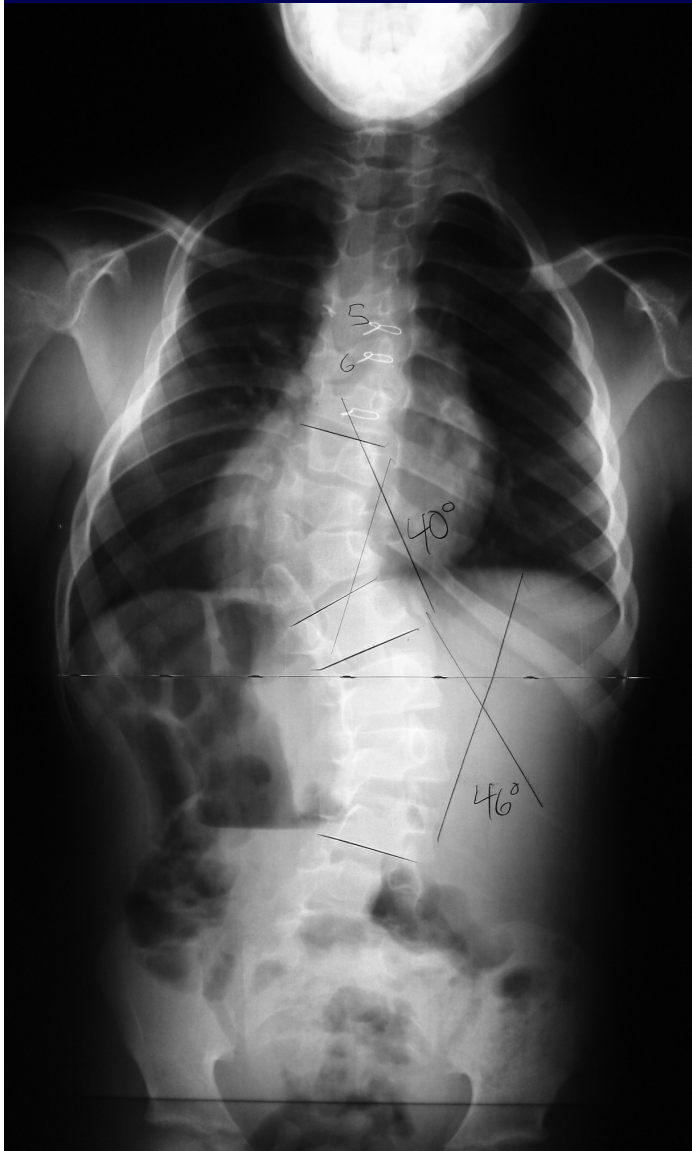
9+2mo w/ Hemi and bars



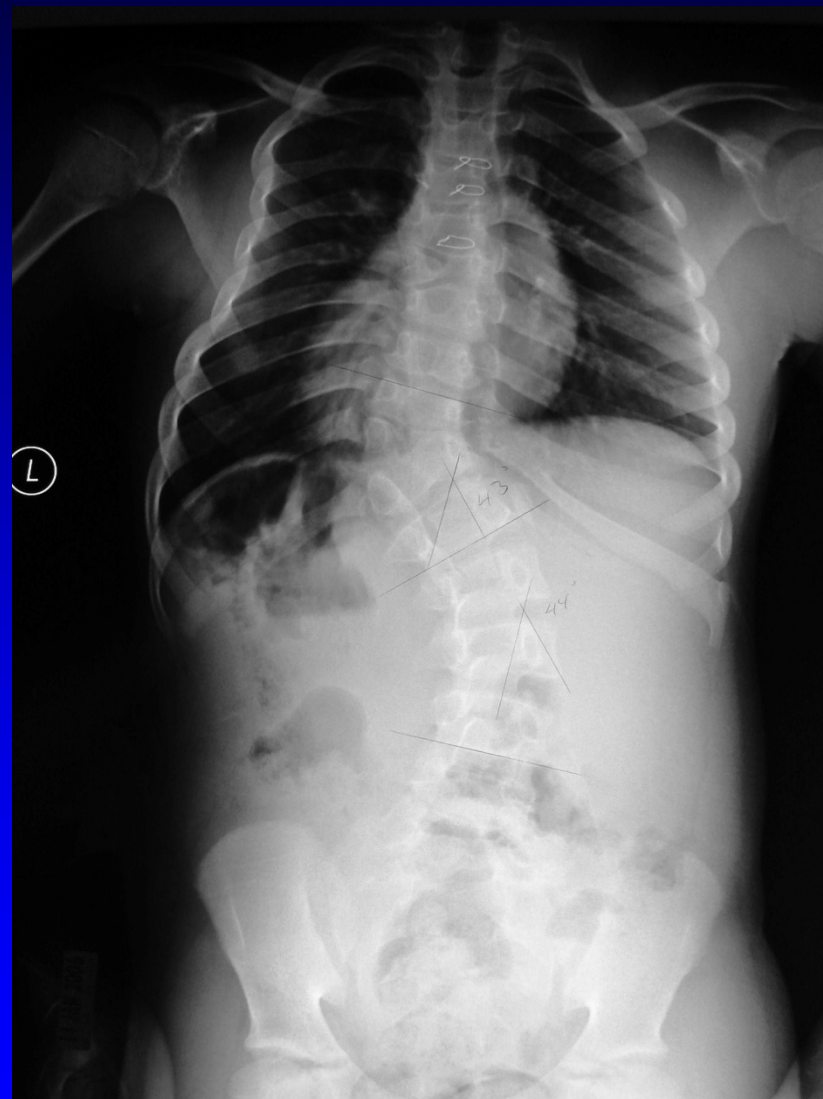
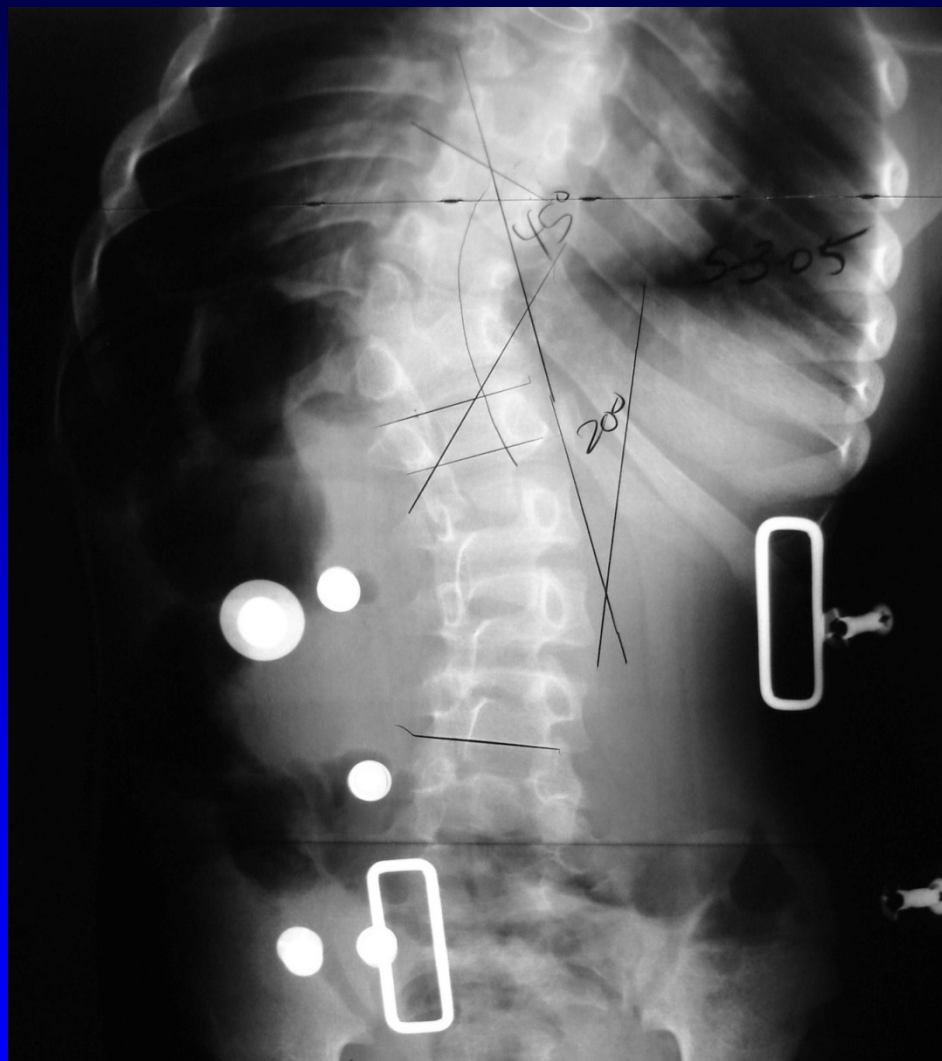
What is the treatment?

- Observation?
- Resection
 - Front and back
 - Posterior only?
 - What levels?
 - Do they vary with the age of the patient?

9+7 on preop day



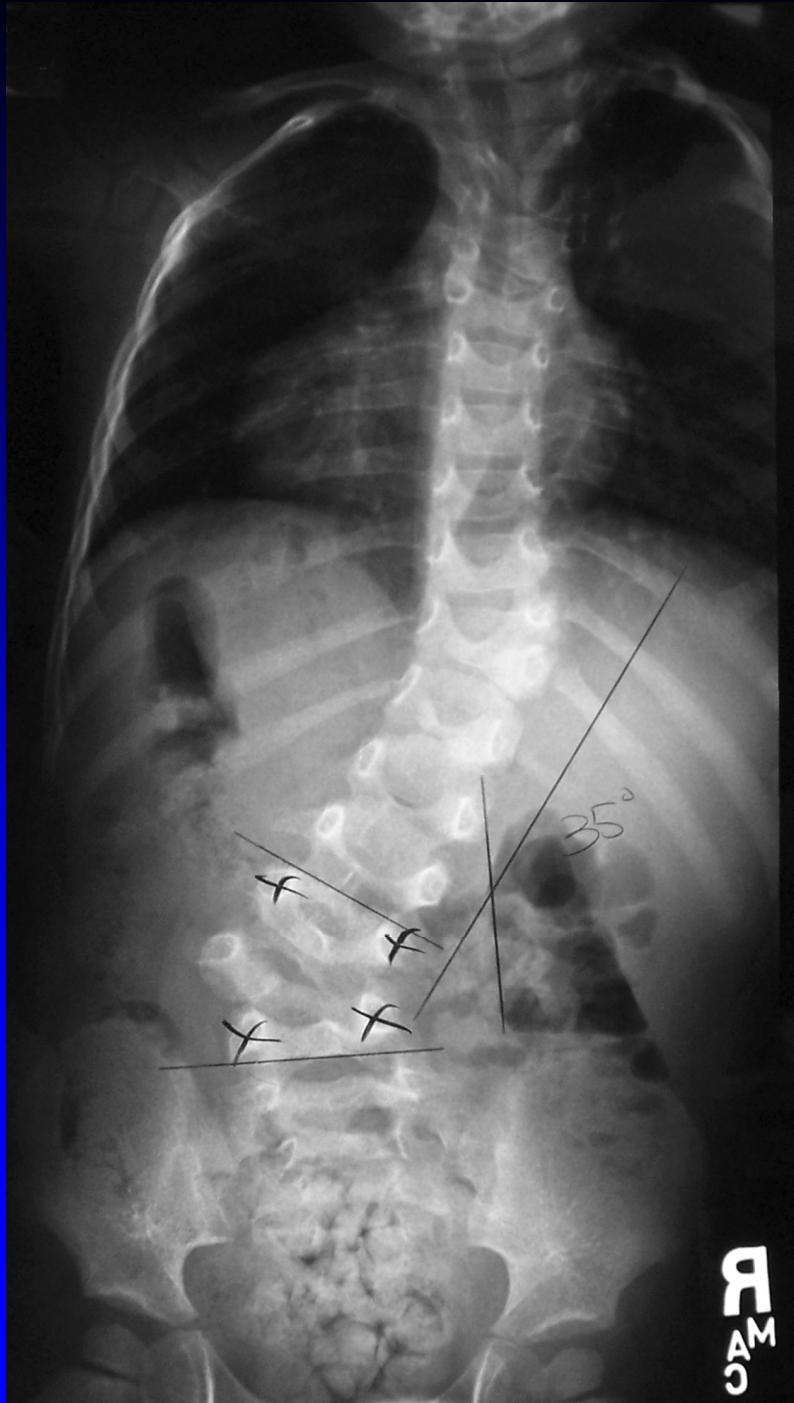
Braced for 2½ years?...



PSF without resection at 12 y/o



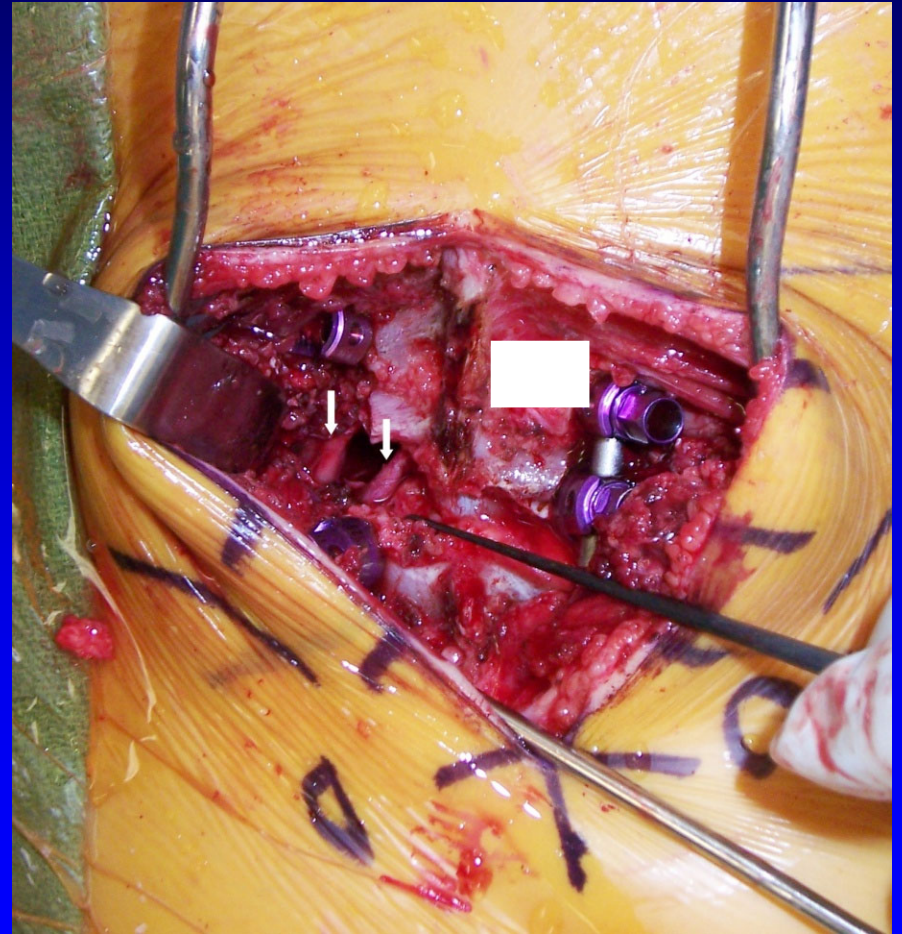
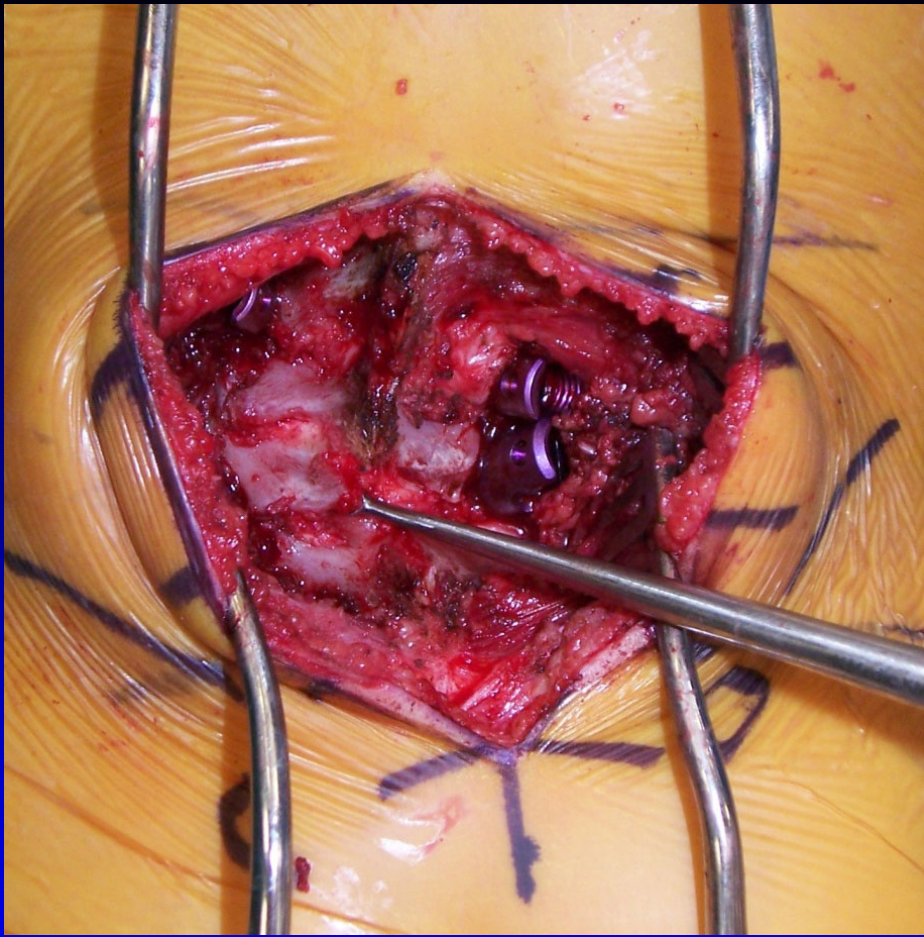
2+ year old



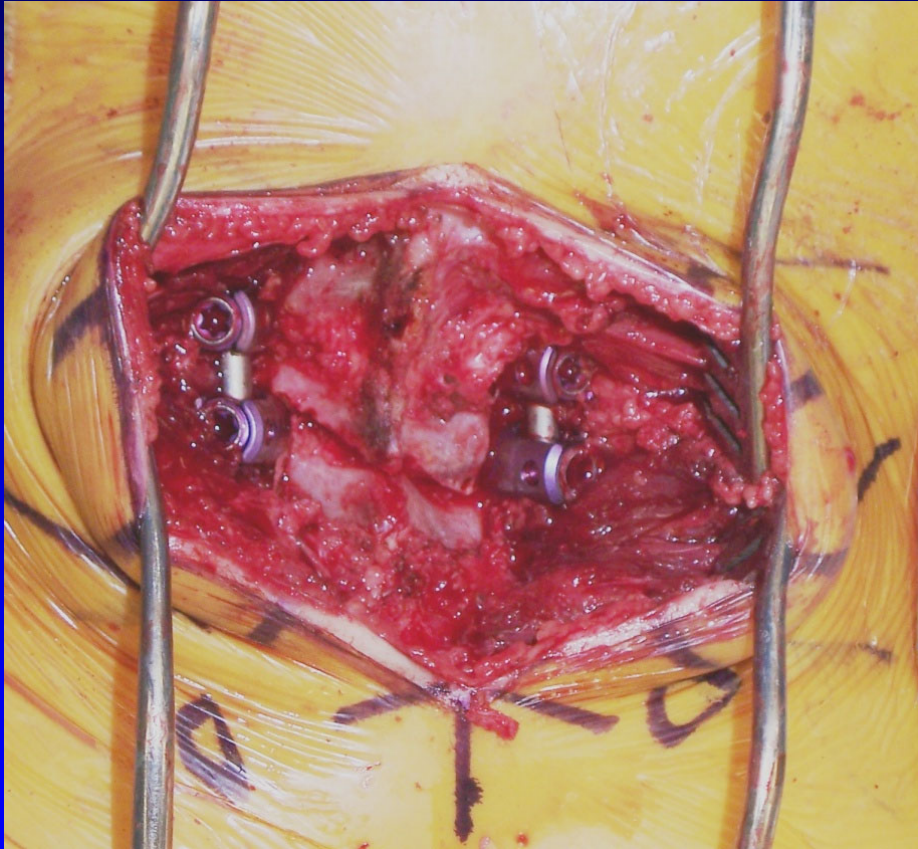
What else is going on?



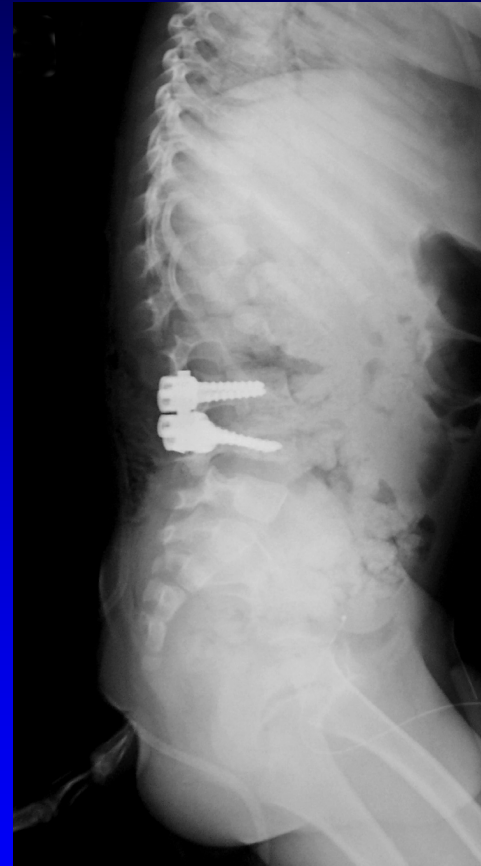
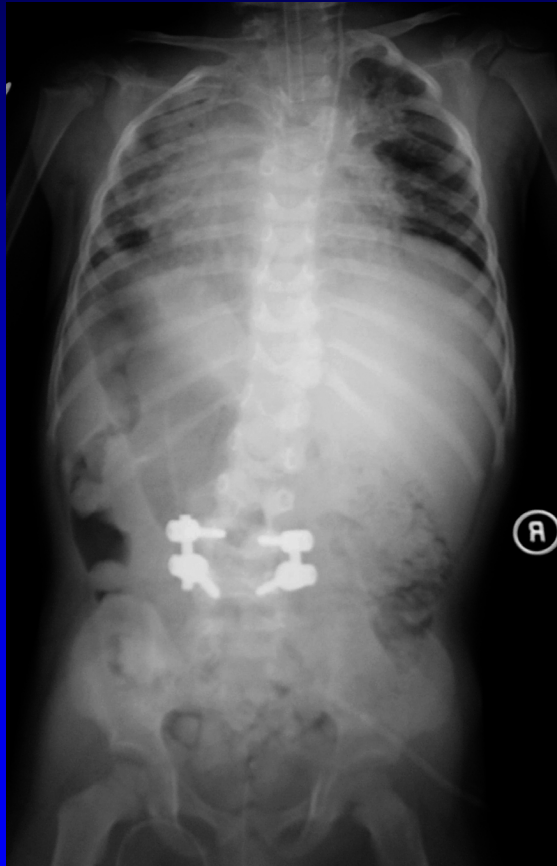




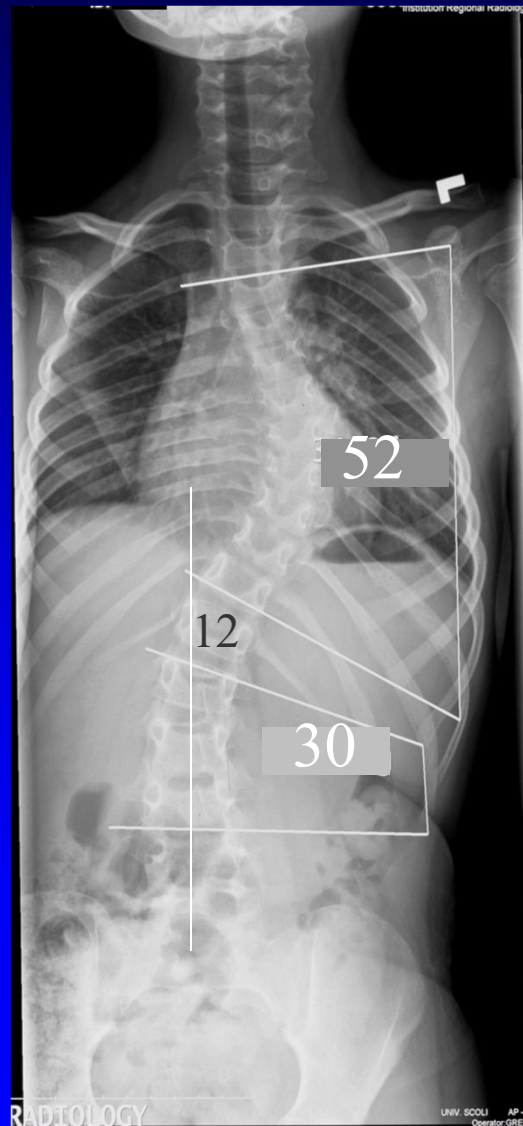
What does this dimple mean?



Immediate post op



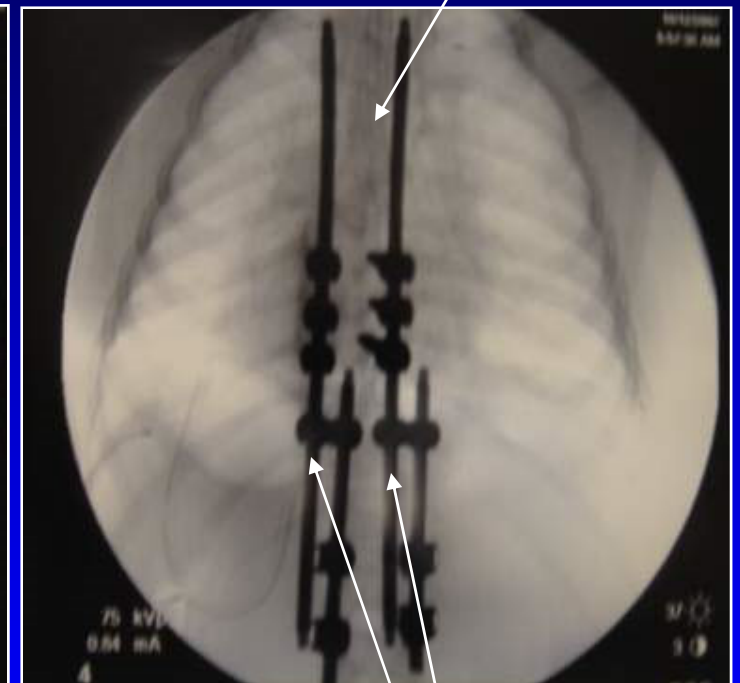
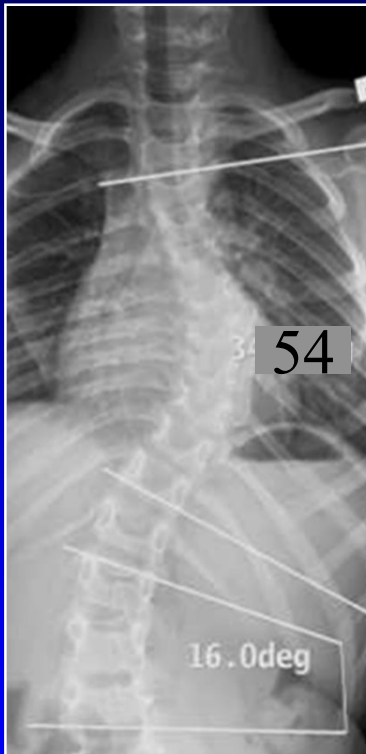
Nicholas A. – 9.5 yo



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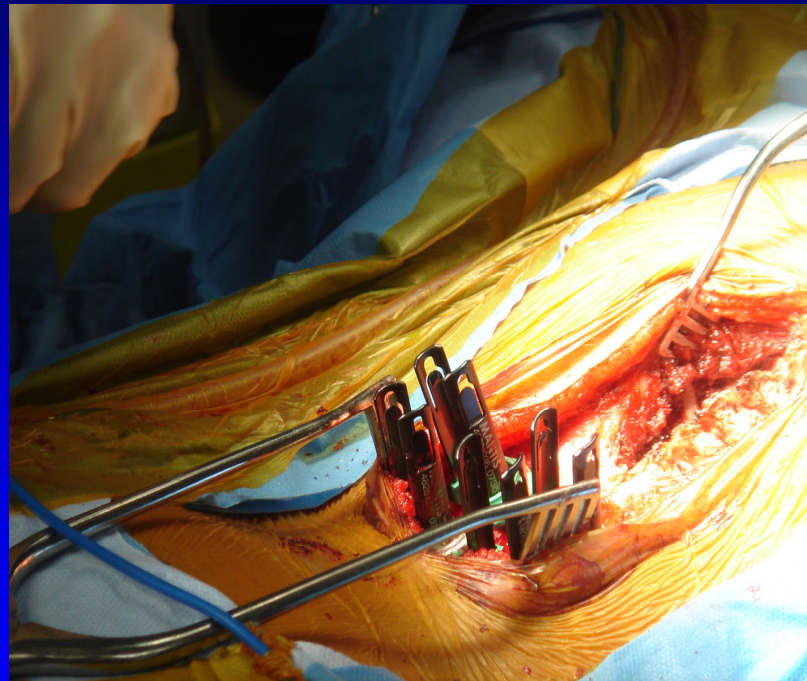
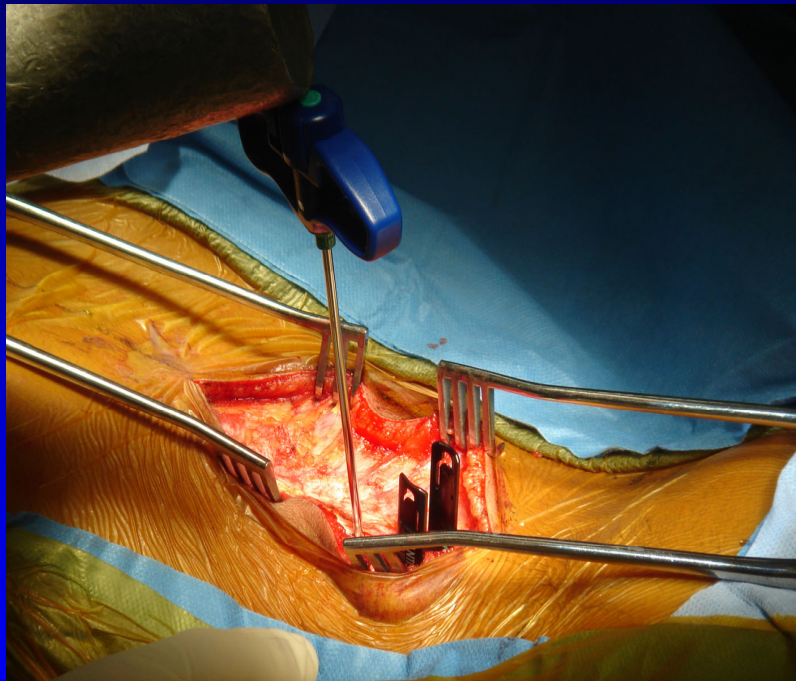
“Non Shilla, Shilla”



Mersilene

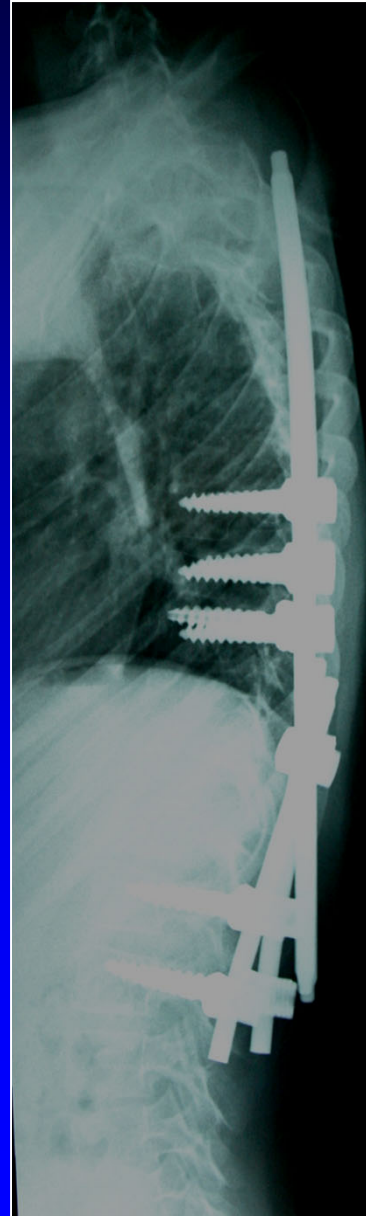
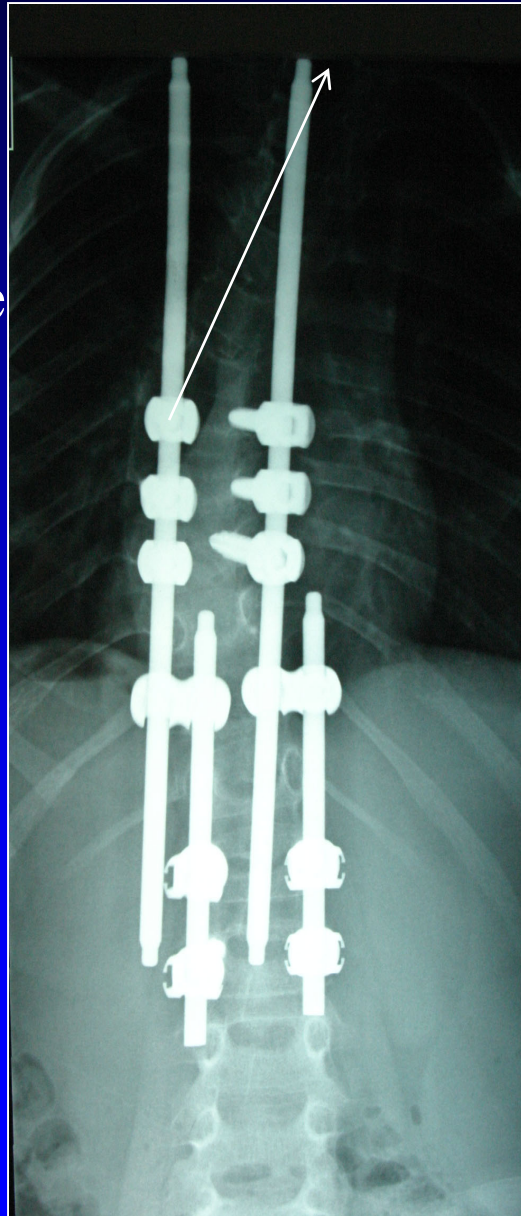
open connector

MIS Screws



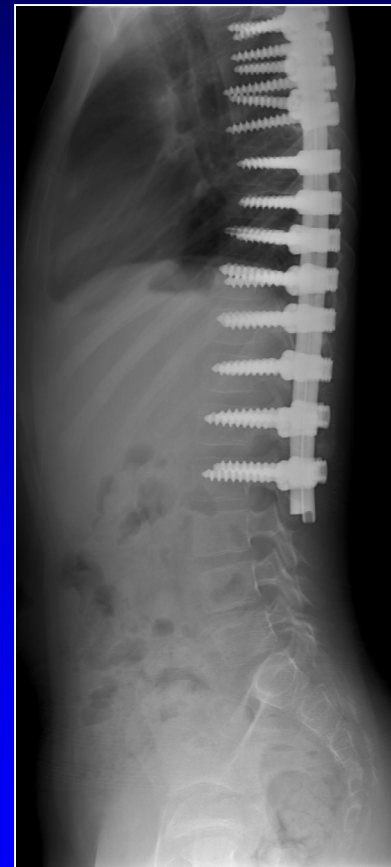
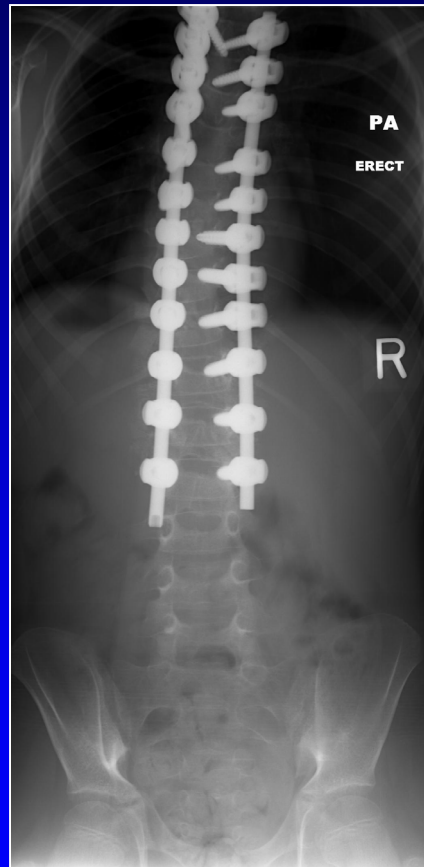
NA 4 months later

Loss of
Proximal Curve

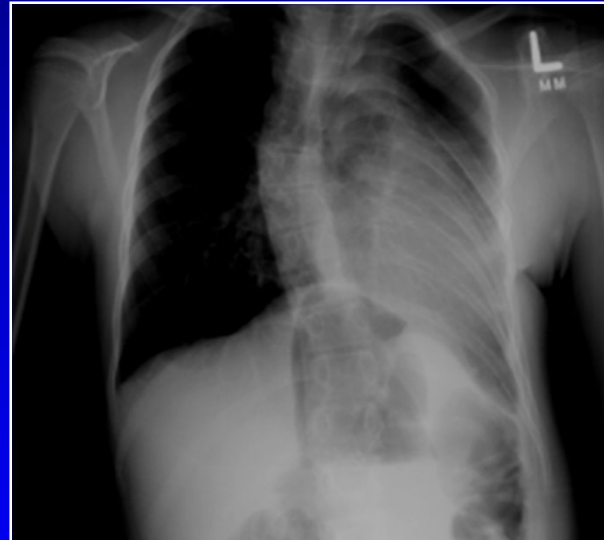


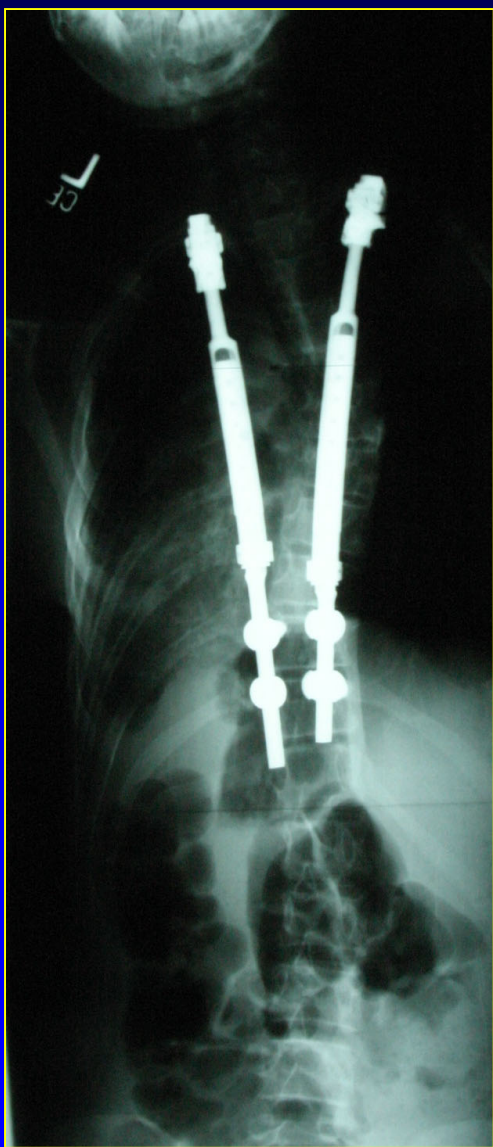
Kyphosis Through
Connectors

NA Final Fusion- Age 10

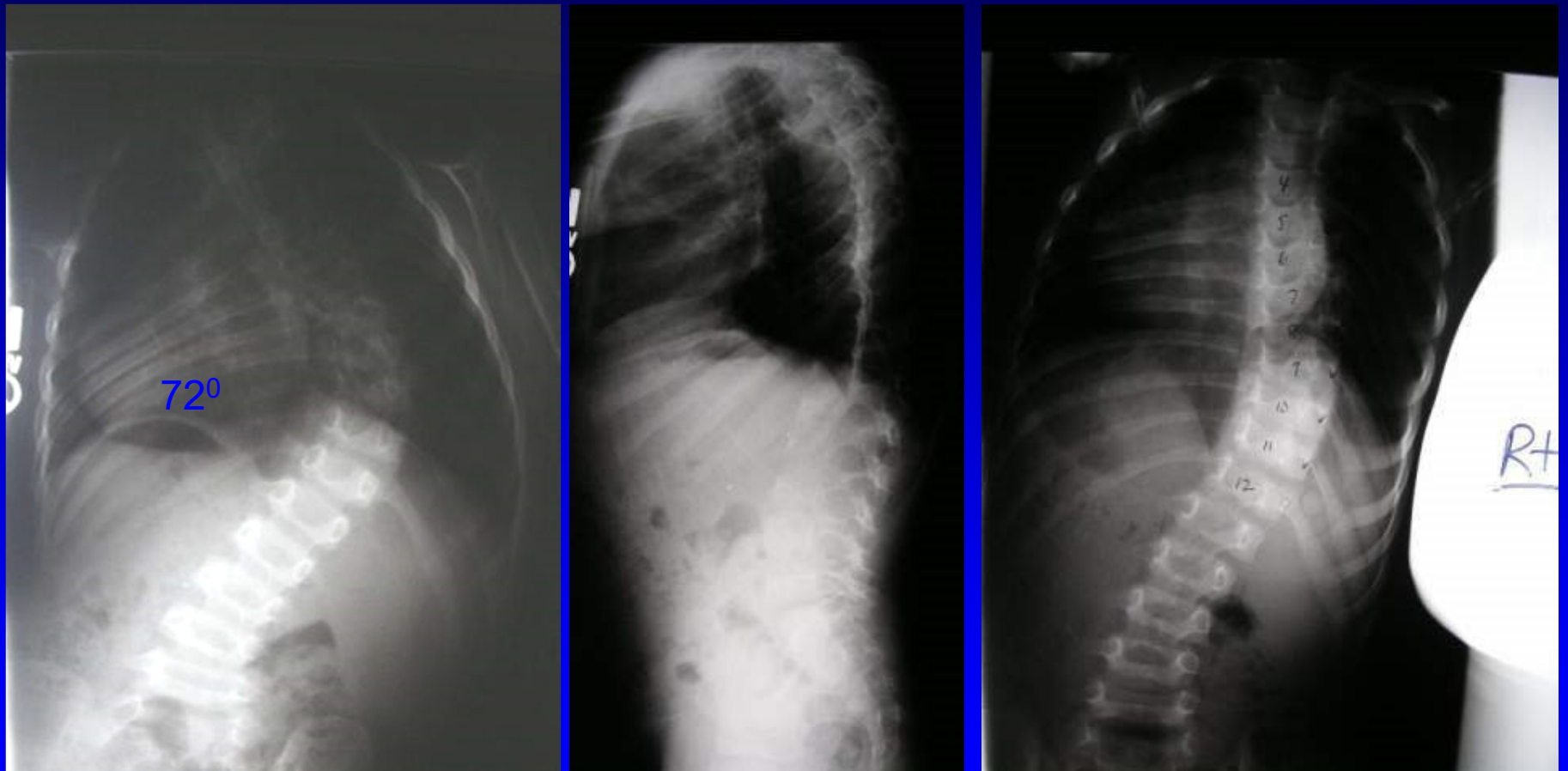


MT - CDH 5 yo

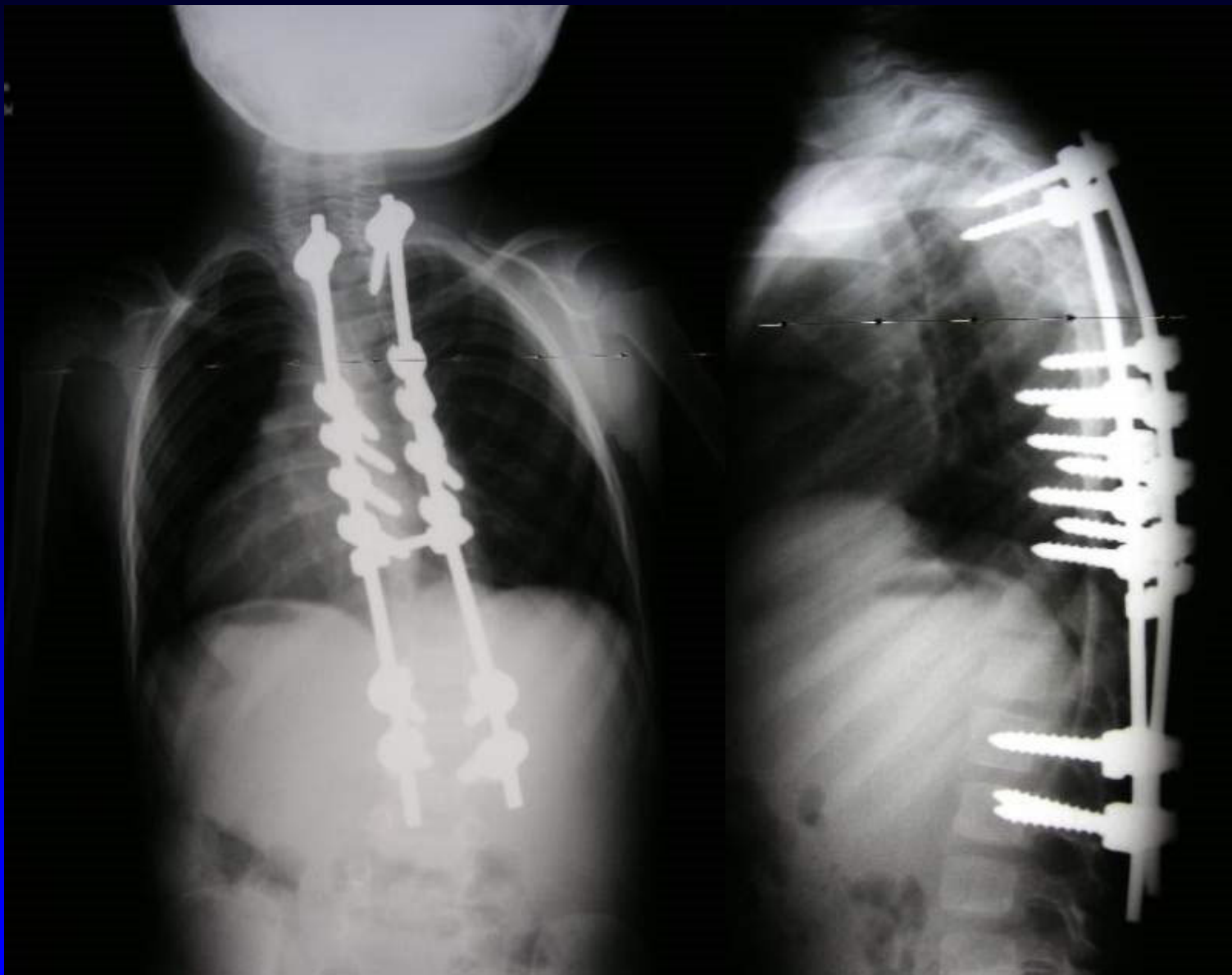




3 yo with infantile idiopathic scoliosis



Courtesy of Rick McCarthy



1 yr postop standing PA and Lateral radiographs