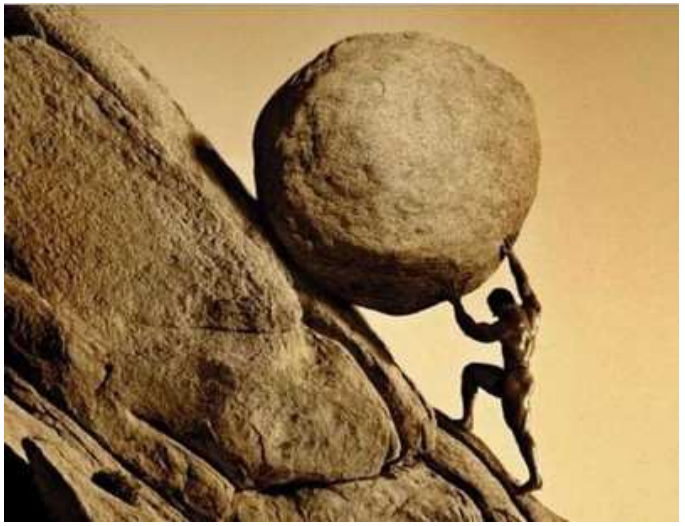
Too Small / Too Stiff – Strategy ?

You can't shine suede



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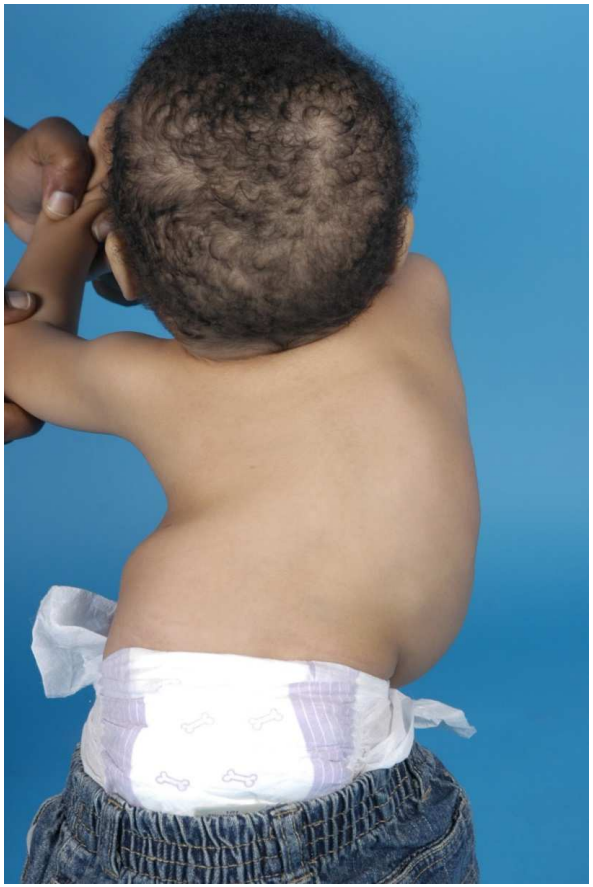
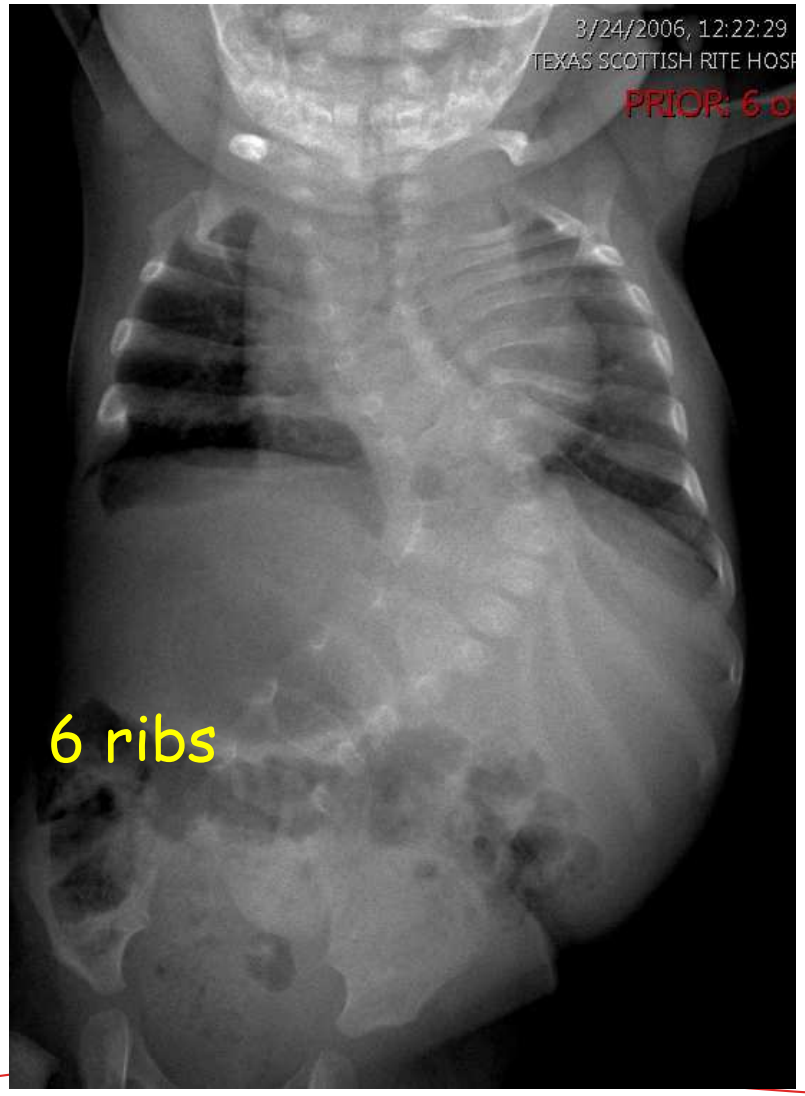
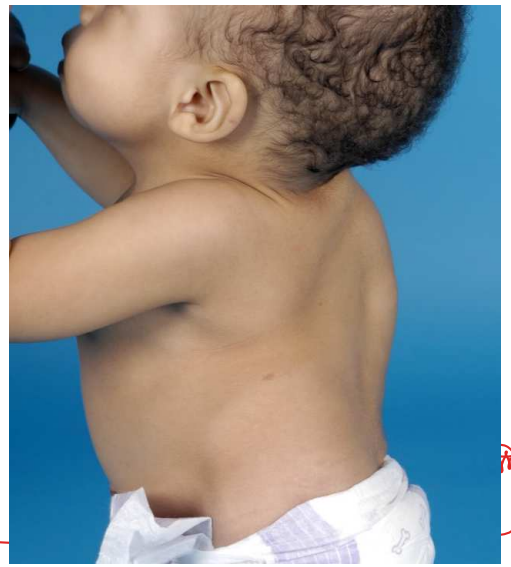
JW 0+9







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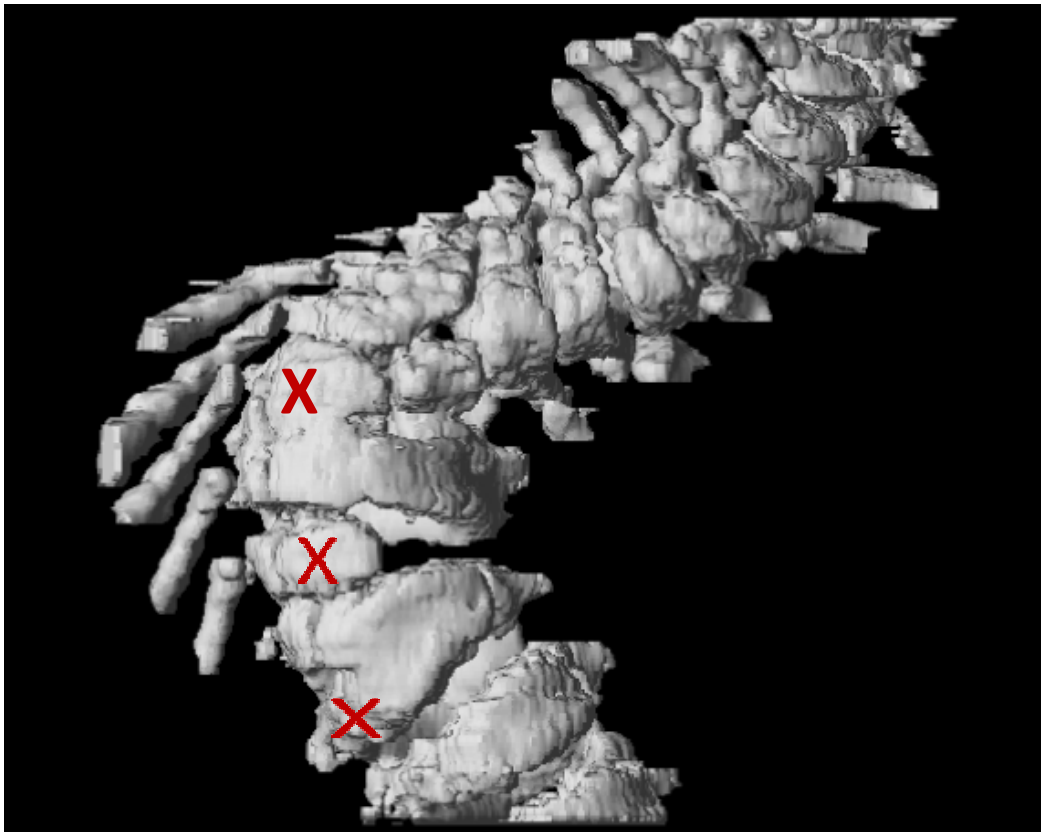
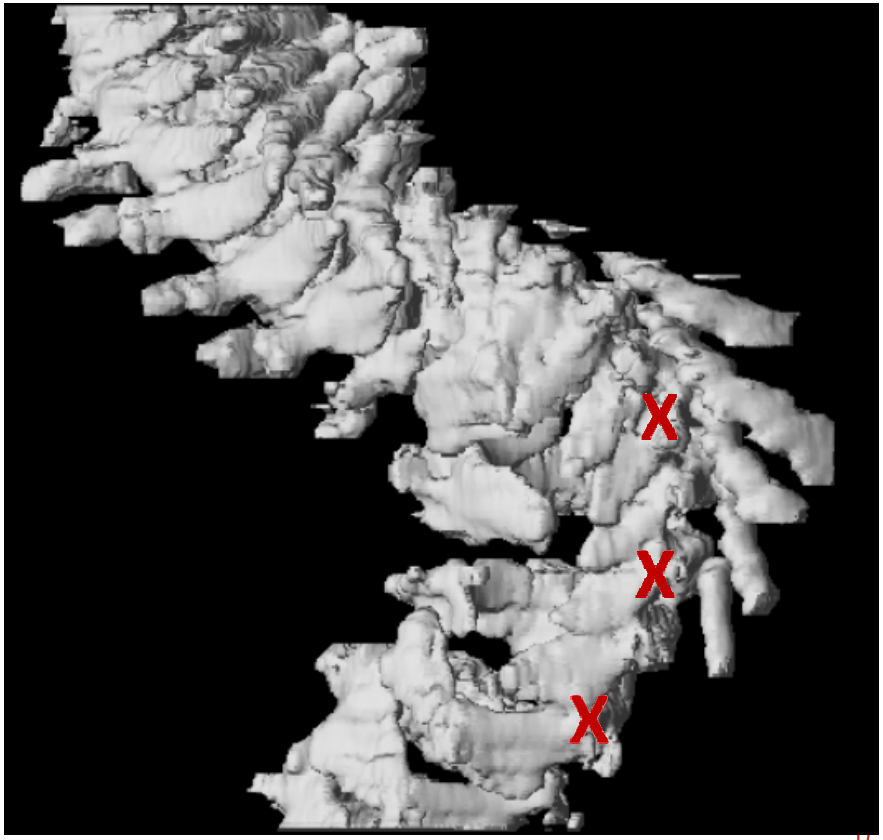
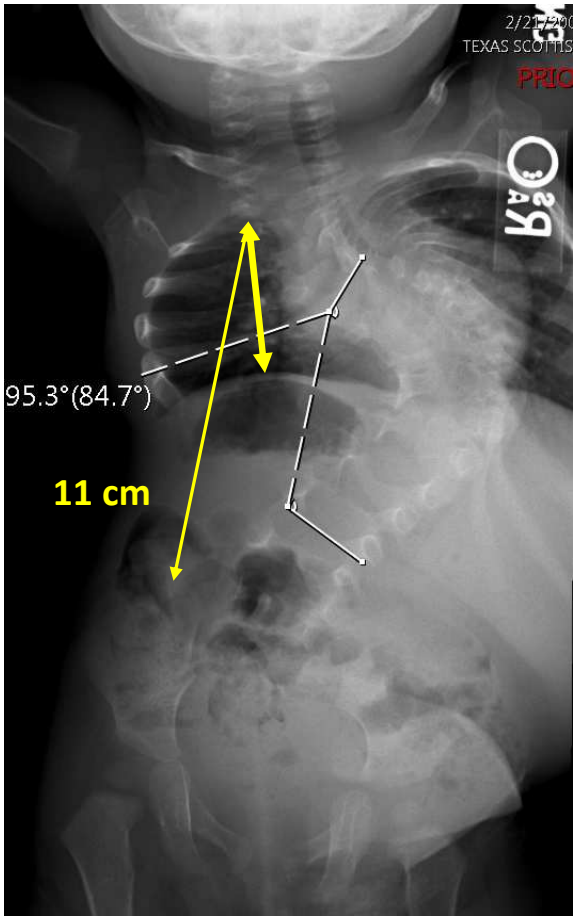
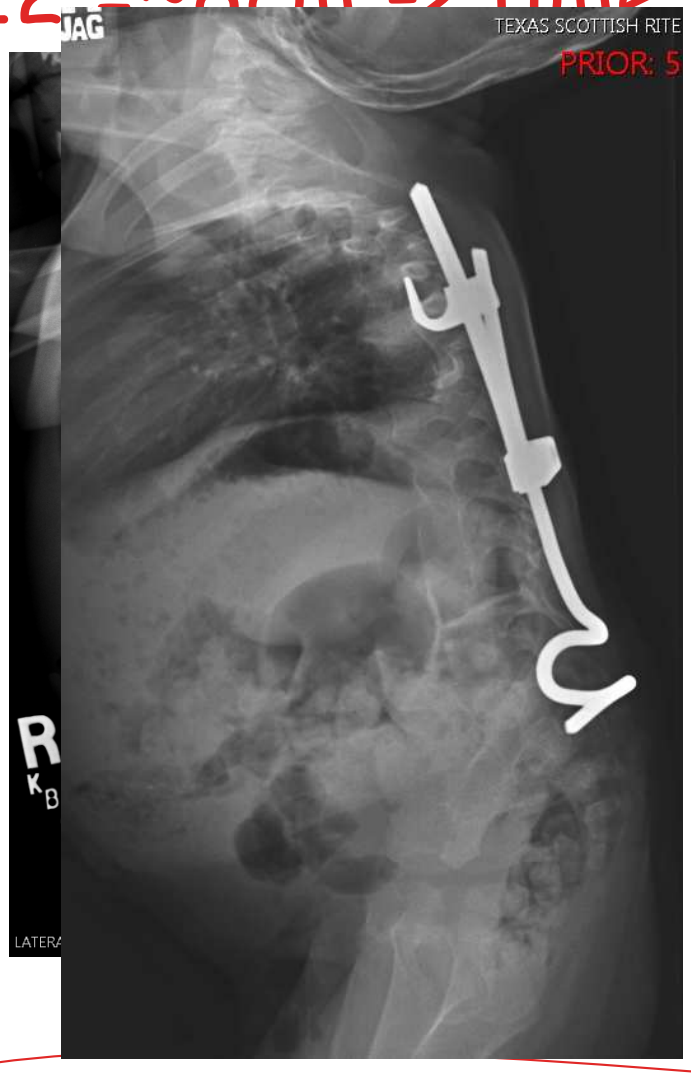
CT ? 3 unopposed hv's



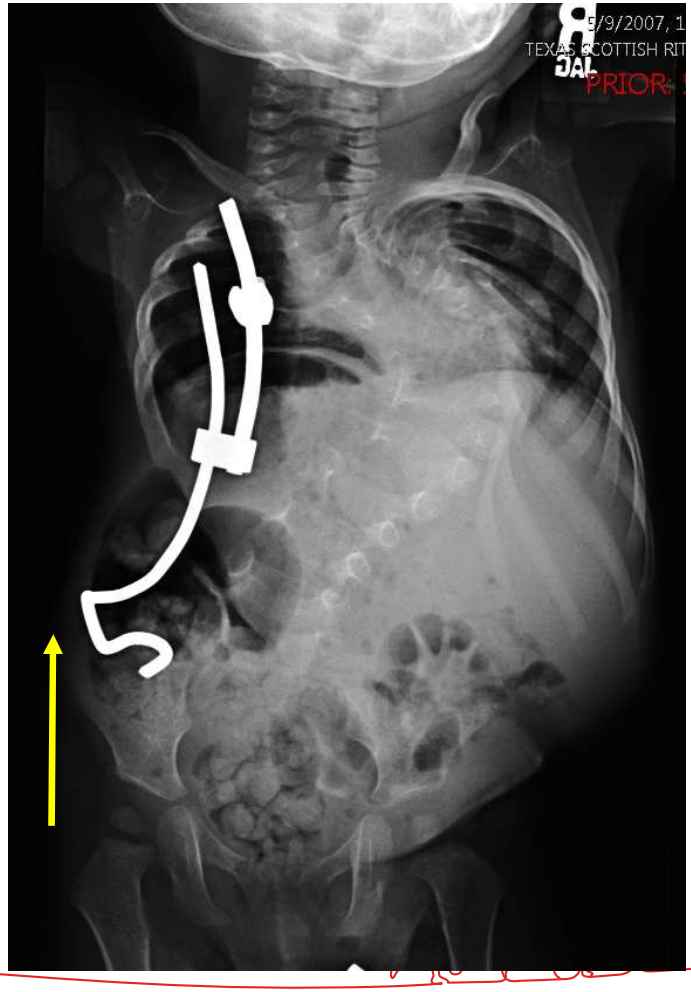


14 mo T1-12 =~8cm -> time to expand





2007



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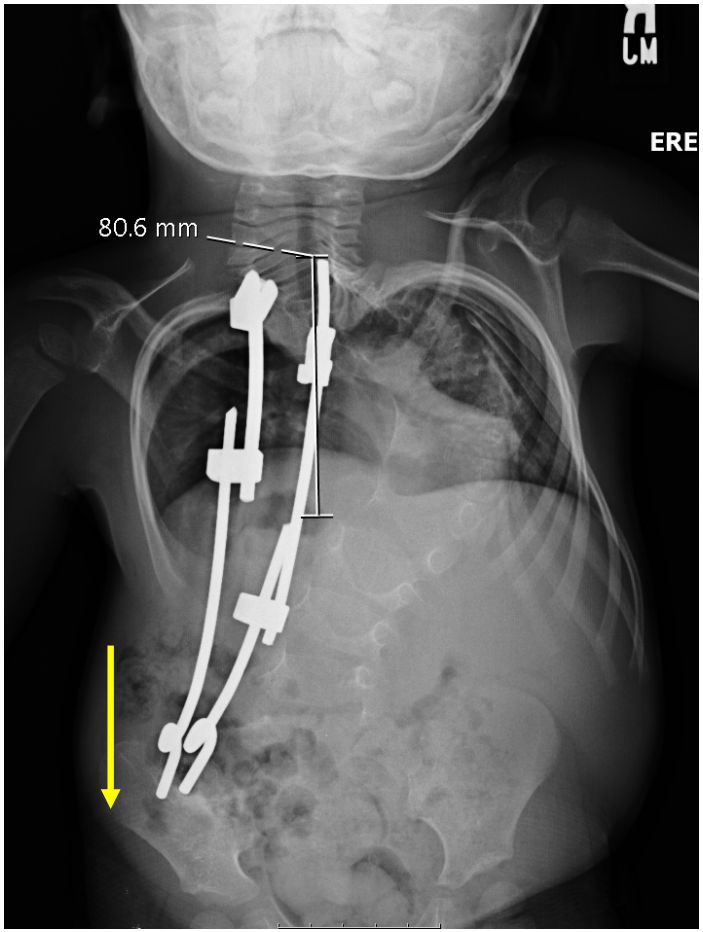
6/09 age 2+8 T1-12 8cm

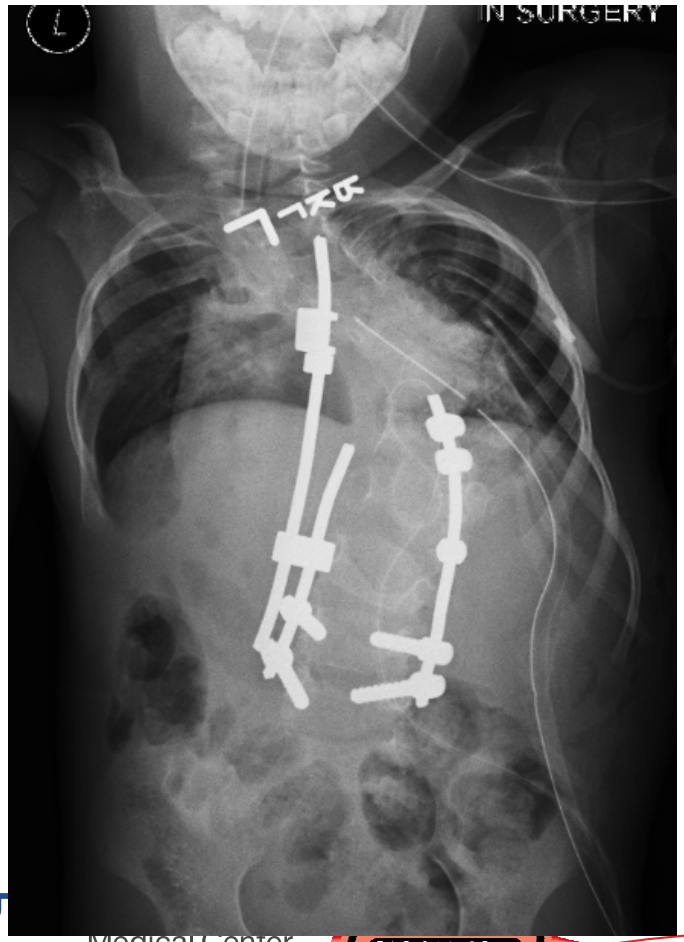


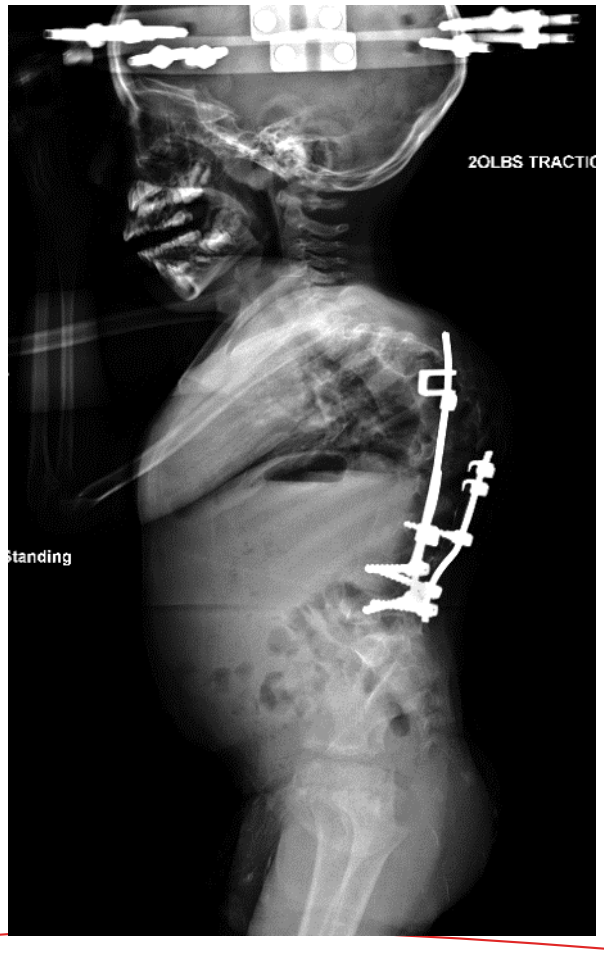
6 procedures incl add 2nd rod and revise S rods -> minimal correction + length gain, volume

Options:
-Correct deformity by HV resection
-Combine w more distraction
-Just keep going (kick)

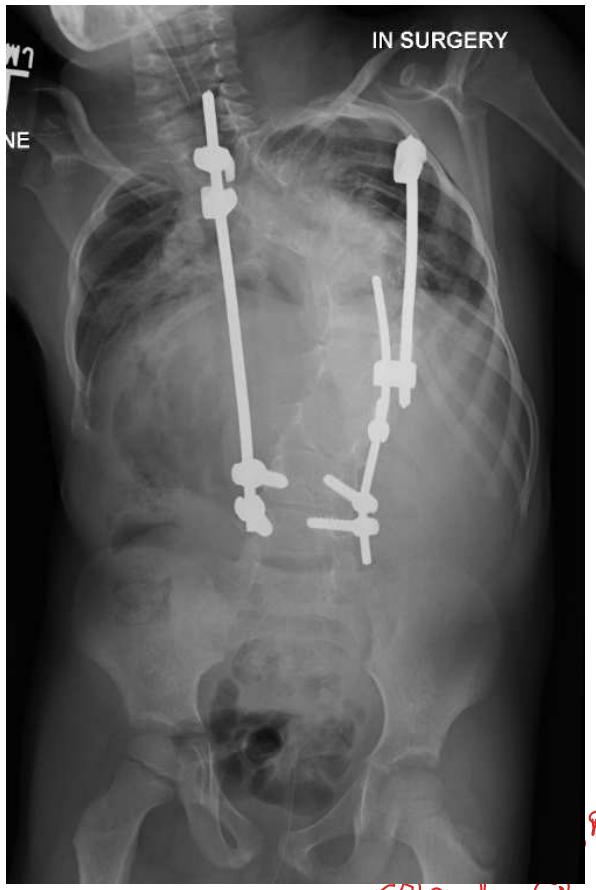
Continuing w/ distraction….

T12-L1 HV resection A/P
Should have been mid-Th ?



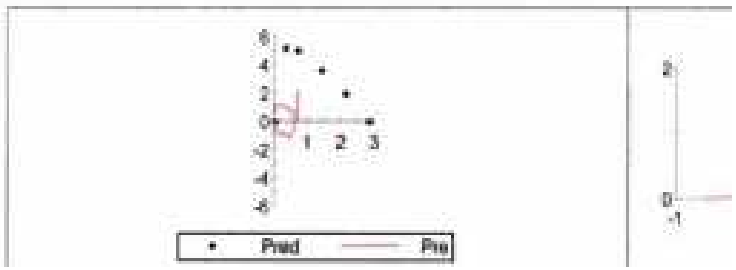


Final revision age 7

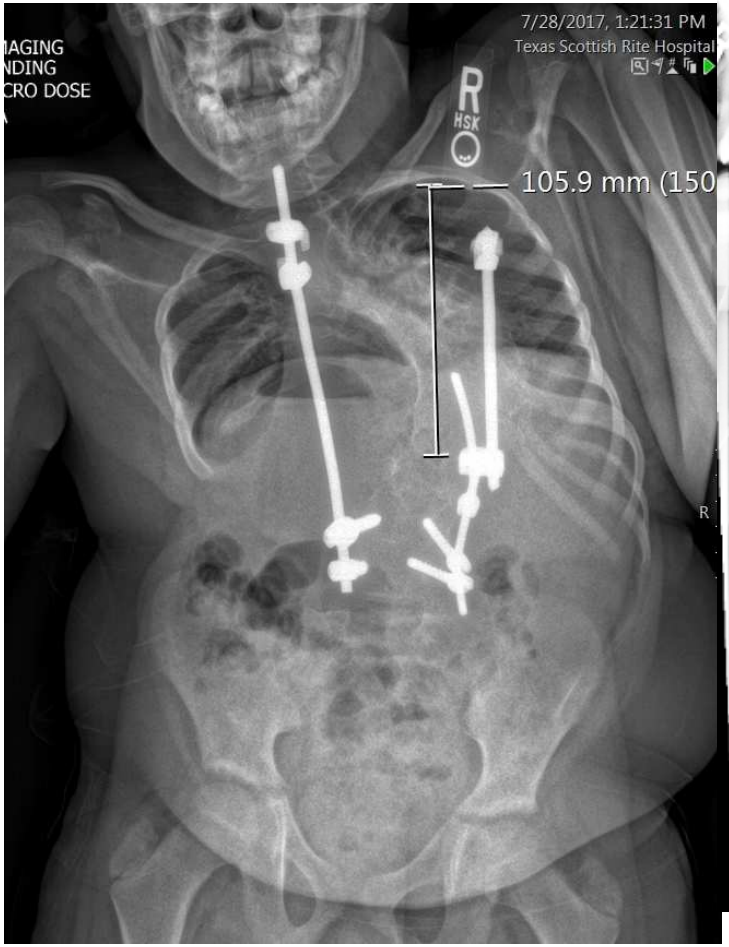


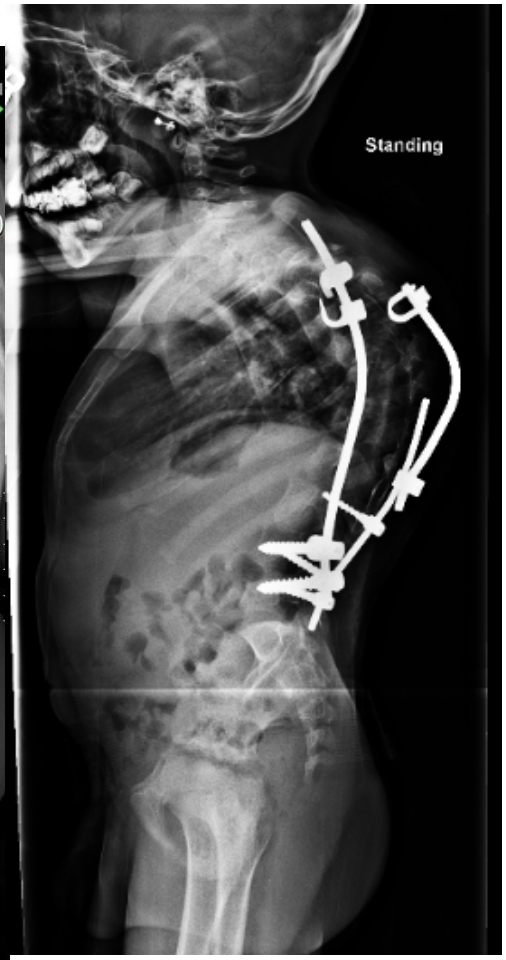
Age 12/ 13 OR's
PFT hi 20's

	Pre-Bronch		
	Actual	Pred	%Pred
--- SPIROMETRY ---			
FVC (L)	*0.70	2.82	*27
FEV1 (L)	*0.72	2.46	*29
FEV1/FVC (%)	91	87	104
FEF 25% (L/sec)	*1.07	5.01	*21
FEF 75% (L/sec)	*0.67	1.96	*34
FEF 25-75% (L/sec)	*0.84	2.80	*30
FEF Max (L/sec)	*1.13	5.22	*21
FIVC (L)	0.66		
FIF Max (L/sec)	1.15		



Unable to distract x 3 yr





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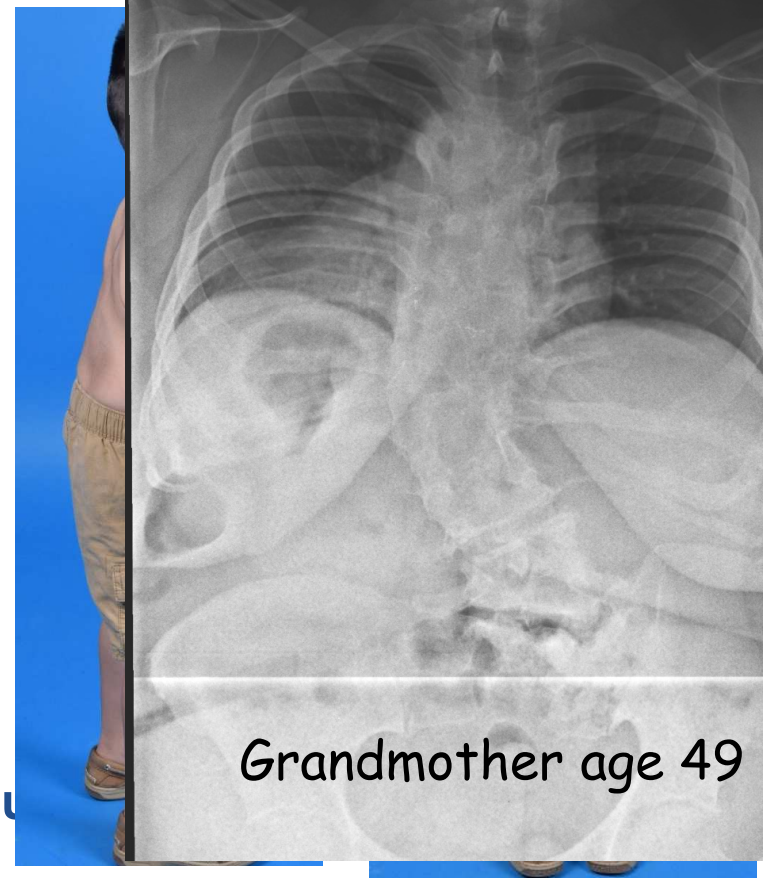
Persist with ineffective distraction…..

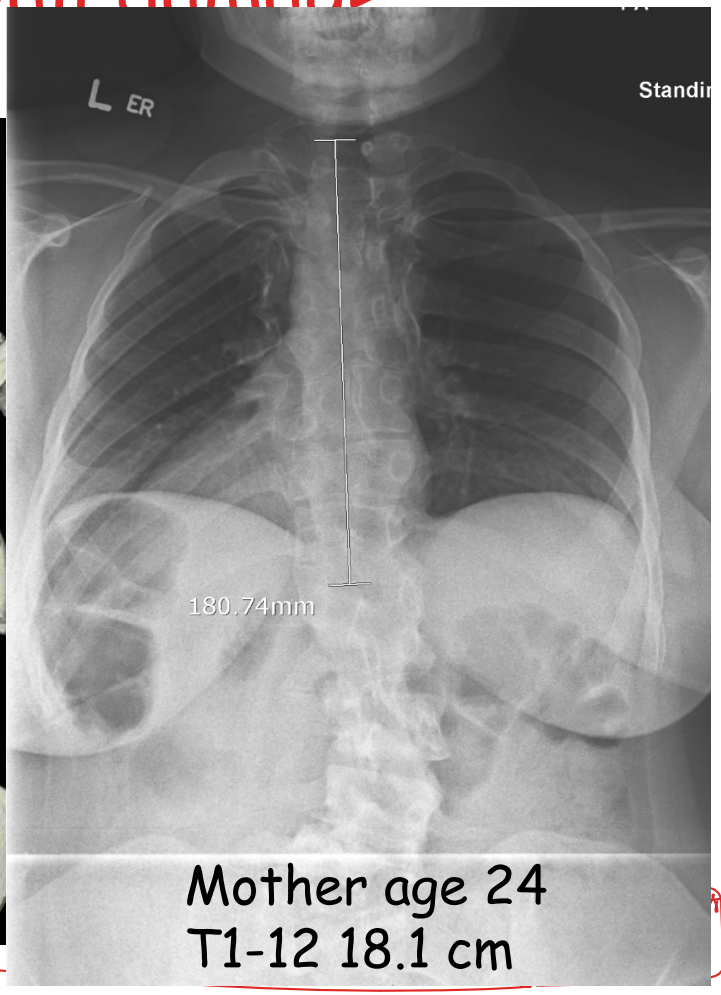
- Inadequate length
- PJK
- Crankshaft & worsening convex spine penetration (doesn't control apex)

= lousy PFT + TIS

Lesson – don't allow deformity to persist….
the **deformity** does the chest wall damage



Grandmother age 49

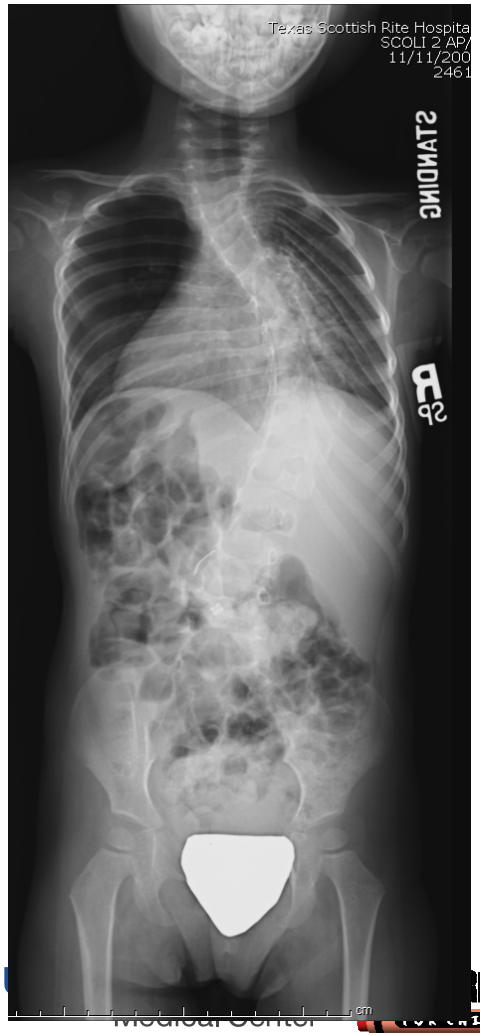


Mother age 24
T1-12 18.1 cm

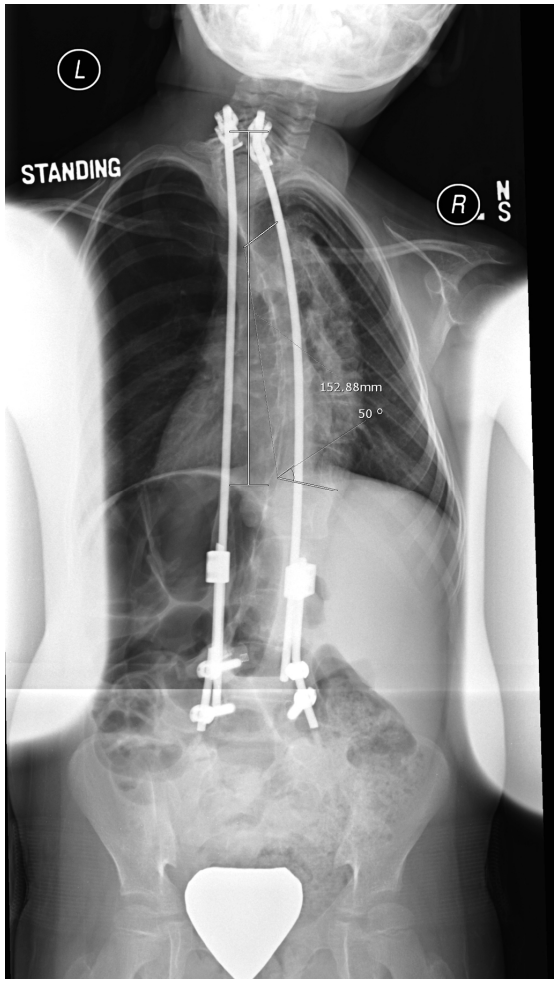
What's the alternative…?

- Lots of traction <u>early</u> – multiple sessions

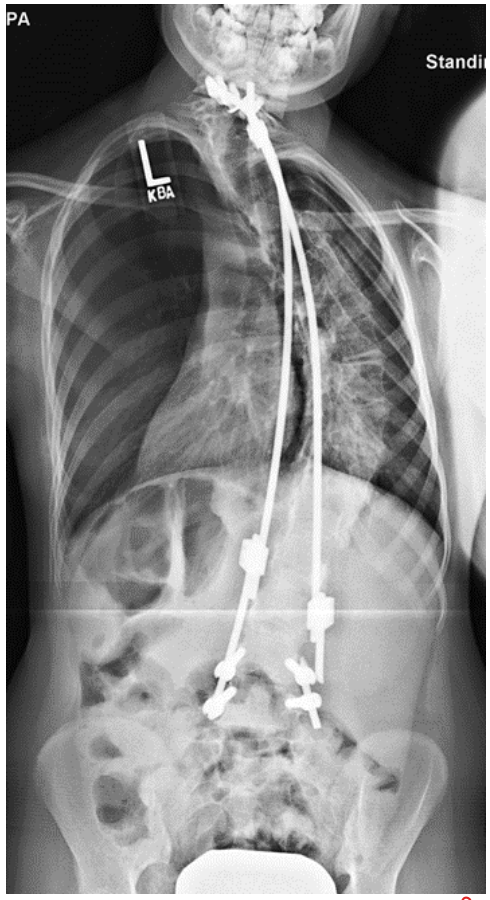
Traction X 5 sessions until age 6



1st GRI

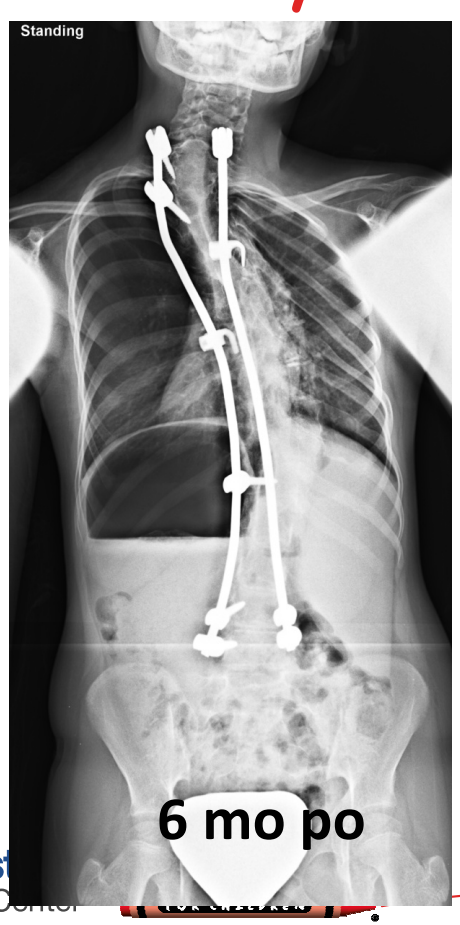


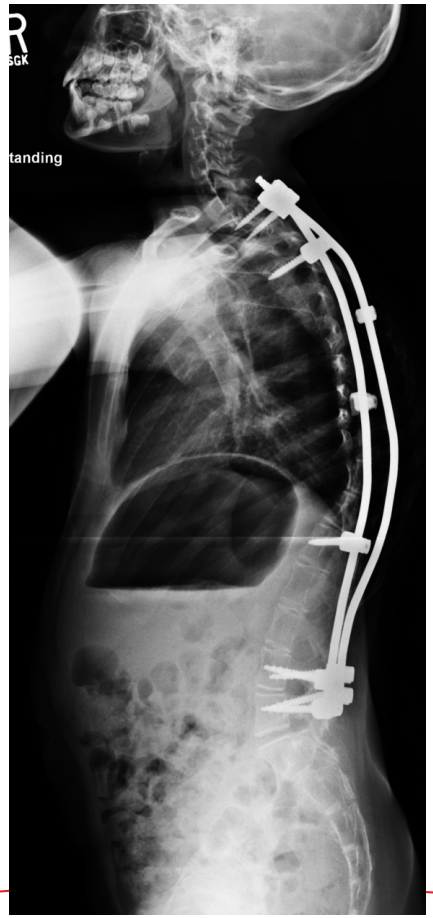
age 10



Rod removal, final HGT -> ASF/PSF

ASF (vats)/PSF with extensive posterior facet ankylosis





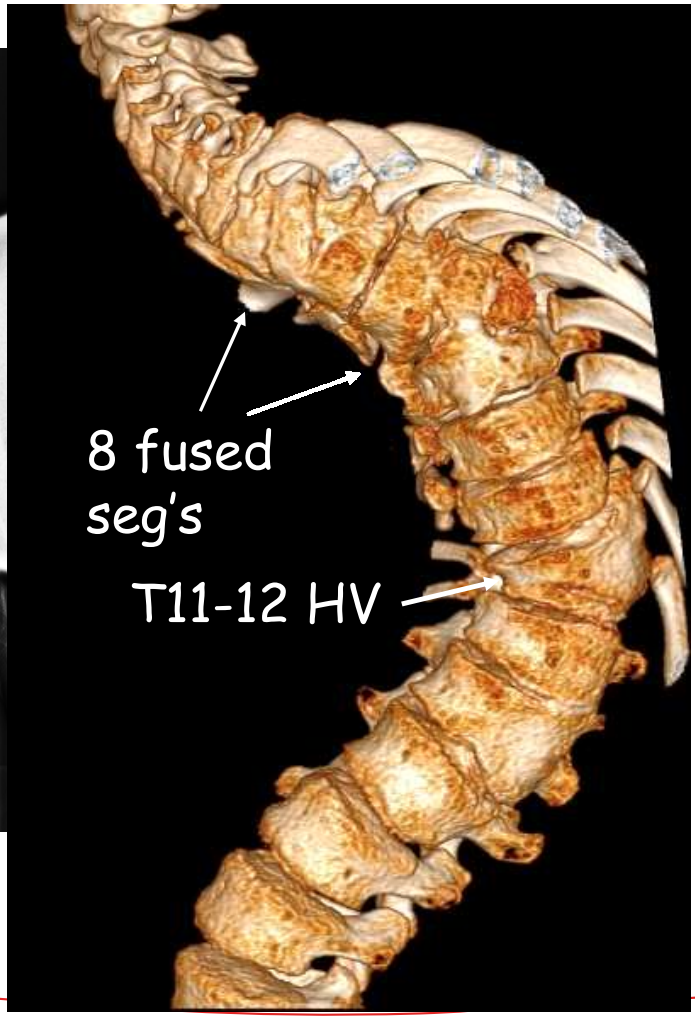
T1-12 = 22.0 cm
T1-S1 = 32.3 cm
T4-L1 48°
FVC,FEV1 hi 40's%

Caveat:
Non-congenital w/
no rib abnormality

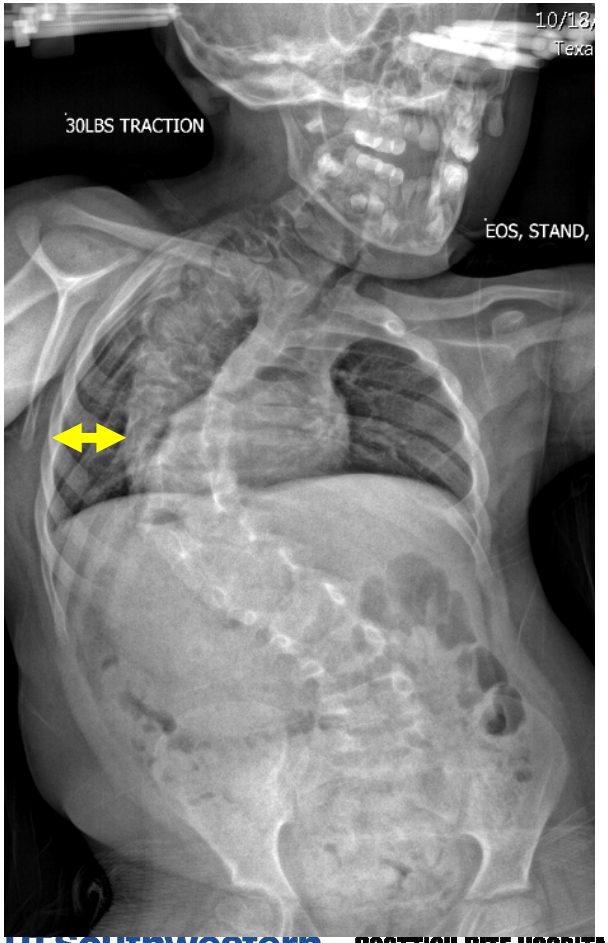
What's the alternative…?

- Resection/osteotomy combine w/ GRI -> partially correct to make distraction more effective

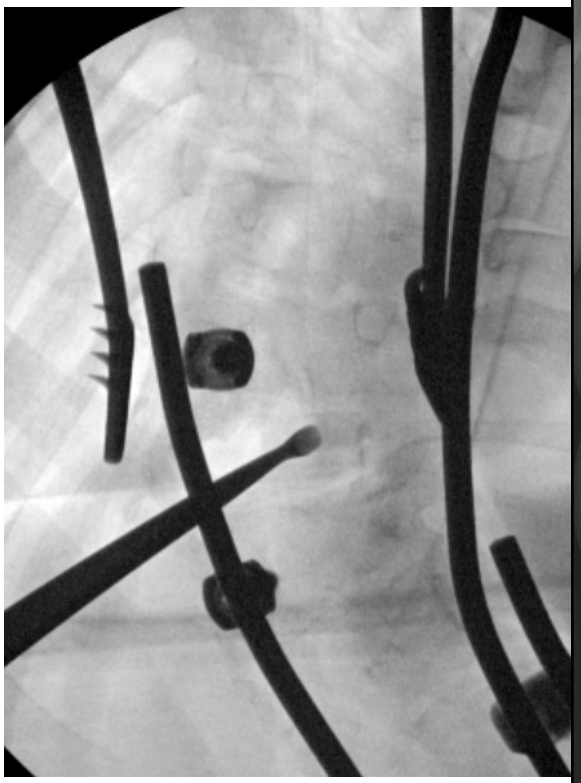
Age 6 neglected cong scoli w rib fusions, VACTERL

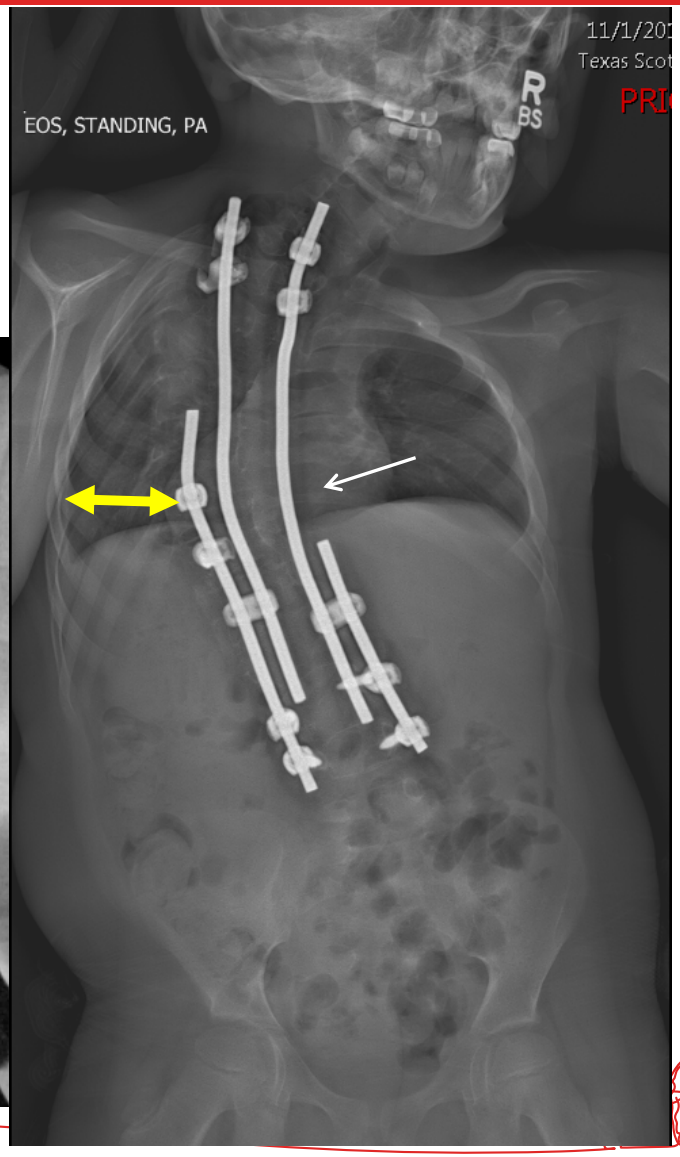


Traction – not effective



resection





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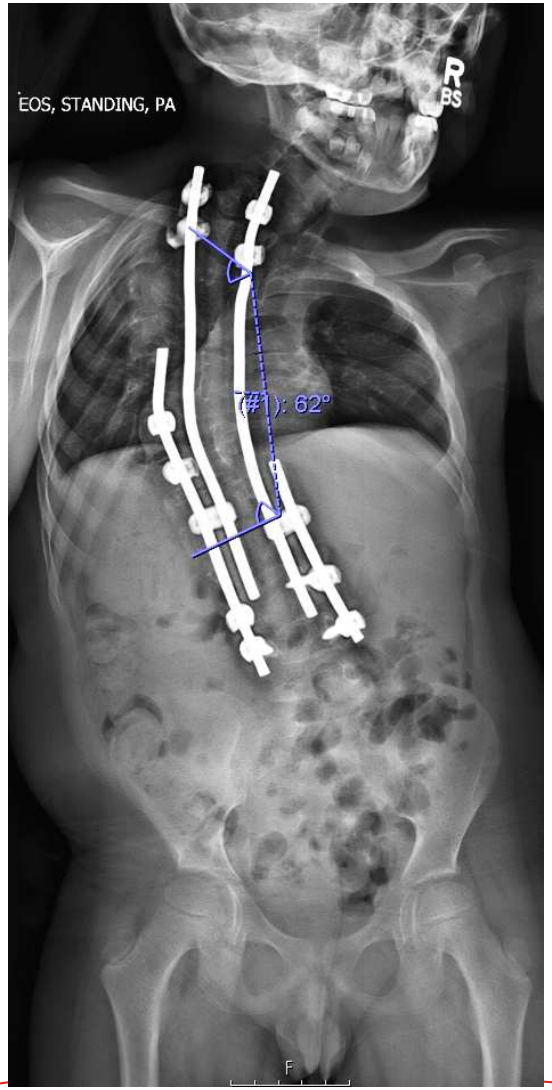
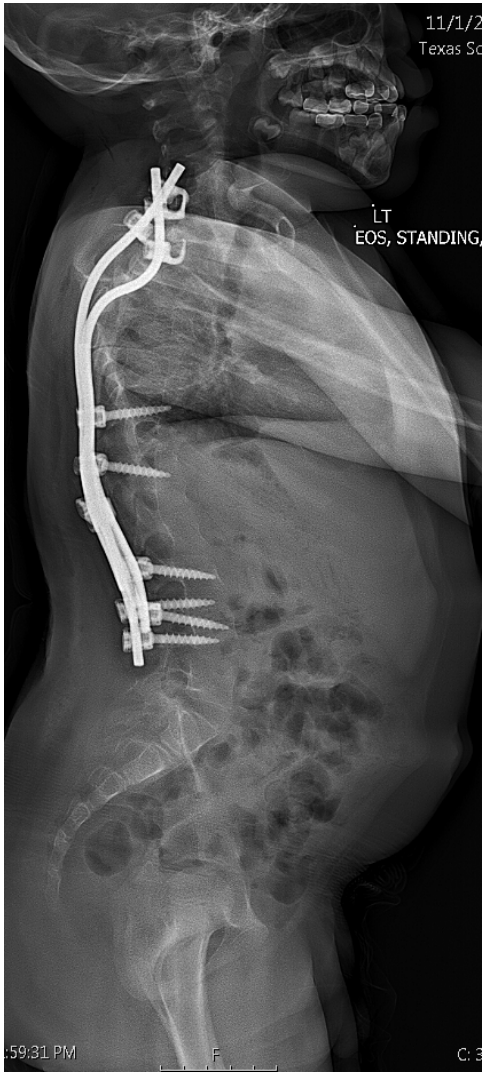
Upper 9 seg's available to be lengthened (most of seg's = fused) -> not definitive
But…deformity better managed





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What about early fusion? L. Karol data

<18 but 55-85%

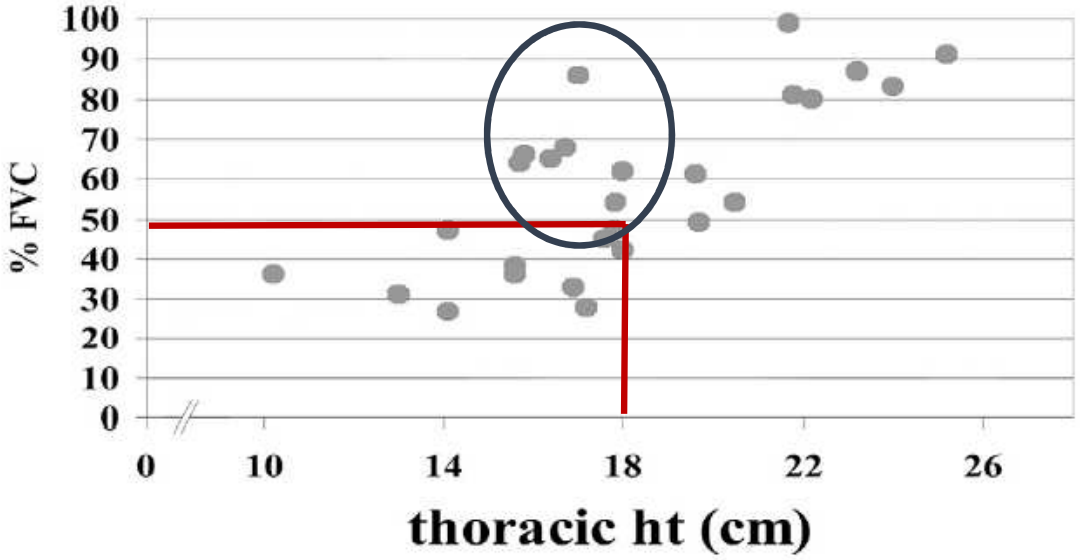

Fig. 3

The thoracic height at the time of follow-up versus the percentage of predicted forced vital capacity (FVC). Patients with the shortest thoracic spinal height (measured from T1 to T12) had the greatest restriction of pulmonary volume ($r = 0.73$, $p < 0.001$).

Pulmonary Function Following Early Thoracic Fusion in Non-Neuromuscular Scoliosis

By Lori A. Karol, MD, Charles Johnston, MD, Kiril Mladenov, MD, Peter Schochet, MD, Patricia Walters, RRT-NPS, and Richard H. Browne, PhD

Investigation performed at the Department of Orthopaedic Surgery, Texas Scottish Rite Hospital for Children, Dallas, and the Department of Pulmonology, Children's Medical Center of Dallas, Dallas, Texas

Applies only to cases fused w/ mimimal correction

Big curves fused in situ

Distraction-based Rx and The 18cm hurdle

El—Hawary et GSSG,CSSG

135 pts. / mean lengthen 11

Final Th Ht > 18 cm **65%**

> 22 cm 30%

<u>>18cm</u>

Congen **48%**

N-m 80%

Syndr 86%

JIS/IIS 68%

Rest doomed?

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Summary

- We don't really know where "sweet spot" combining length and deformity correction lies
- Short stature patients w/o deformity and no other morbidity = healthy
- Emphasis on too short most likely misplaced
- Deformity control = best insurance vs. TIS

You can't shine suede