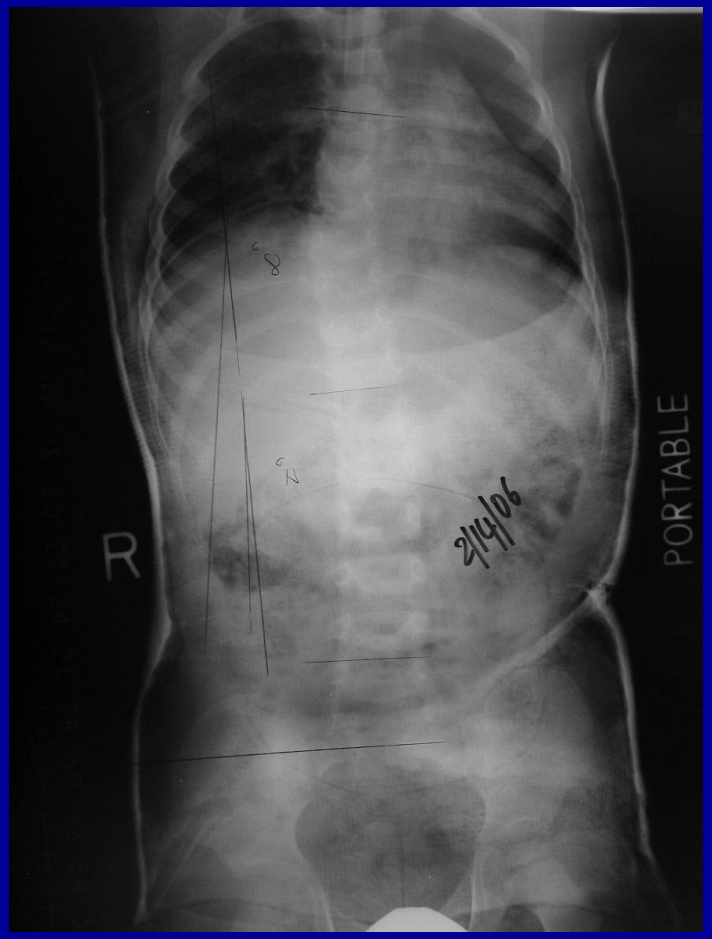
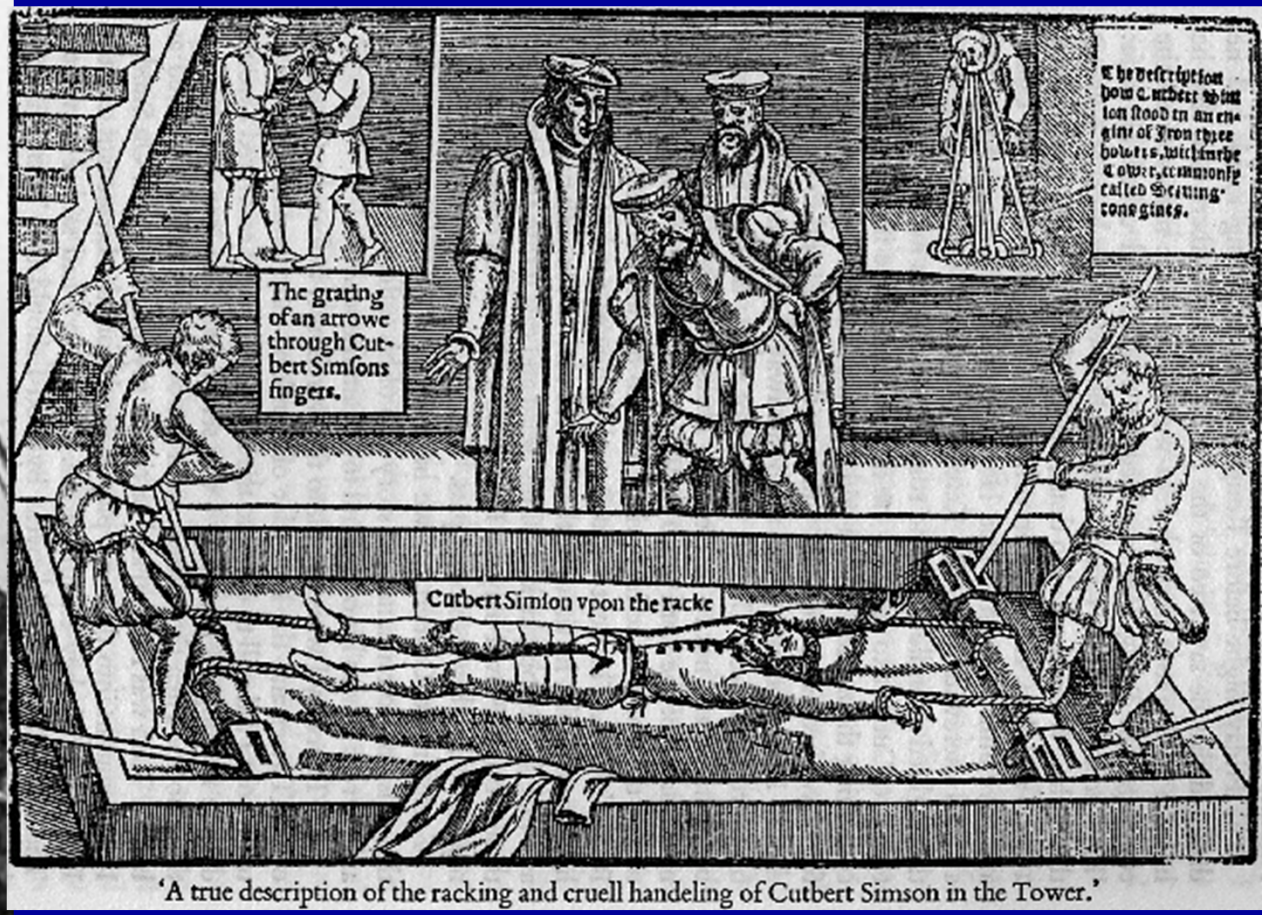
Casting for Early Onset Scoliosis



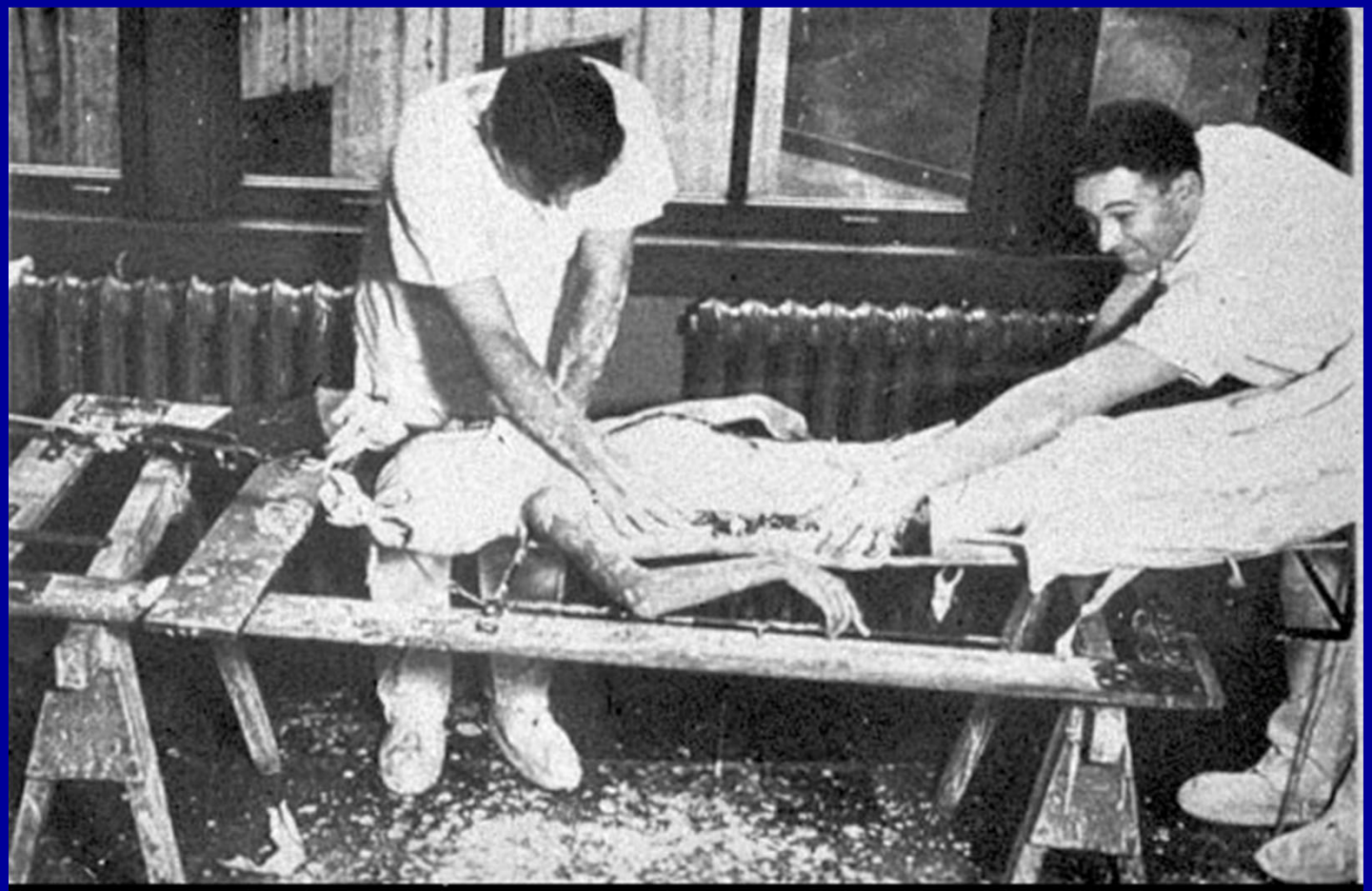
Jim Sanders, MD
University of Rochester Dept. of Orthopaedics
Golisano Children's Hospital

What were the dark ages like for scoliosis treatment?



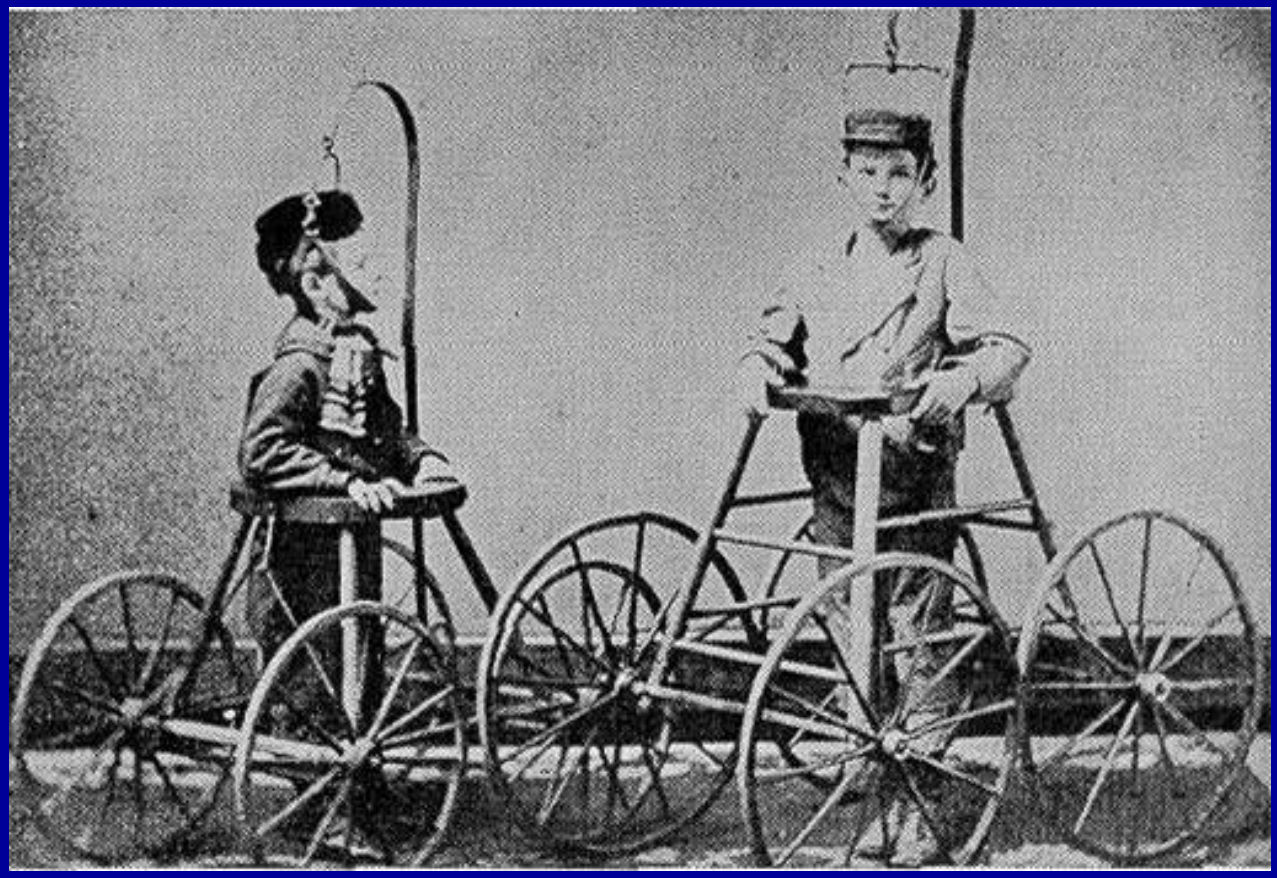
'A true description of the racking and cruell handeling of Cutbert Simson in the Tower.'

Barbaric thing like: Casts



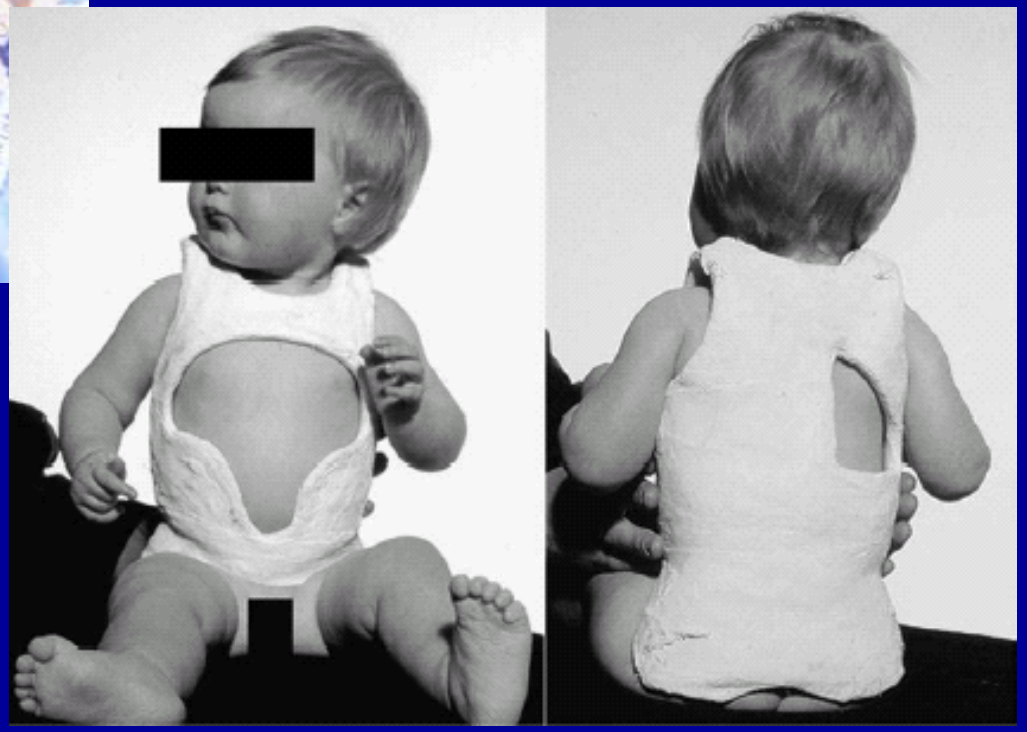
J.C. Risser - New York Orthopedic Hospital 1926

Or Traction



Fortunately, we now have Modern Treatments!

Min Mehta



Attributes technique to Cotrel and Morel (EDF cast)

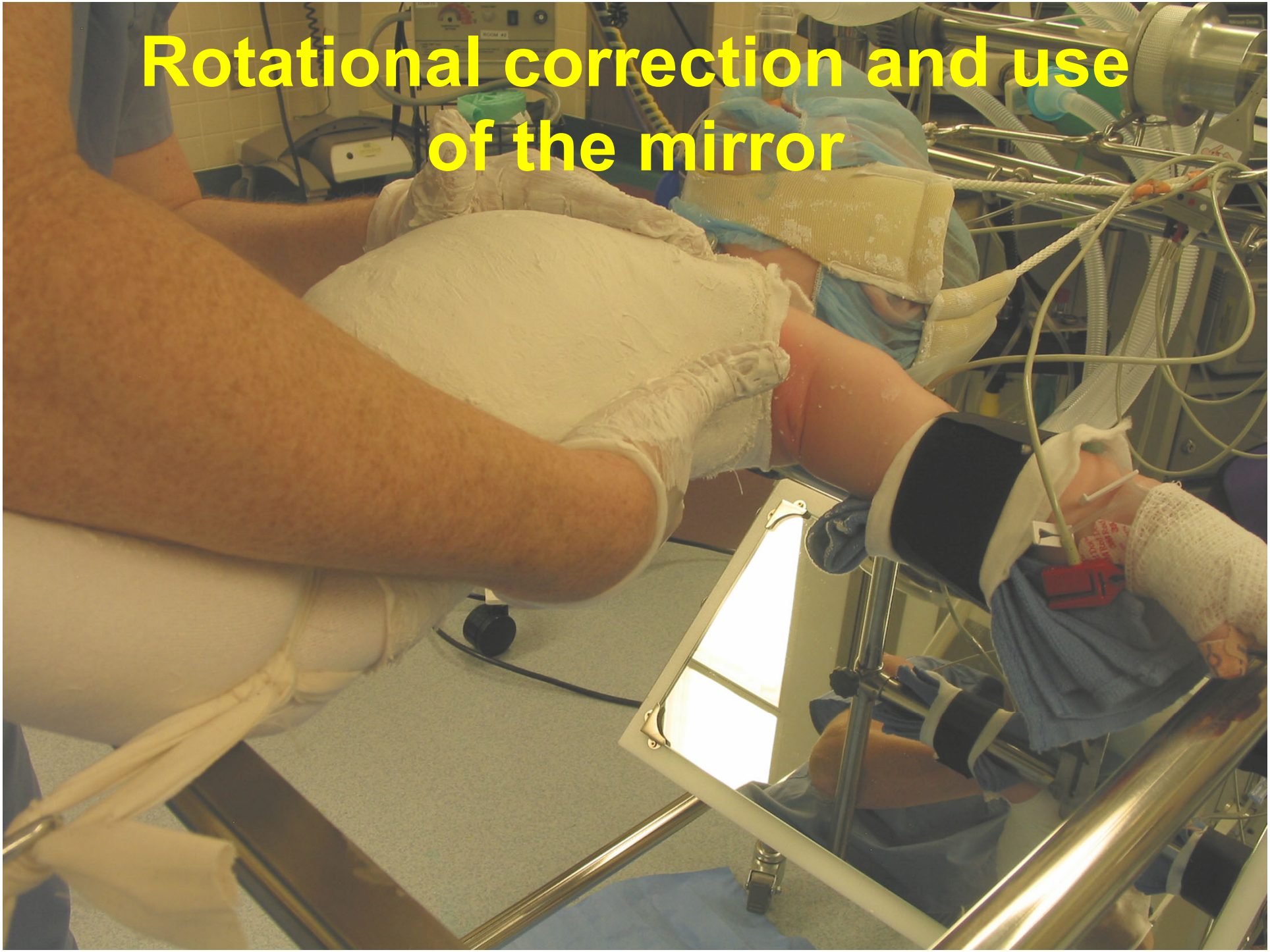
Technique:

- A Proper Table
- Intubation
- Traction

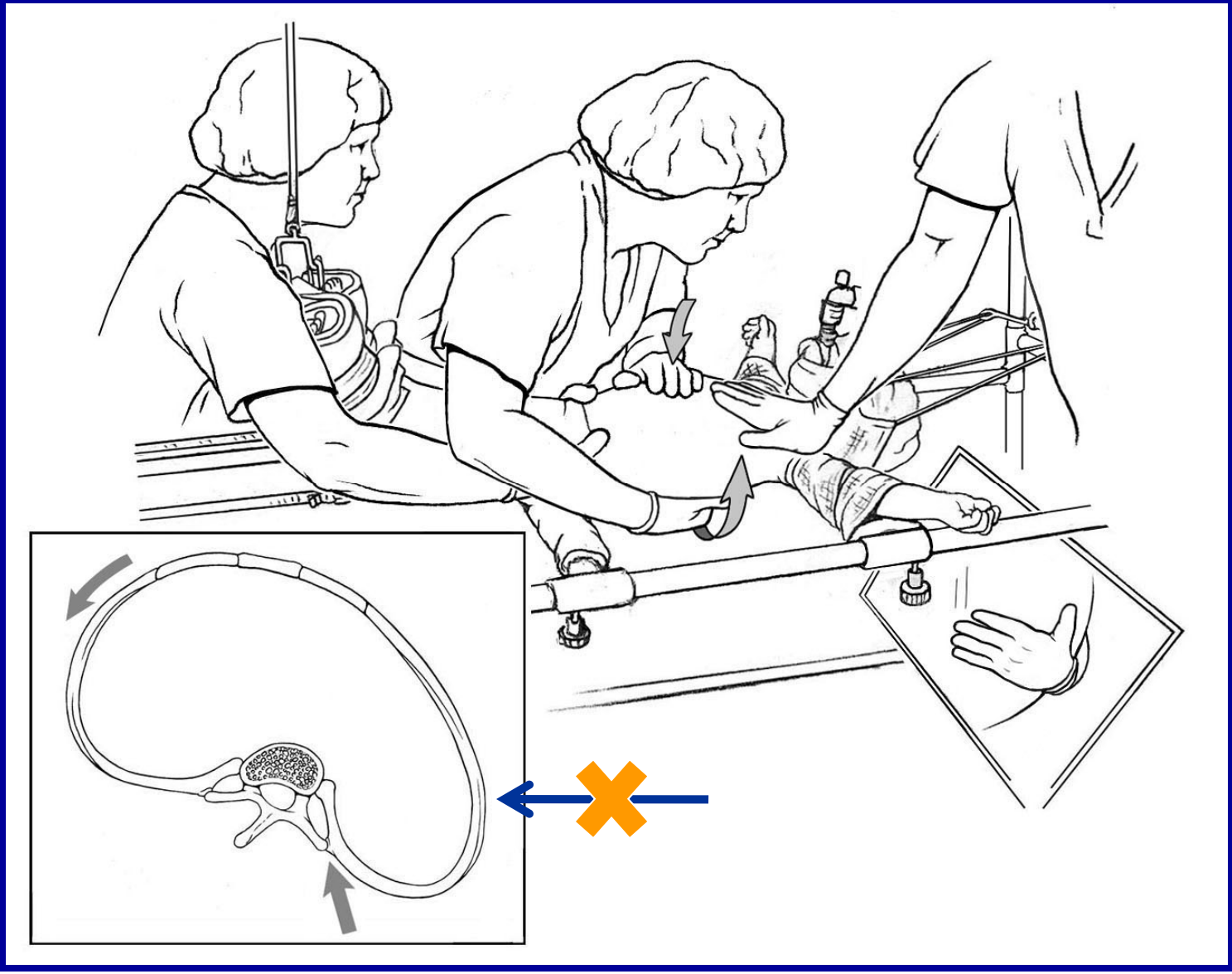
Pelvic Mold

- Mold the Pelvis Well.
- It is the Foundation.

Rotational correction and use of the mirror

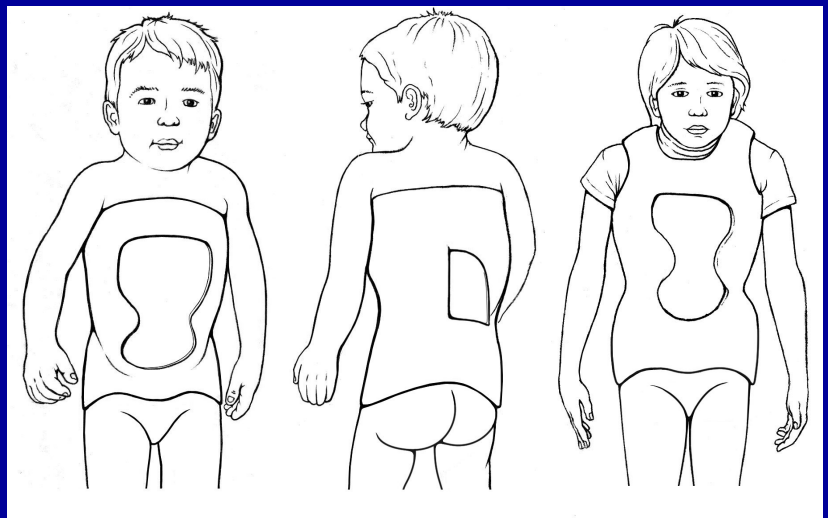


The Correction is Rotational and Not Lateral



Trims

- No difference in over from under the shoulders casts for most
  - Typical apex is lower thoracic
  - Go over the shoulders for higher apex (T7-8 disc and above)
- Make a concave window
- Abdominal and chest relief
- Pelvis sufficient for >90 degree hip flexion



Protocol

- Cast changes based on age:
  - ≤2 yrs, q2 months
  - 3yrs, q3 months
  - ≥4yrs, q4 months
- Cast until gone or stabilized
- Bracing holidays periodically in older children.
- Brace for 1 year after correction

Casting is well tolerated

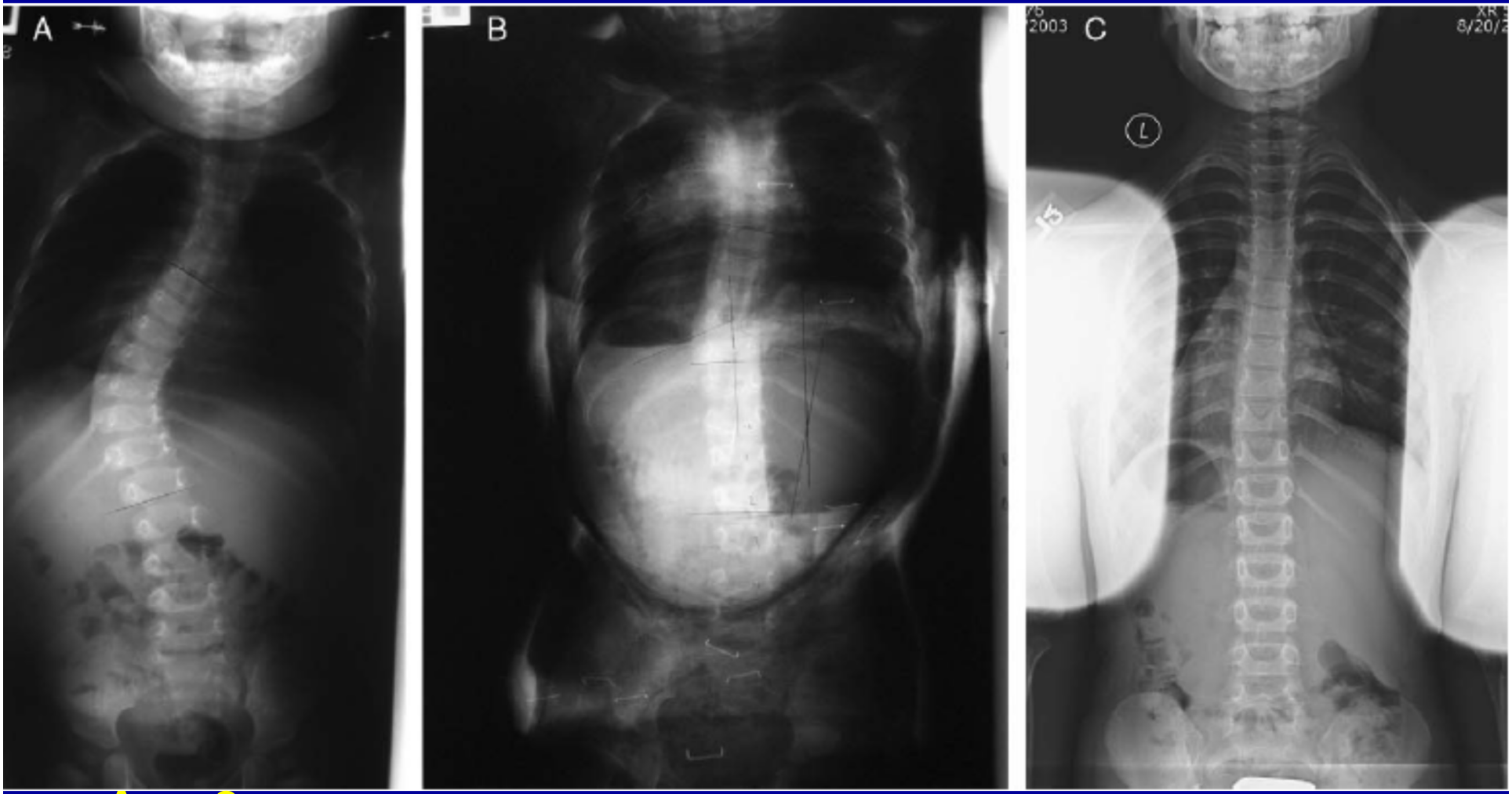
Prognosis

- Better with:
  - Younger Age at Start
  - Idiopathic Diagnosis
  - Moderate rather than Severe Curve (<60º)
- Worse with:
  - Older age at Start
  - Syndromic
- But, curves still improved and delayed surgery effectively in large majority

Results:

Follow up Cobb Angle	#	Age at Start	Cobb at Start	RVAD at Start	Nash at Start	Etiology
<10	14	1.1	36	24	1.8	12 idiopathic 1 tethered cord 1 minor brain
11 to 21	5	2.5	42	20	2.5	4 idiopathic 1 tethered cord
21 to 40	13	2.6	56	30	2.6	8 idiopathic 5 syndromic
>40	15	2.5	60	33	2.2	7 idiopathic 8 syndromic
Cobb worsened.	6	1.8	71	45	2.5	1 idiopathic 5 syndromic

Pre and Post Casting



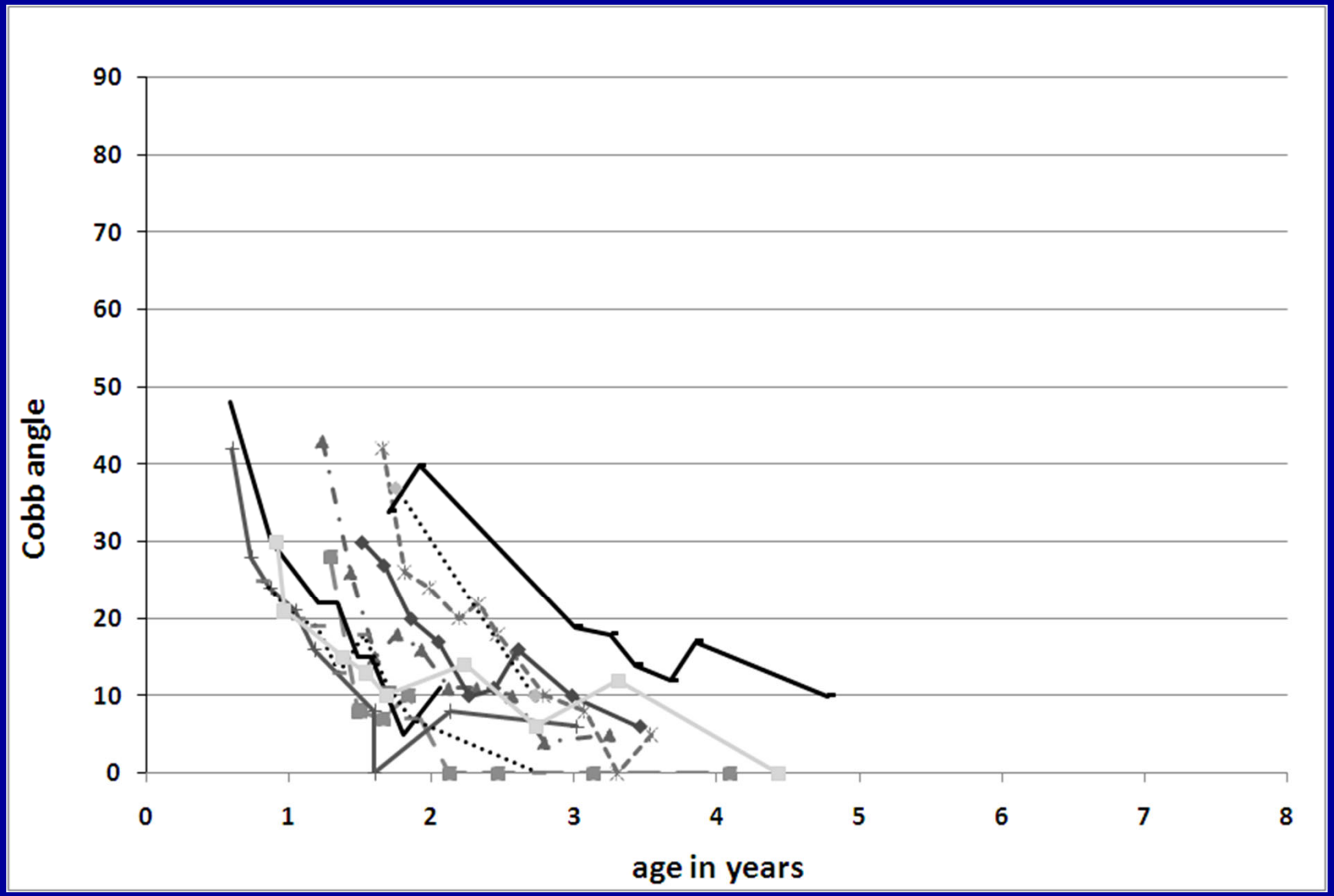
Age 8 mo

Cobb 52

RVAD 39

Age 5+3 years

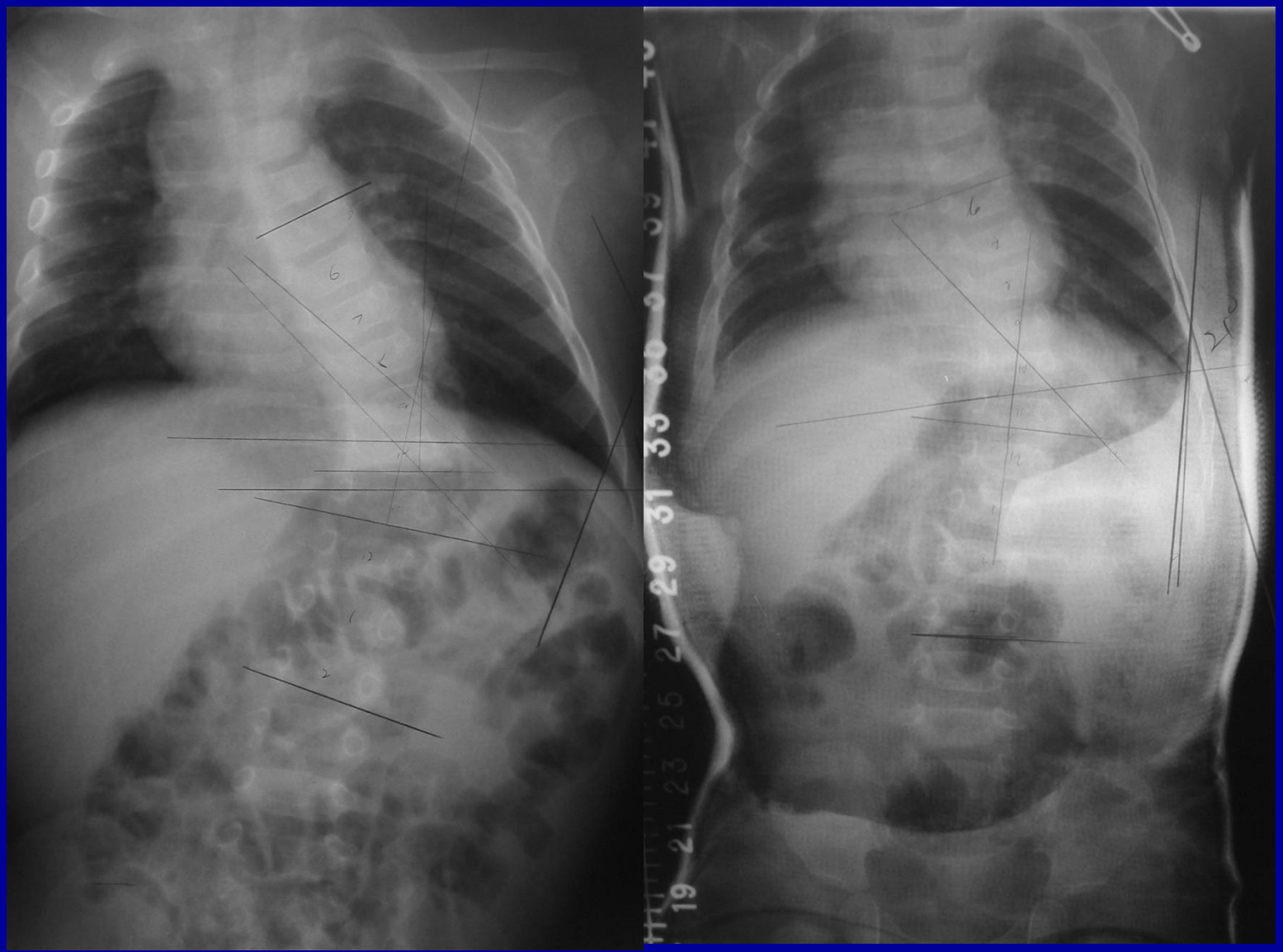
Many Resolve – younger idiopathic



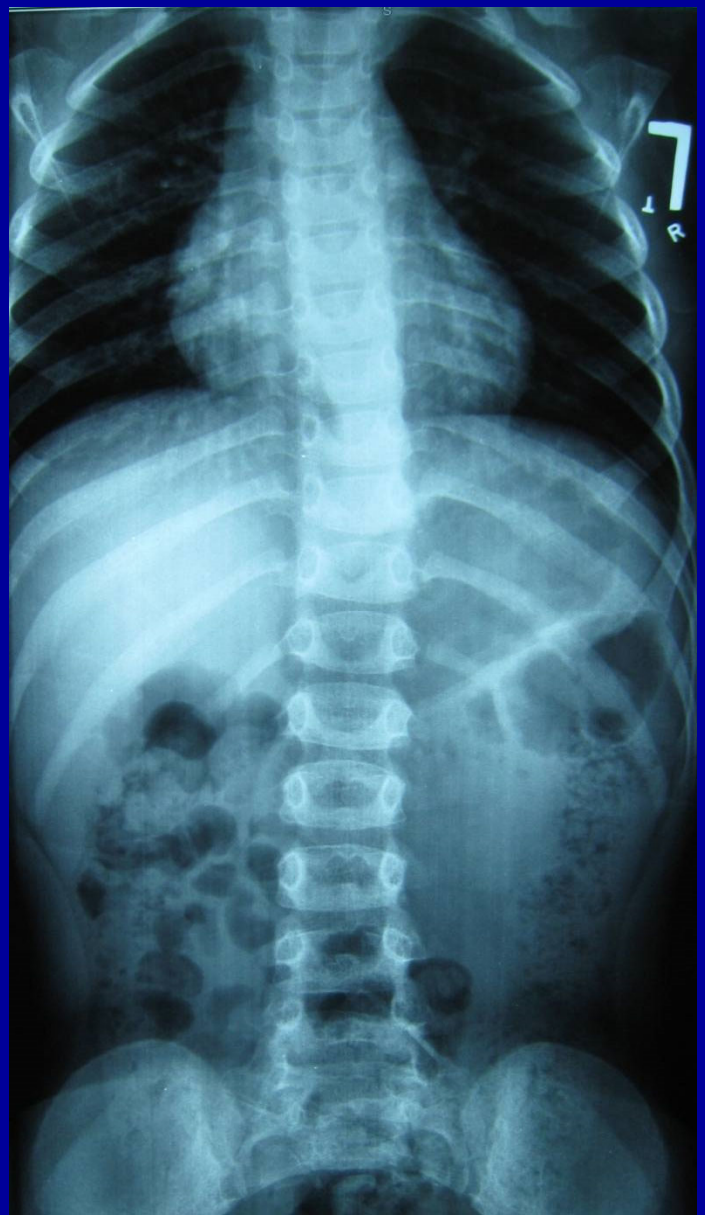
Why Not Brace Since it is Nice to Remove it?

- Bracing's benefit is also its deficit.
- Because it can be removed, it will be removed.
- Less correction is possible because of flexibility for donning.

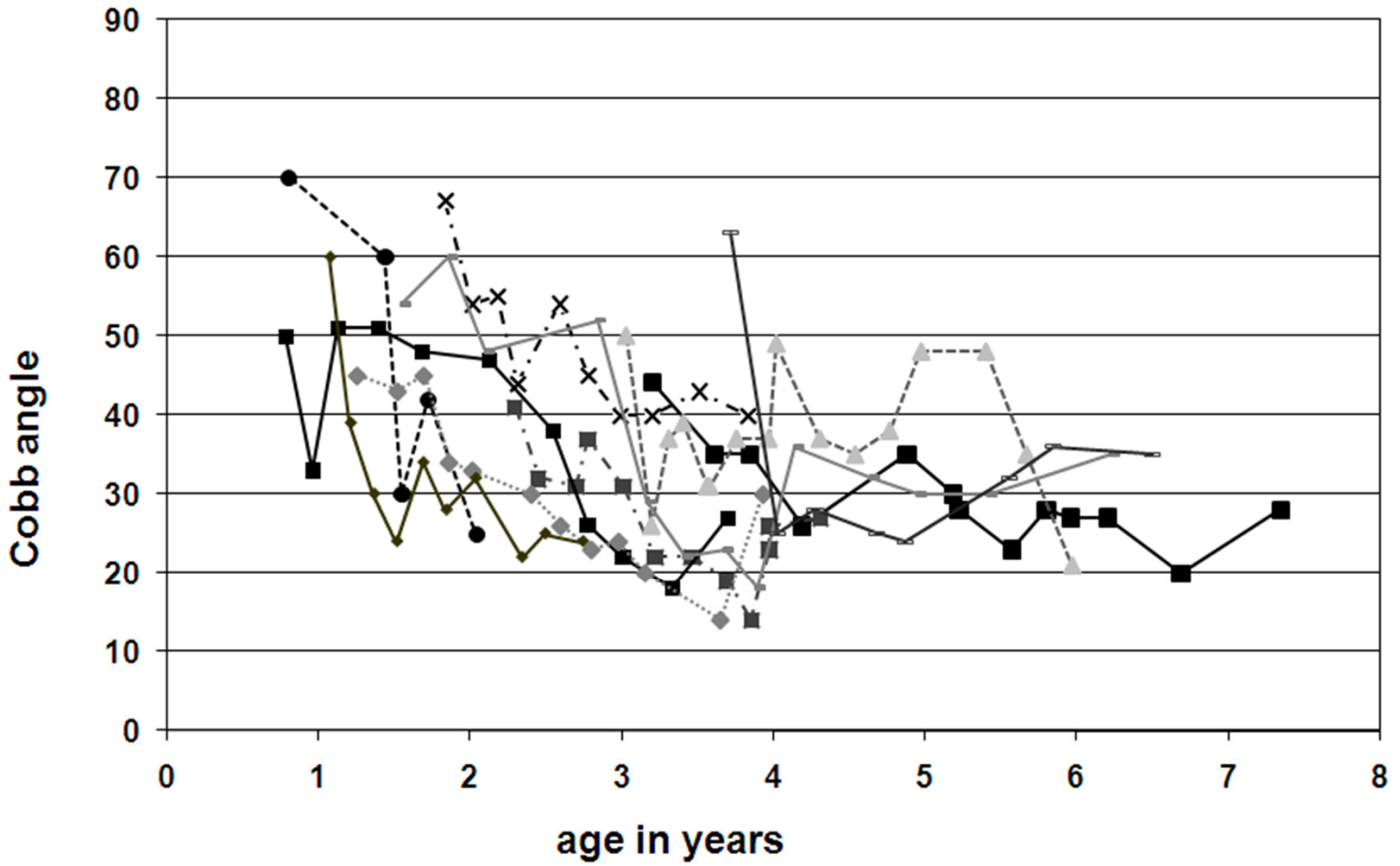
So, we all like this patient:



3 years later:



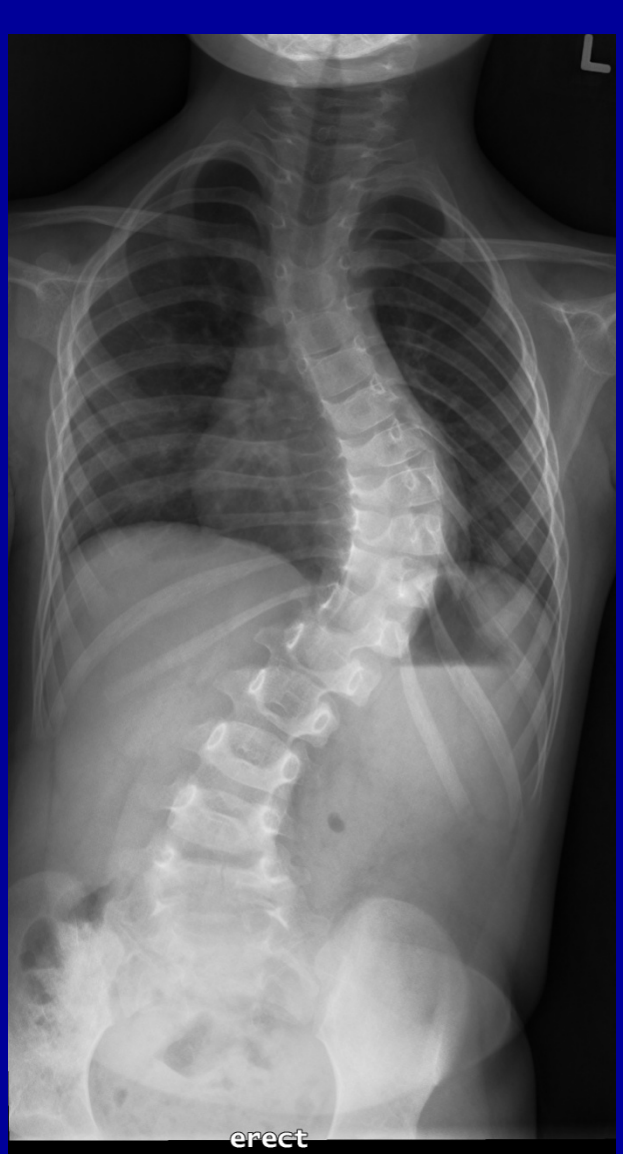
Many More Decrease

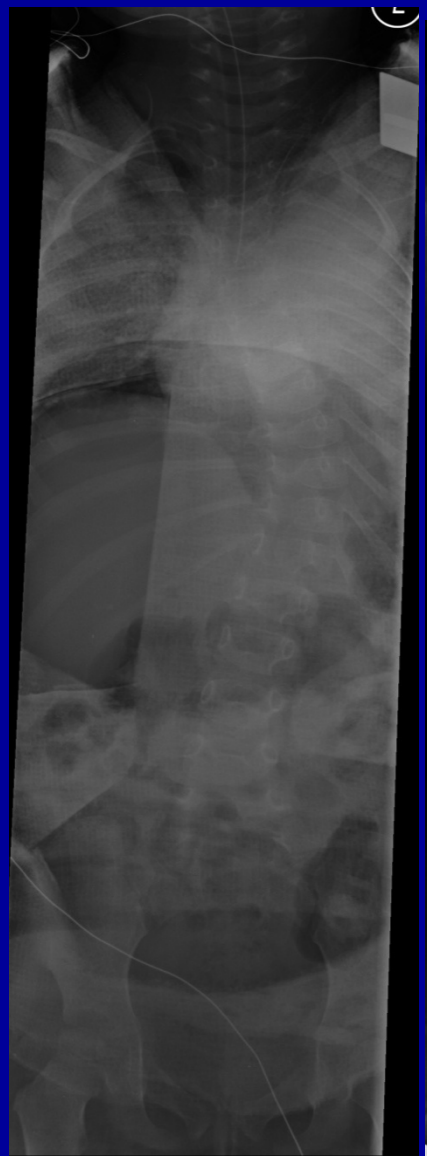


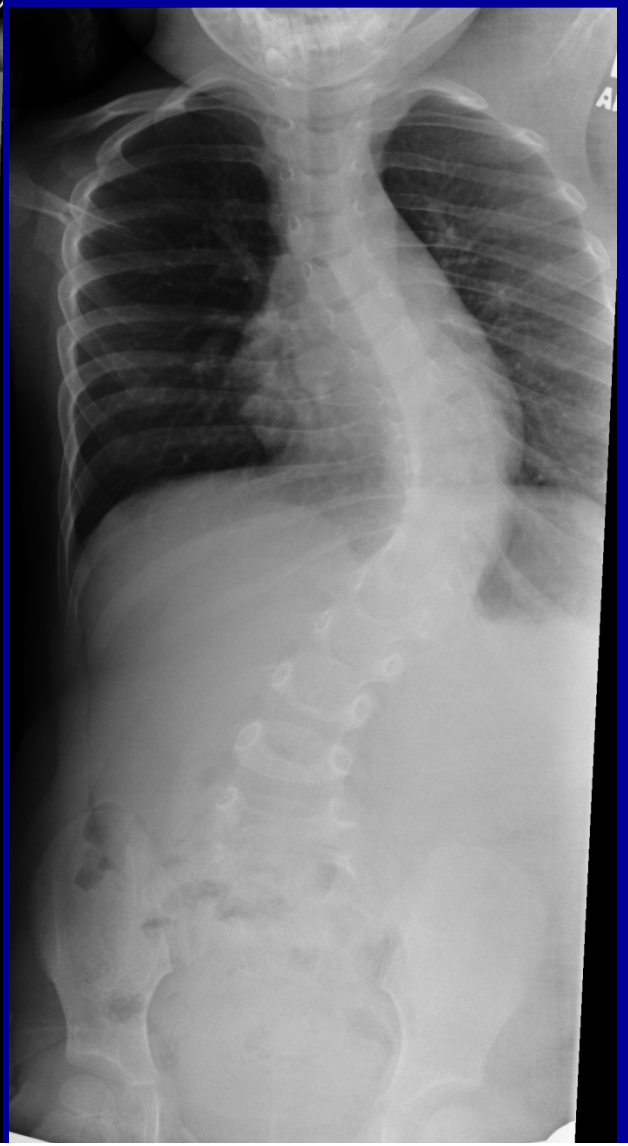
What about those who were not cured?

- Curve worsened = True Failure
- If not cured but it beats the natural history or other treatments, it's good
- Delaying surgery while preserving lung growth is good.

Started at 2+5 – Now 6+0
No worse but no better



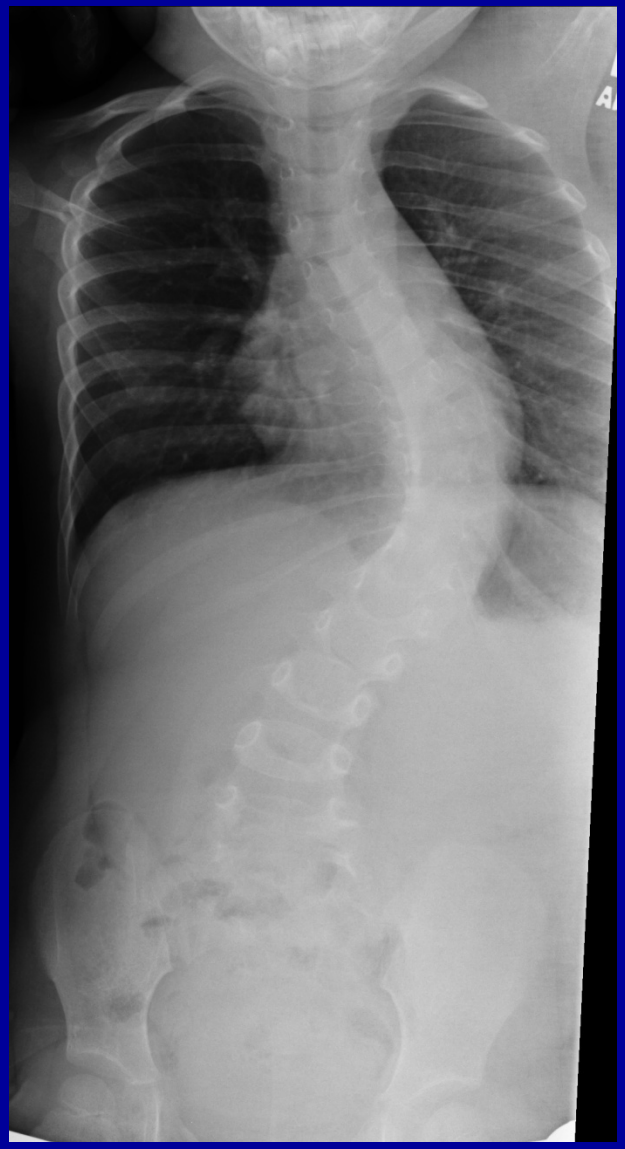




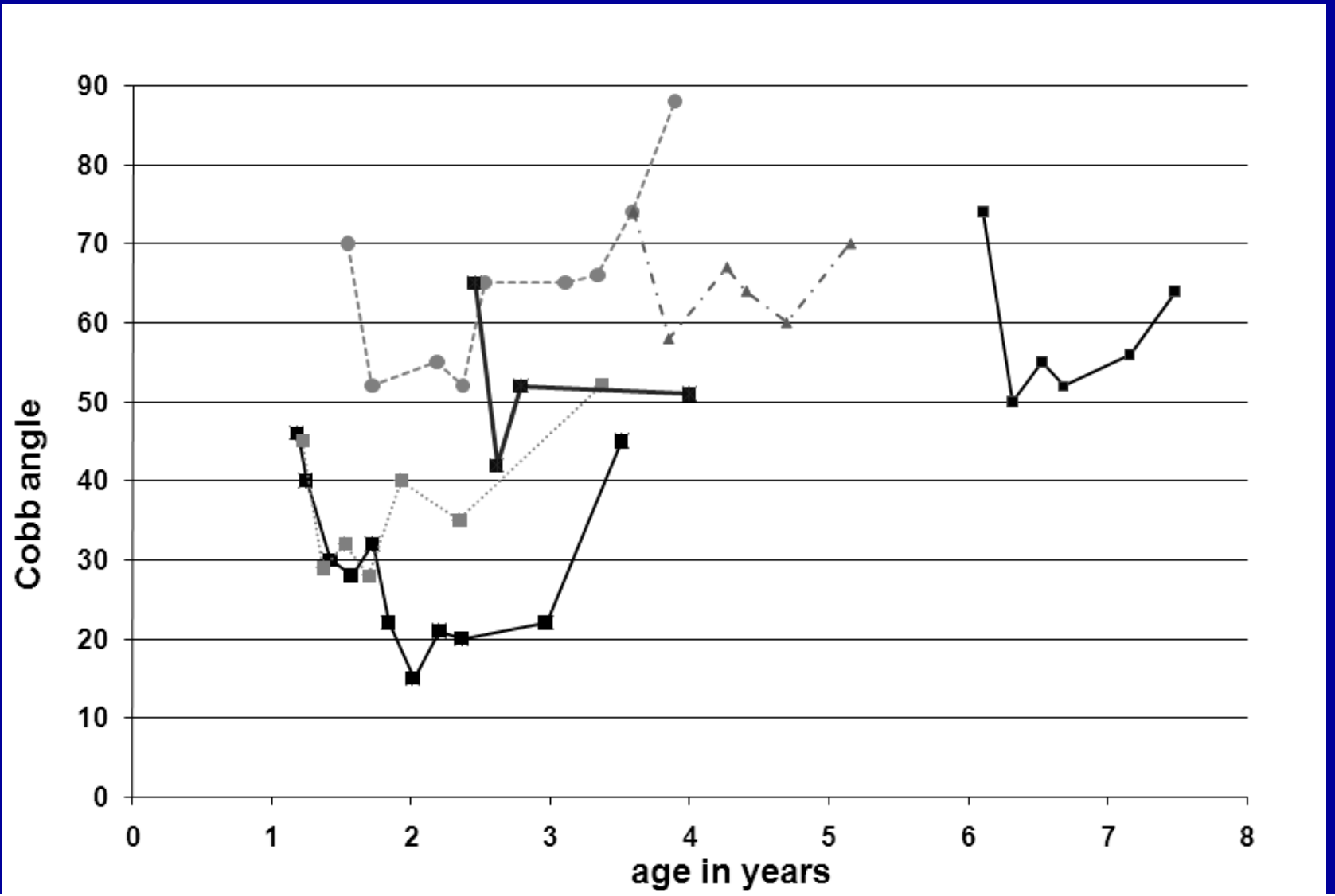
Good because it is not worse?

Bad because it is no better?

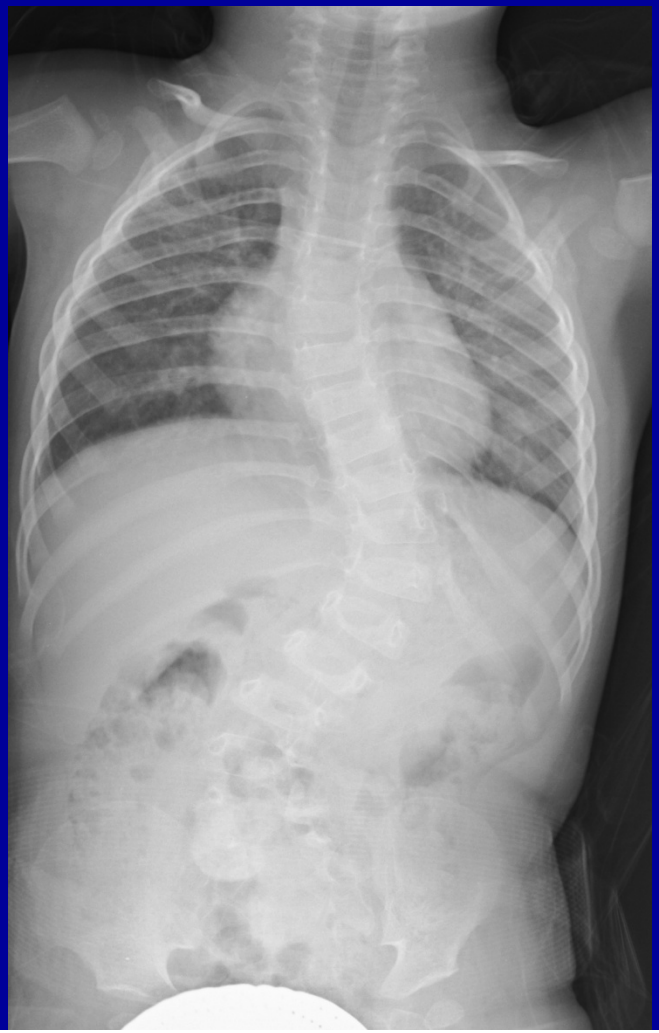
Good because it is 3.5 less years for growth rods?

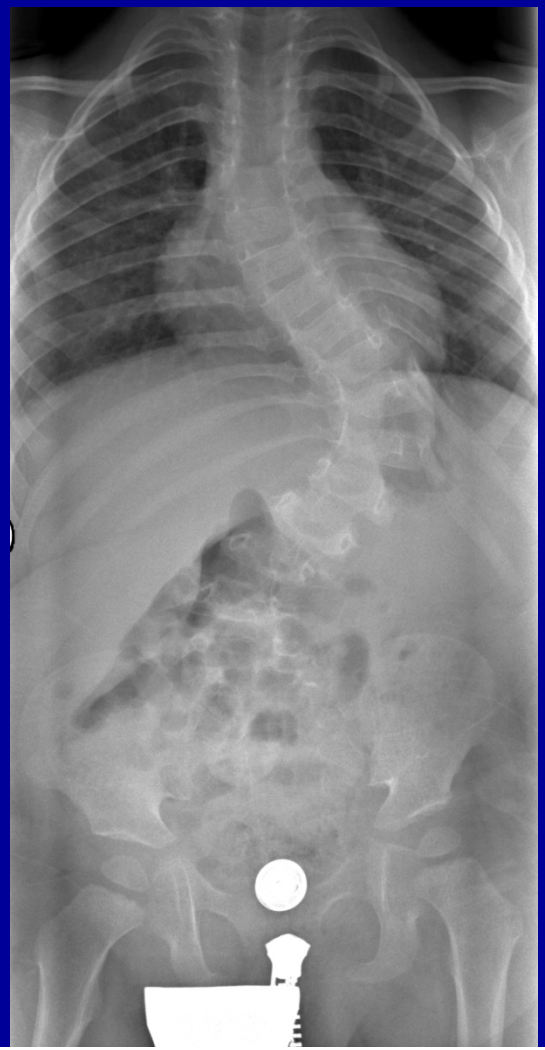


Some Worsen

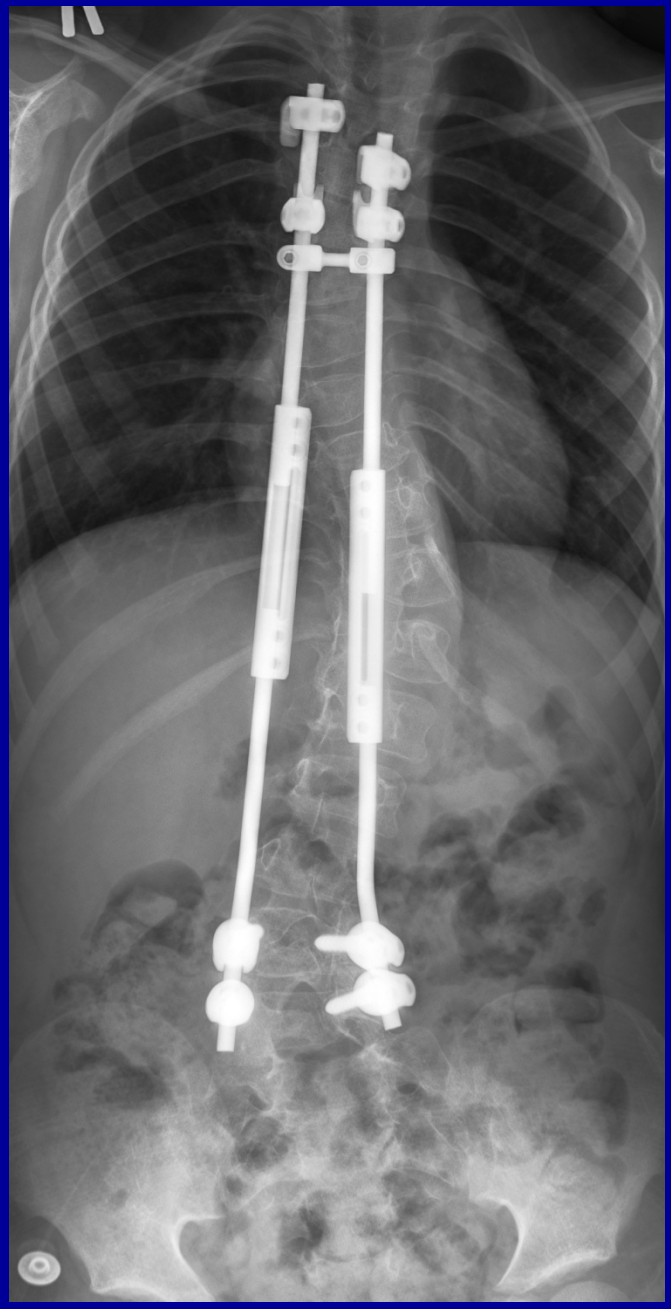


Ehler's Danlos – started casting age 3+7.



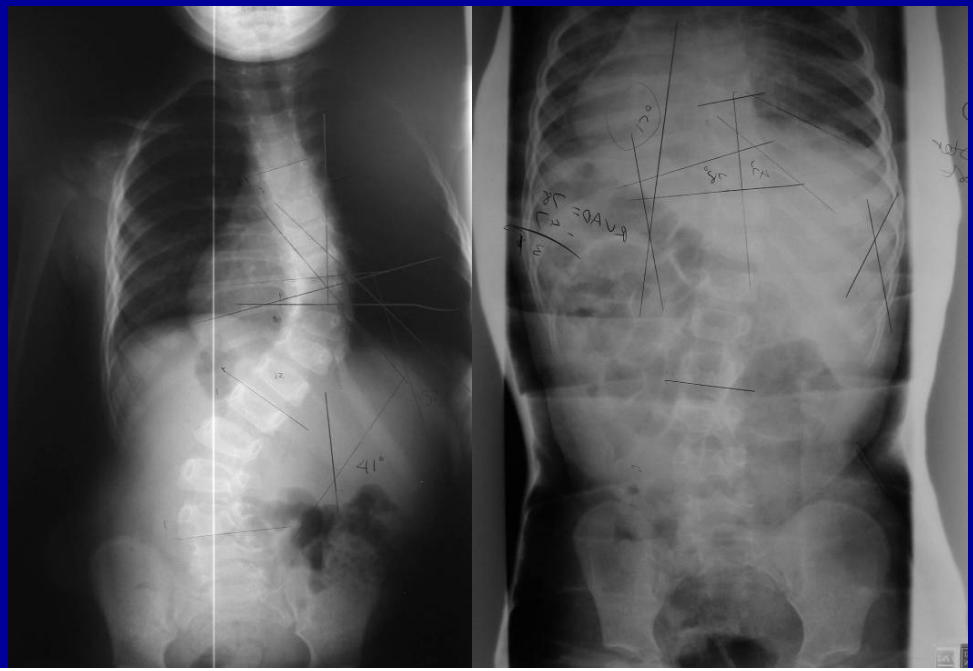


Age 5+2.
Abdomen would push through cast.
Uncomfortable.
Now age 7+6



Summary of Our Early Experience

- Most curves respond.
- Younger and non-syndromic patients respond faster and more completely than older patients
- Older and syndromic patients improve (delay surgery)
- Patients tolerate it very well.
- Chest wall deformity does not seem to be an issue with proper casting.



Thank you!