When to start operative management in children less than 5Yo

G Bollini Children's Hospital La Timone Marseilles

DISCLOSURE

Consultant: **Medtronic**

Synthes

Levels of Evidence

- Level I: Randomized trial
- Level II: Non Randomized trial with Control Group
- Level III: Case-Control studies
- Level IV: Cases series
- Level V: Expert Opinion

When to start operative management in children less than 5Yo

- Infantile Idiopatic Scoliosis
- Congenital Scoliosis
- Neuromuscular Scoliosis
- Syndromic Scoliosis

When I decide to start operative management

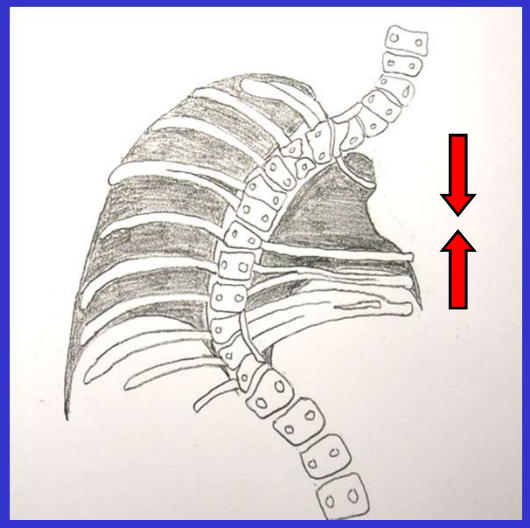
Indication +++++

Indication +/-

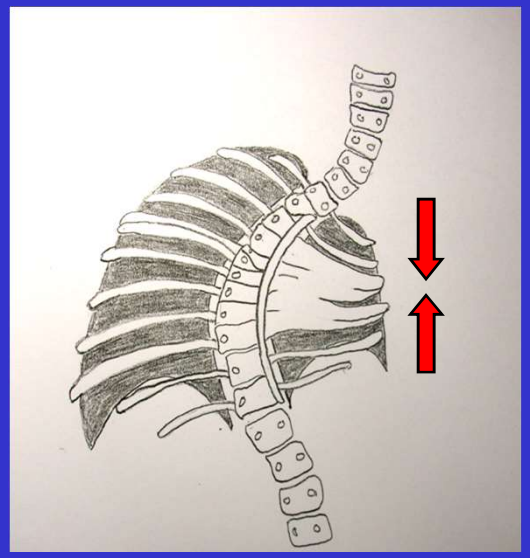
Indication - - - -

Volume Depletion Deformities of the Thorax

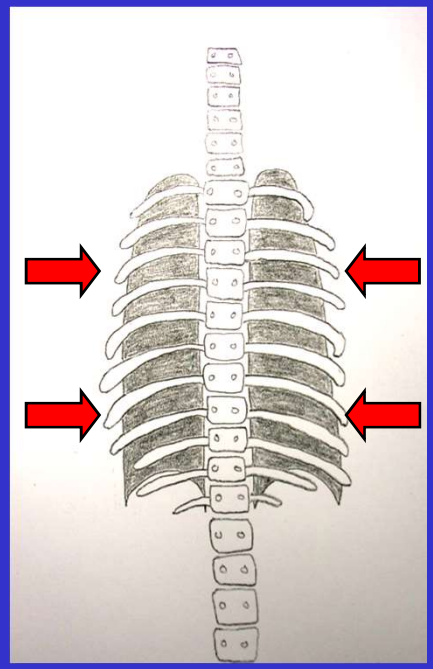
I



II



III a



III b

-Campbell Smith,
JBJS, supp, 2007

Health problems that would benefit from surgery:

Such as: Jarcho Levine Syndrome

1.8 yo

Health problems that would benefit from surgery:

Such as: Jeune Syndrome

- **1 Y**
- **Admitted to the hospital due to dyspnea and digestive problems**
  - ✓ **Short, thick, horizontal ribs.**
  - ✓ **Flared « Bell shaped » aspect**
  - ✓ **Midthoracic shrinkage**

Health problems that would benefit from surgery:

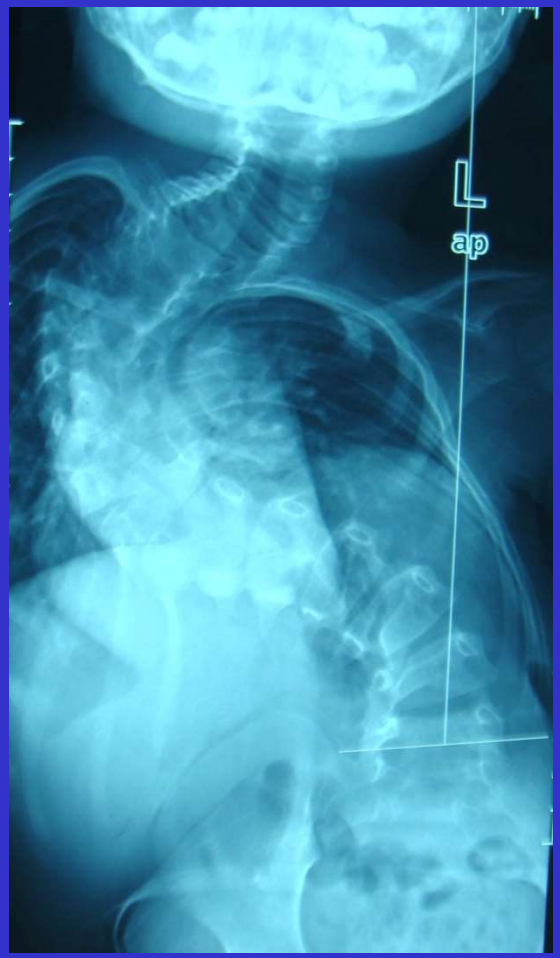
Such as: Congenital Spine Dislocation

Curve magnitude > 60° - 70°

Failed non operative treatment
Serial Risser Cast
Bracing

Curve magnitude > 60° - 70°
+ Huge Trunk imbalance

Failed non operative treatment
Serial Risser Cast
Bracing



Five patterns of deformity were recognized.

Hemivertebra was the most common type, and unilateral unsegmented bar with contralateral hemivertebra was the most severe and most progressive pattern of deformity.

The curves measured >40° in 70% of the patients who had reached maturity.

The curve progression index was **9° for unilateral unsegmented bar with contralateral hemivertebra, and 6° without contralateral hemivertebra.**

This index was 1.5° for hemivertebra and complex type of deformity, and 0.5° for block vertebra.

Unbalanced fully segmented hemivertebra was next after the two types of unsegmented bars in terms of potential for progression. Presence of fused ribs on concave side of lower thoracic curves increased the rate of curve progression.

Patterns and Progression in Congenital Scoliosis

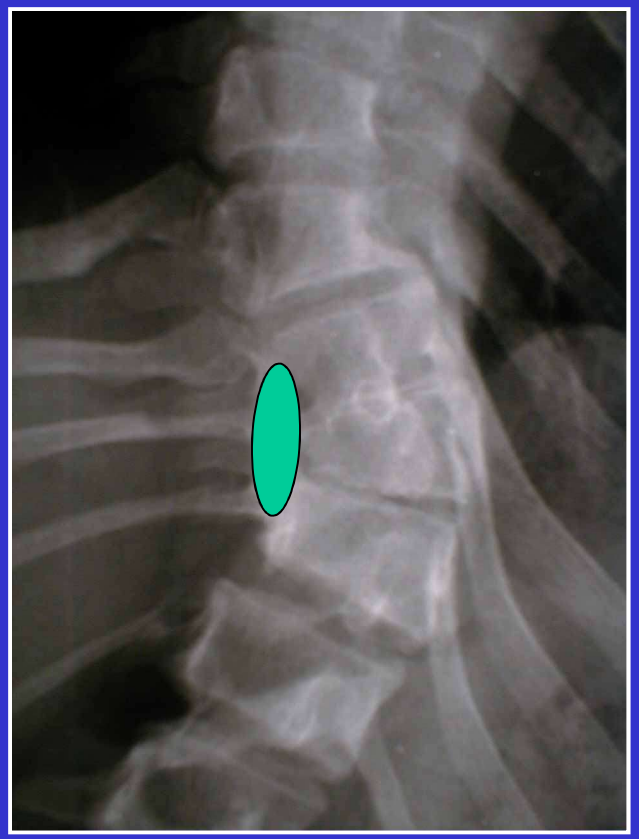
Shahcheraghi, G. Hossain M.D., F.R.C.S.(C); Hobbi, M. H. M.D.*

SPINE Volume 19(6) November/December 1999 p 766

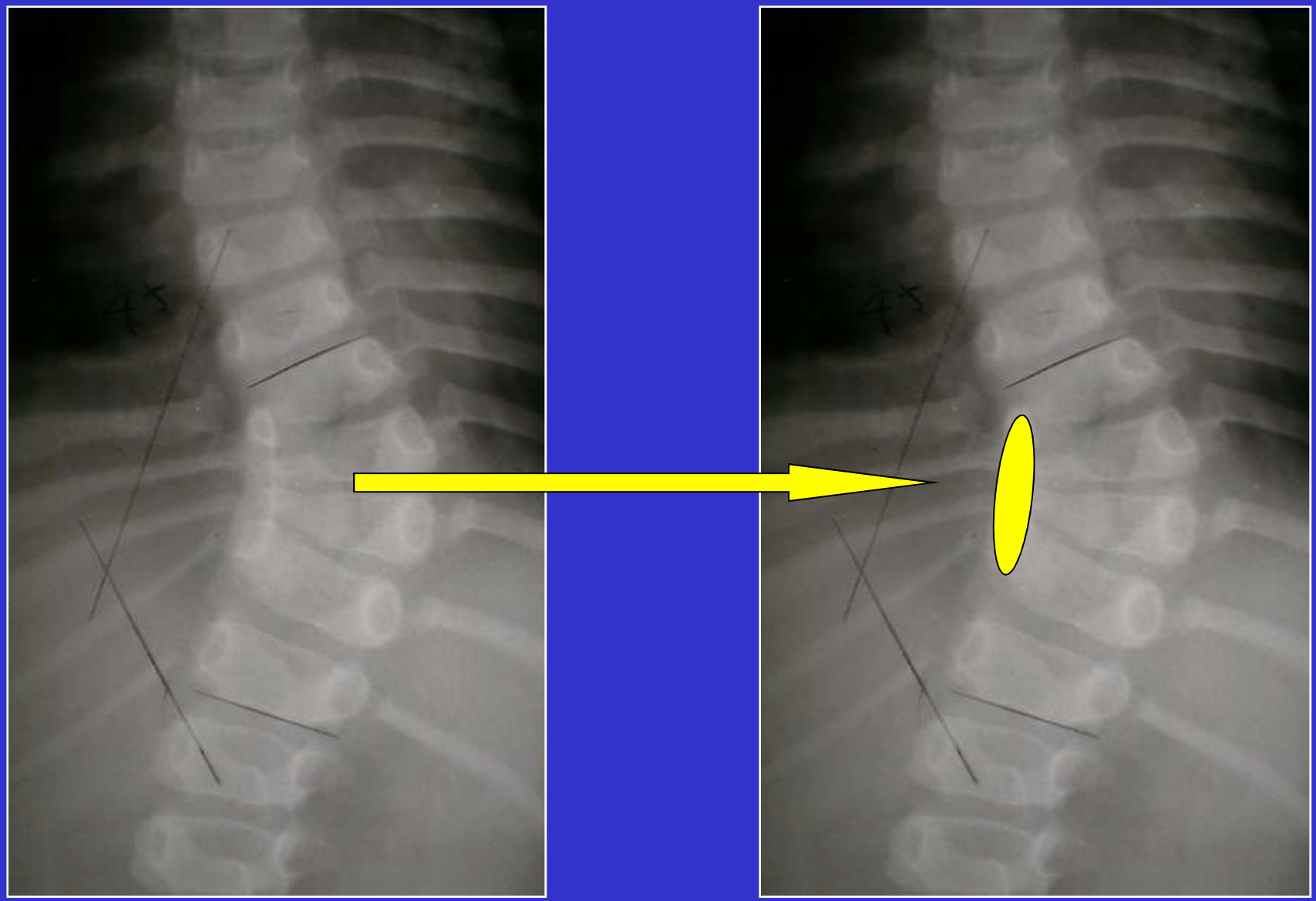
FUSION OF RIBS + BAR

DIASTEMATOMYELIA

BAR



LATERAL CONGENITAL BAR



When I decide to start operative management

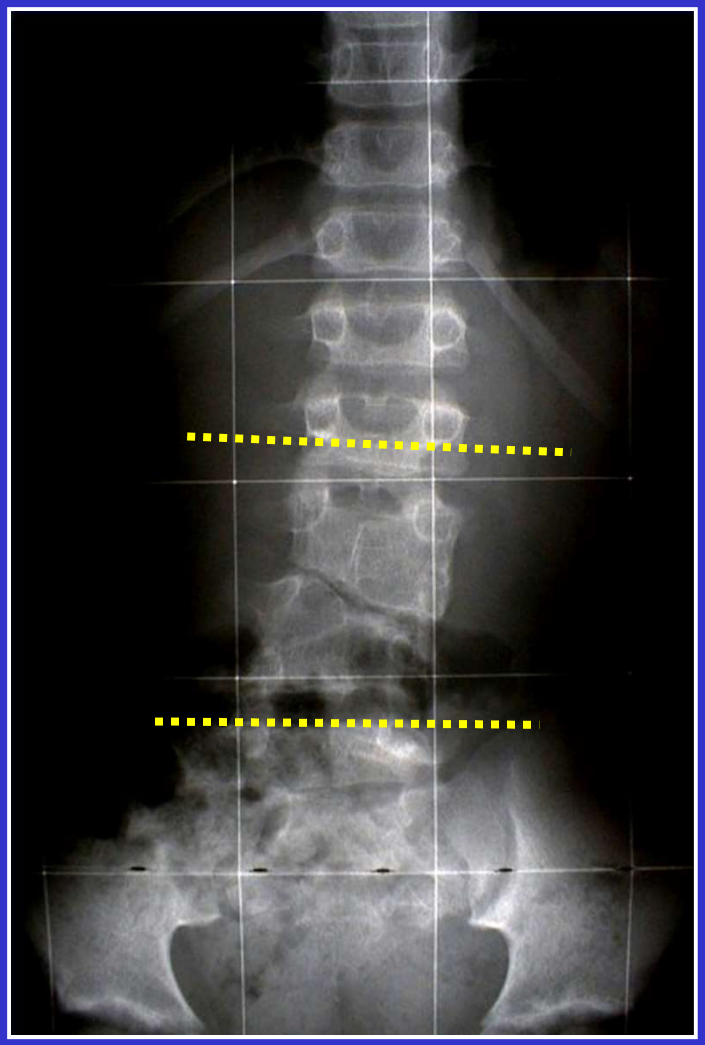
Indication +++++

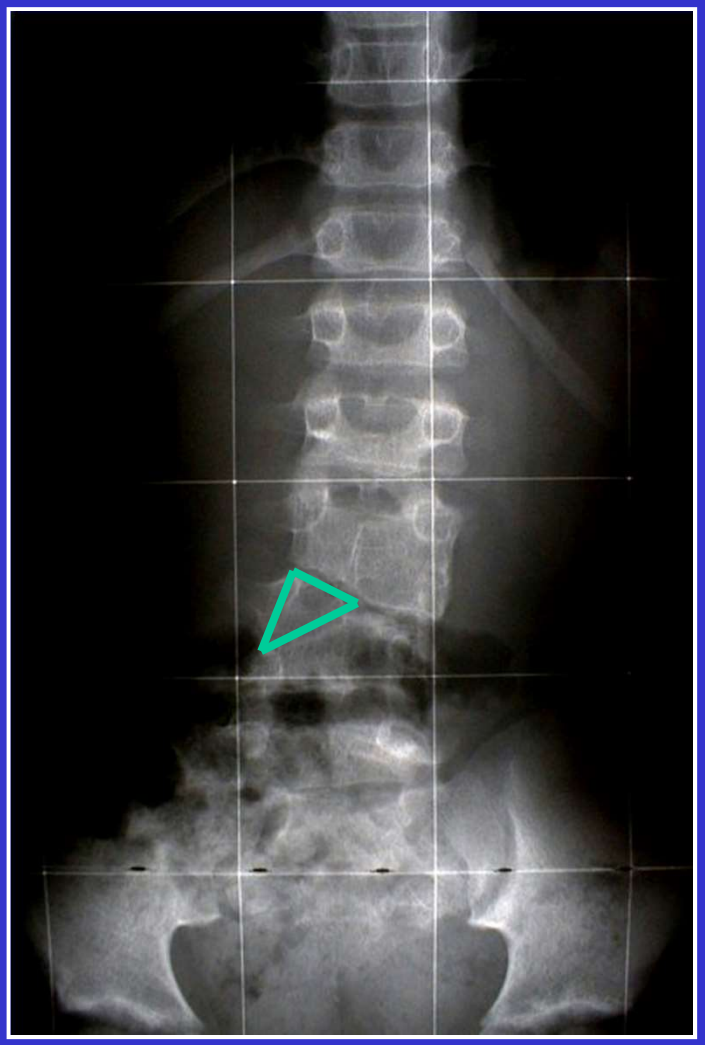
Indication +/-

Indication - - - -

8 M 8 Y 15 Y 15 Y

INCARCERATED HEMIVERTEBRA



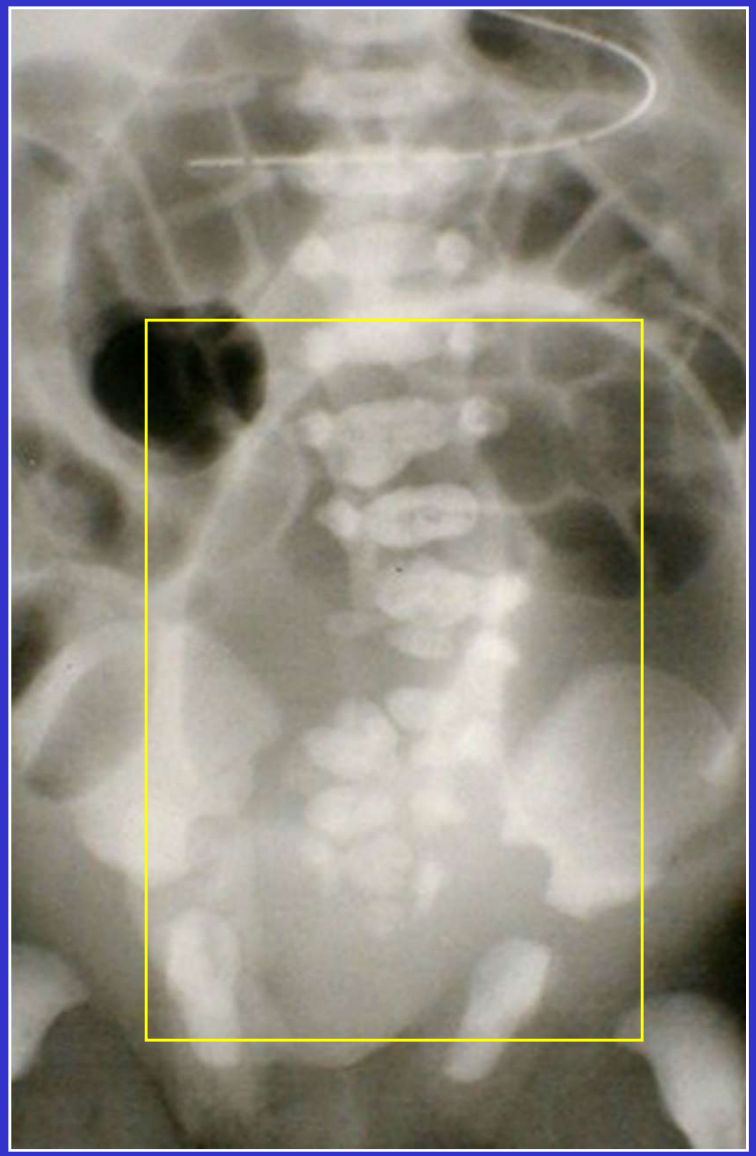


CERVICO - THORACIC

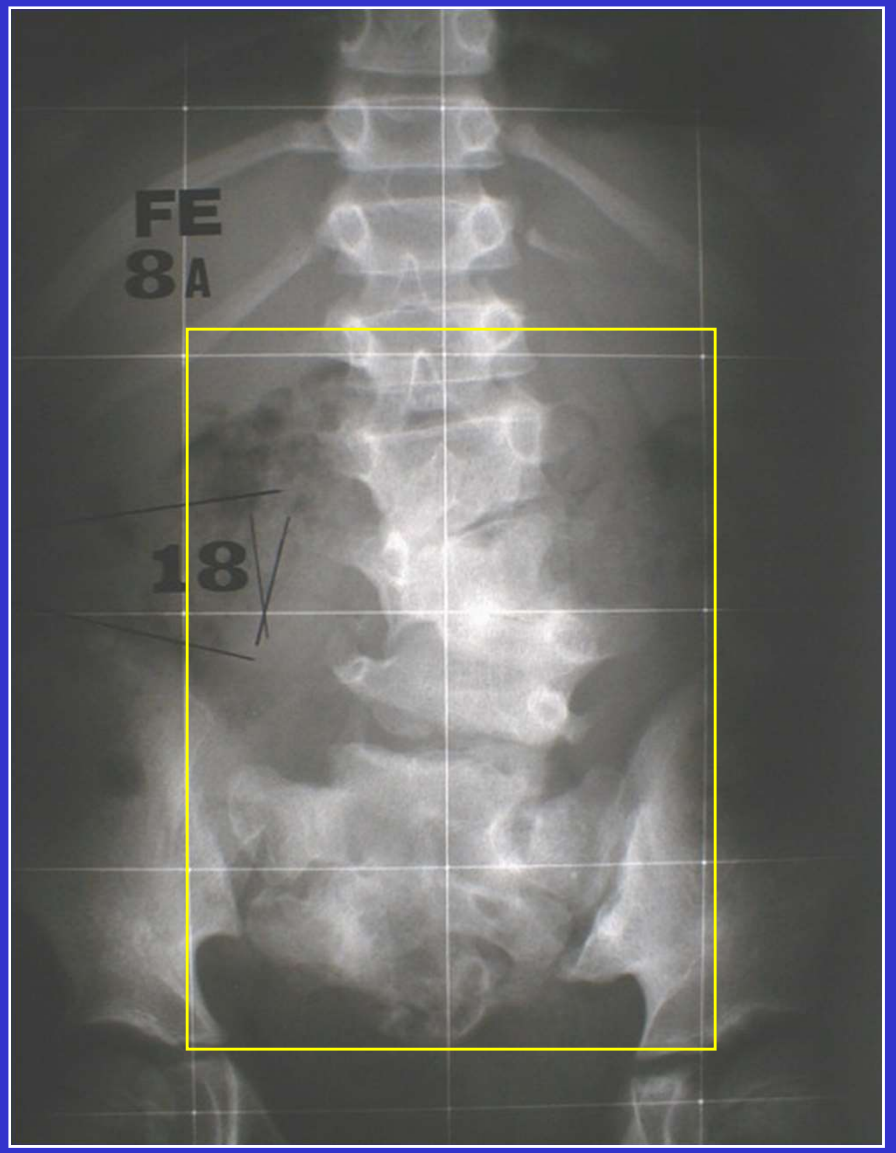
16 Y

BIRTH

BIRTH



8 Y



OSSIFICATION DEFECT

HEMI SEGMENTED HEMIVERTEBRA

OR HEMI FUSED

Birth

8 M

When I decide to start operative management

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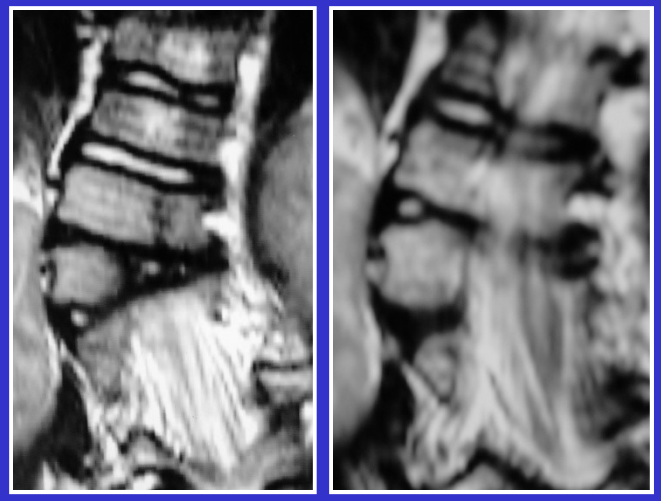
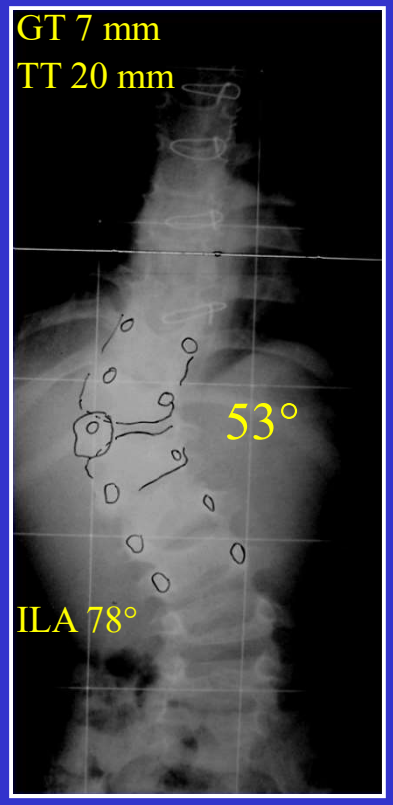
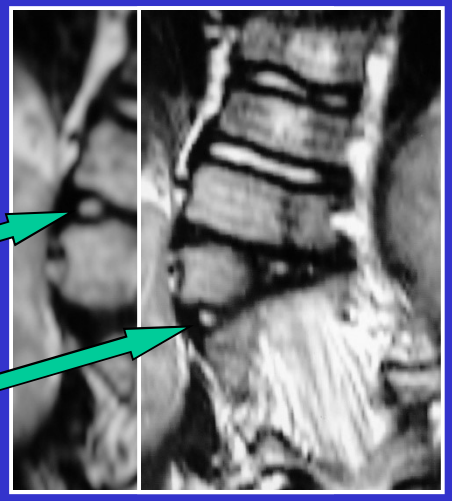
RIGHT FREE T 12 L 1 H.V.



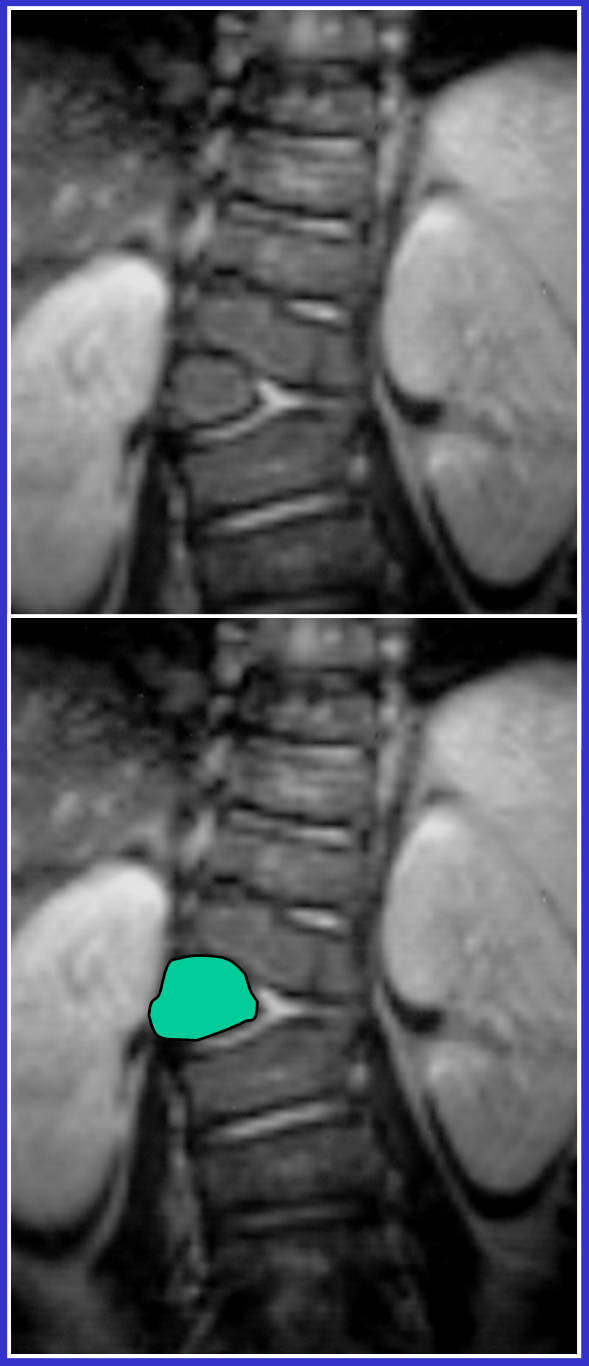


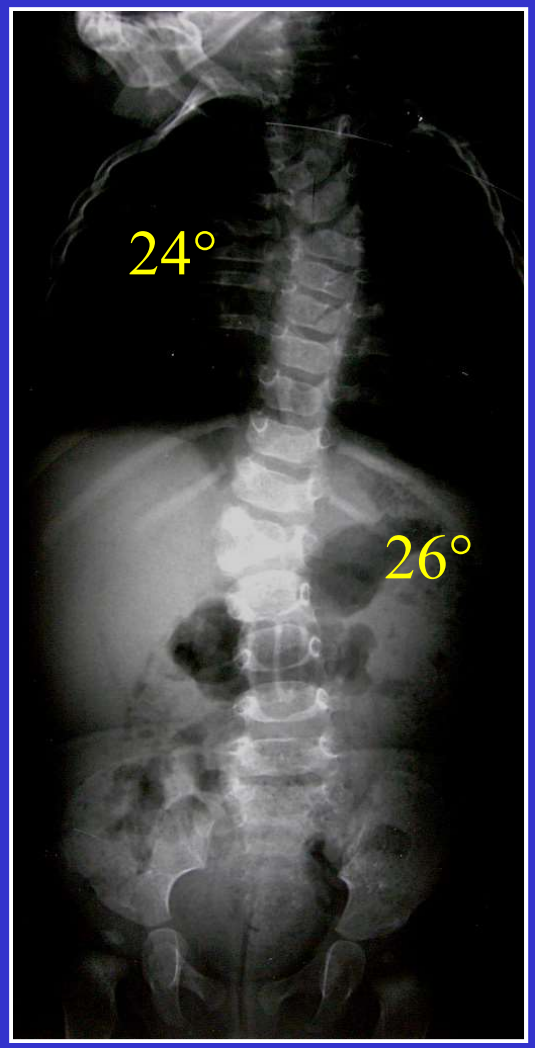


MRI is an helpfull tool to classify the H.V.

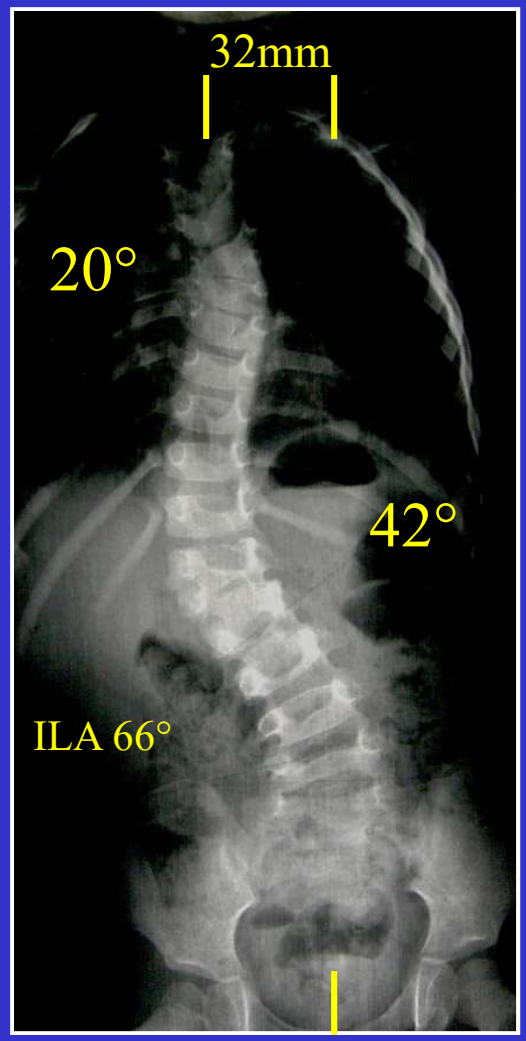
4 Y 2 M

T2 weighted MRI Nucleus signal above and below the H.V.



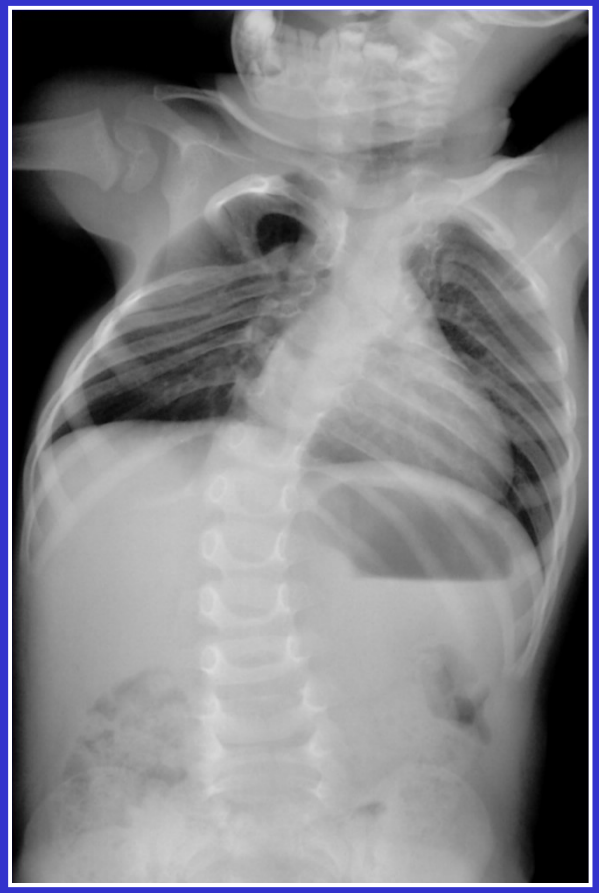


7 Months

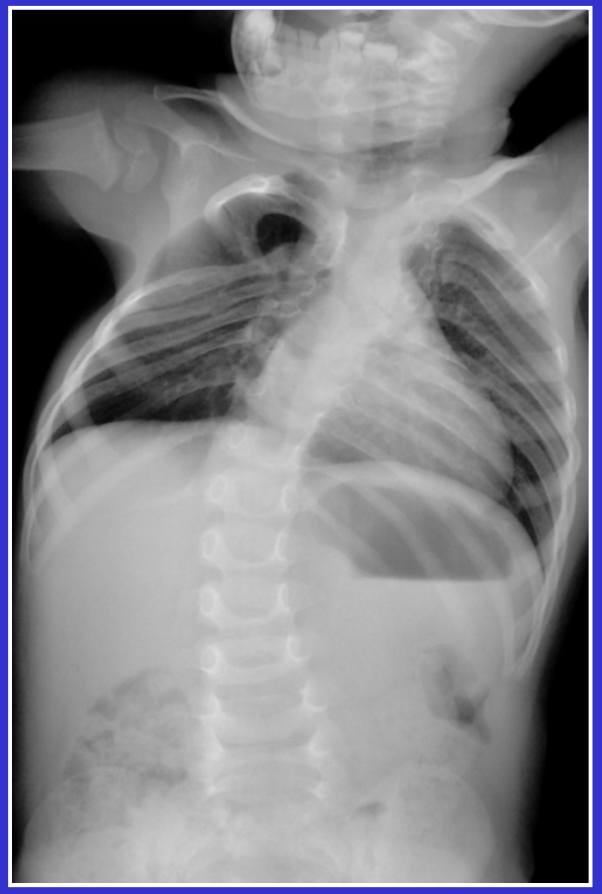


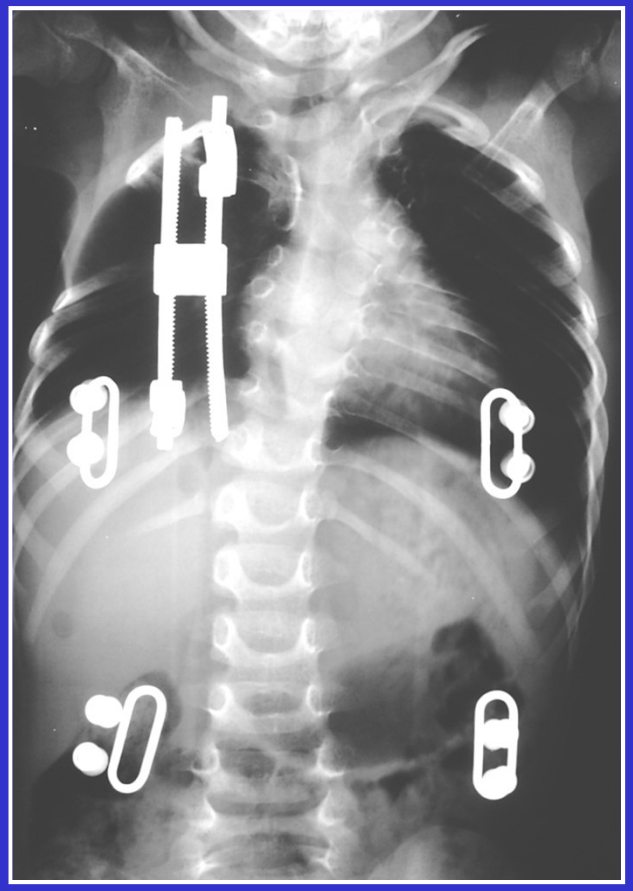
18 Months

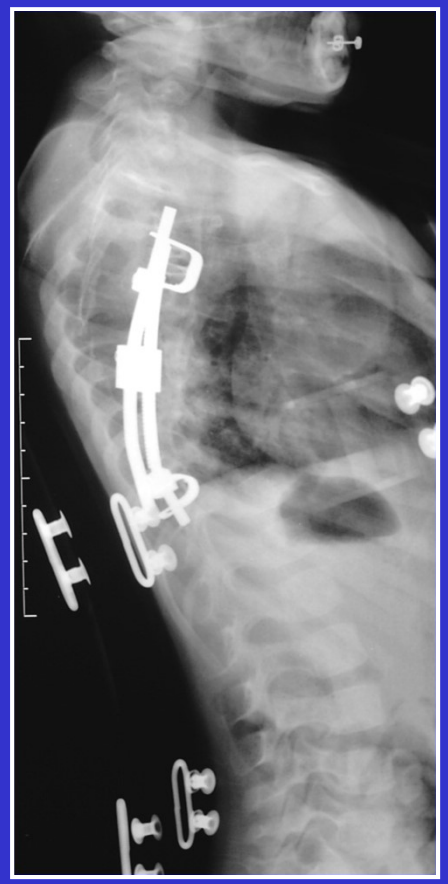
10 Y



2 Y 8M







2 Y 8M

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To take home message

- Don’t start surgery too early but

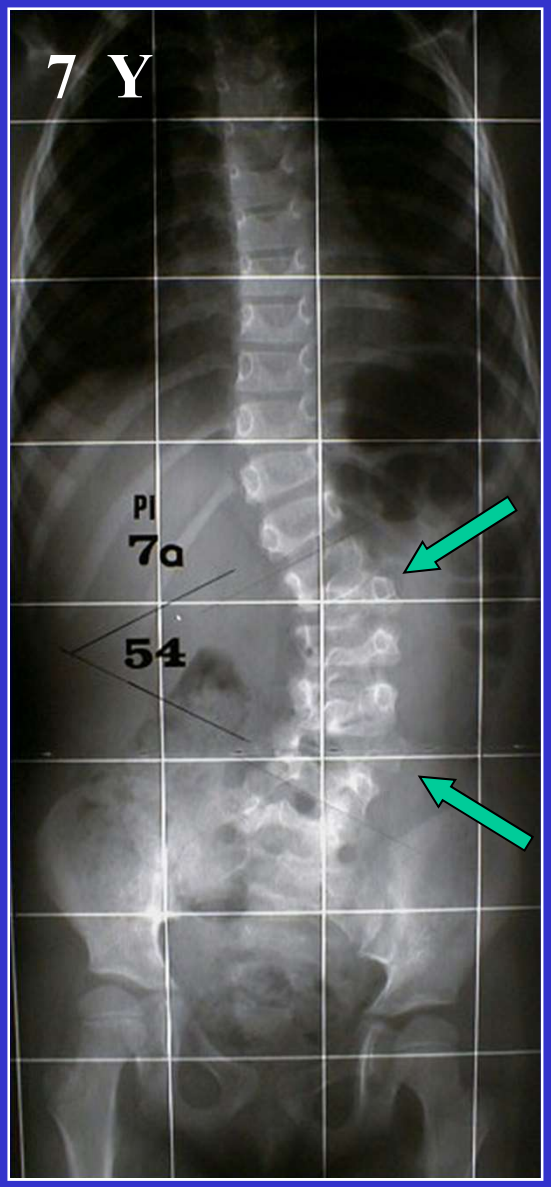
2 Y

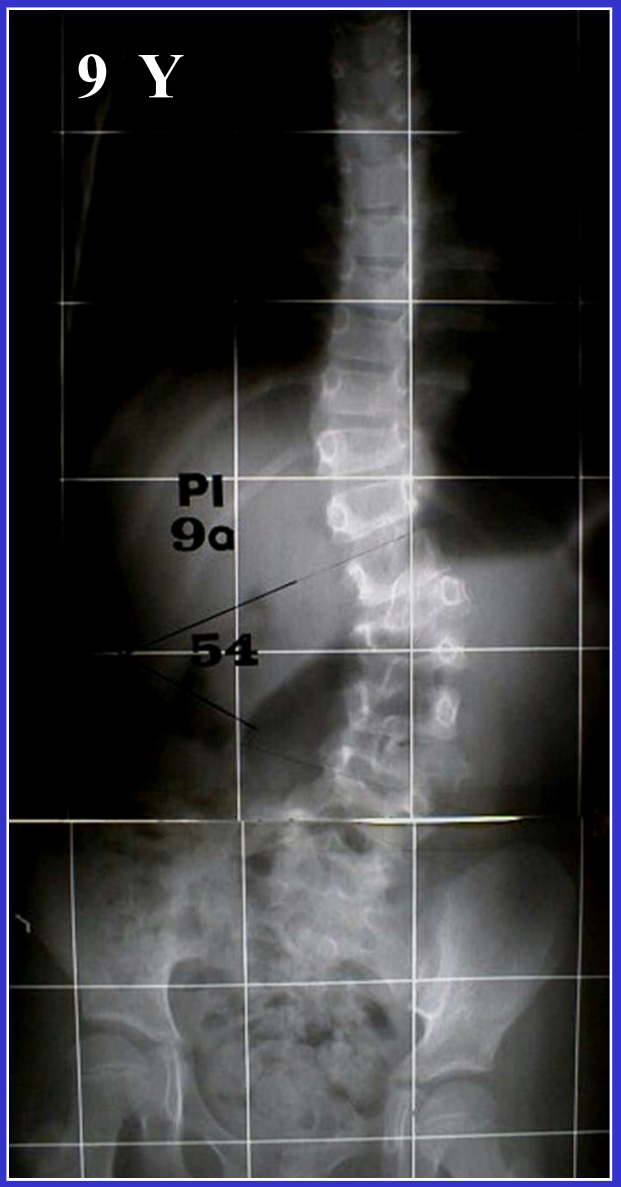
10 Y

16 Y

To take home message

- Don’t start surgery too early but
- Don’t start surgery too late


7 Y
Pl
7a
54


9 Y
Pl
9a
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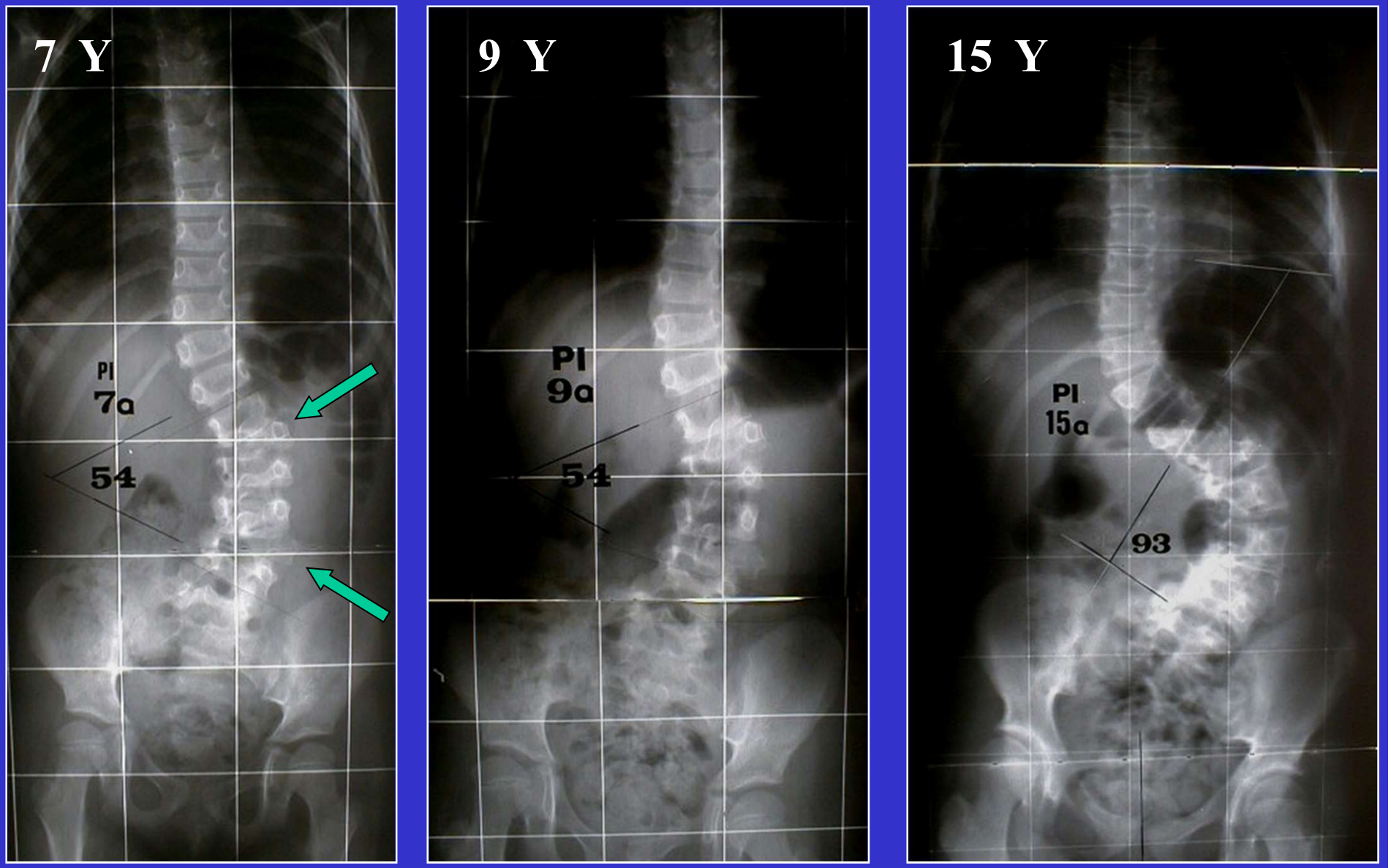
7 Y
PI
7a
54
9 Y
PI
9a
54
15 Y
PI
15a
93