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Early Onset Scoliosis and Growing Spine
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Thoracic growth and pulmonary function after growing transpedicular instrumentation: 3 years follow-up

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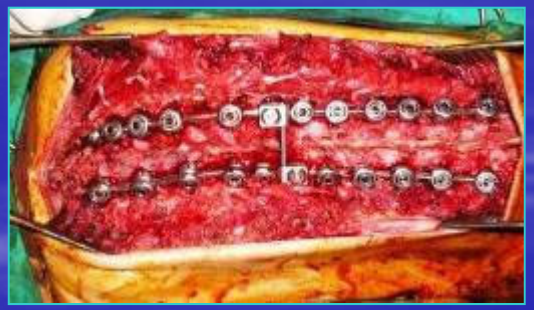
The purpose of this study is to assess thoracic growth and pulmonary function in patients with early onset scoliosis after anterior convex growth arrest and posterior transpedicular instrumentation.

Inclusion criteria: ***EOS pts, before 10 yo, Risser 0, open triradiate cartilage, pts after anterior convex growth arrest and posterior transpedicular instrumentation with growing construct***

Design: ***prospective study***

Materials

- *12 patients, 2005-2007 yrs*
- *Dx: idiopathic infantile scoliosis – 9*
  congenital scoliosis (segmentation failure – 2, formation failure - 1) – 3
- *Males – 1, Females - 11*
- *Age – 9,1 yo (range 7-10)*
- *Mean follow-up 3 yrs*
- *Surgeries:*



- Convex side epiphyseodesis and transpedicular GS correction – 11

- Anterior/posterior hemivertebra resection transpedicular GS correction – 1

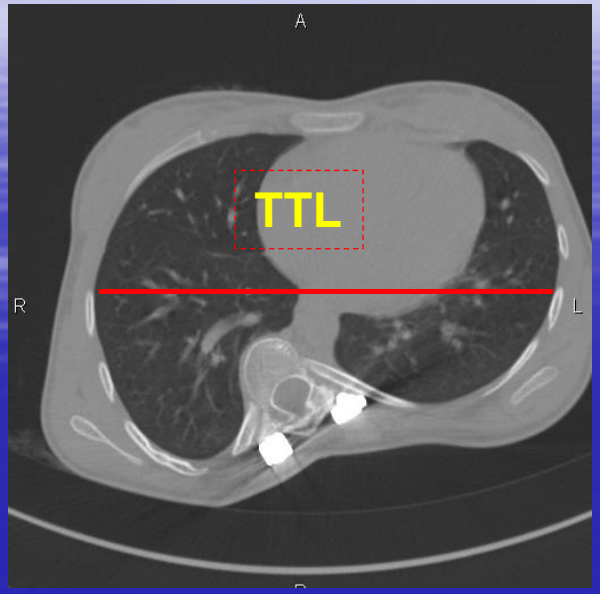
- No final fusion (will be done after skeletal maturity), concave rod derotation in all cases

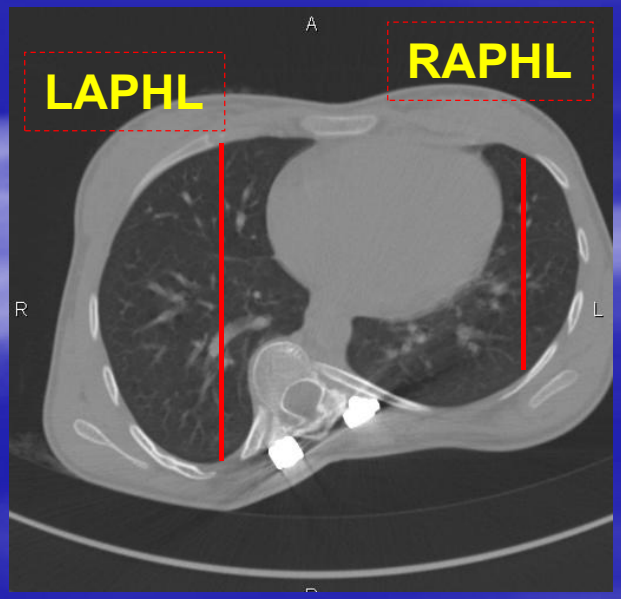
Methods

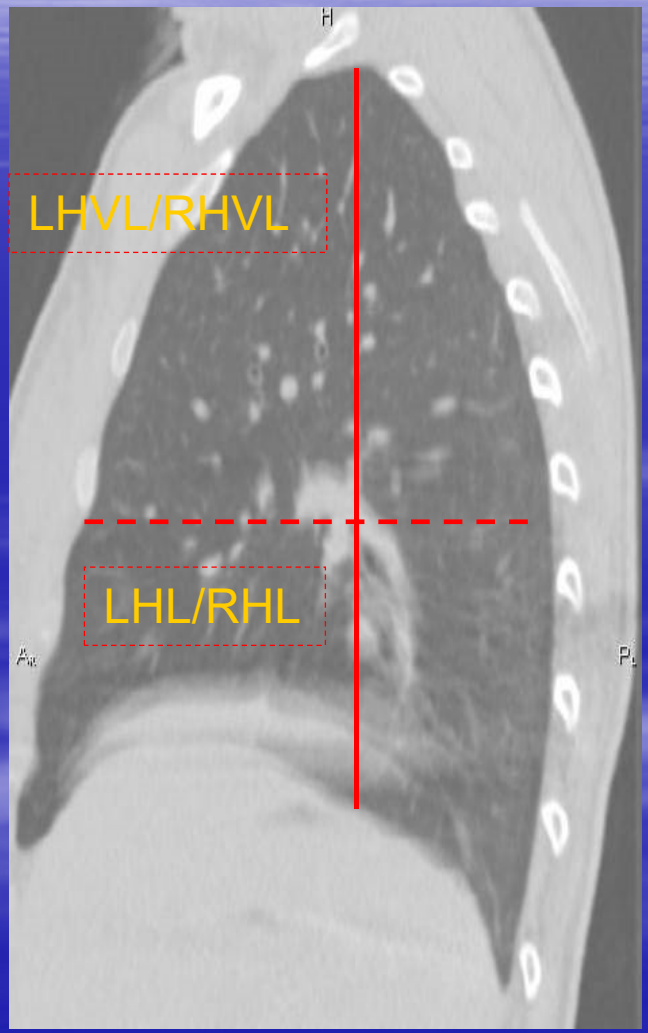
Preop- and postoperative measurments:

- Cobb angle
- left and right hemithorax length (LHL/RHL)
- transverse thorax length (TTL)
- left and right hemithorax vertical length (LHVL/RHVL)
- left and right AP hemithorax length (LAPHL/RAPHL)
- PFT: FVC & FEV1

Methods







Female patient, 7 yo, infantile idiopathic scoliosis

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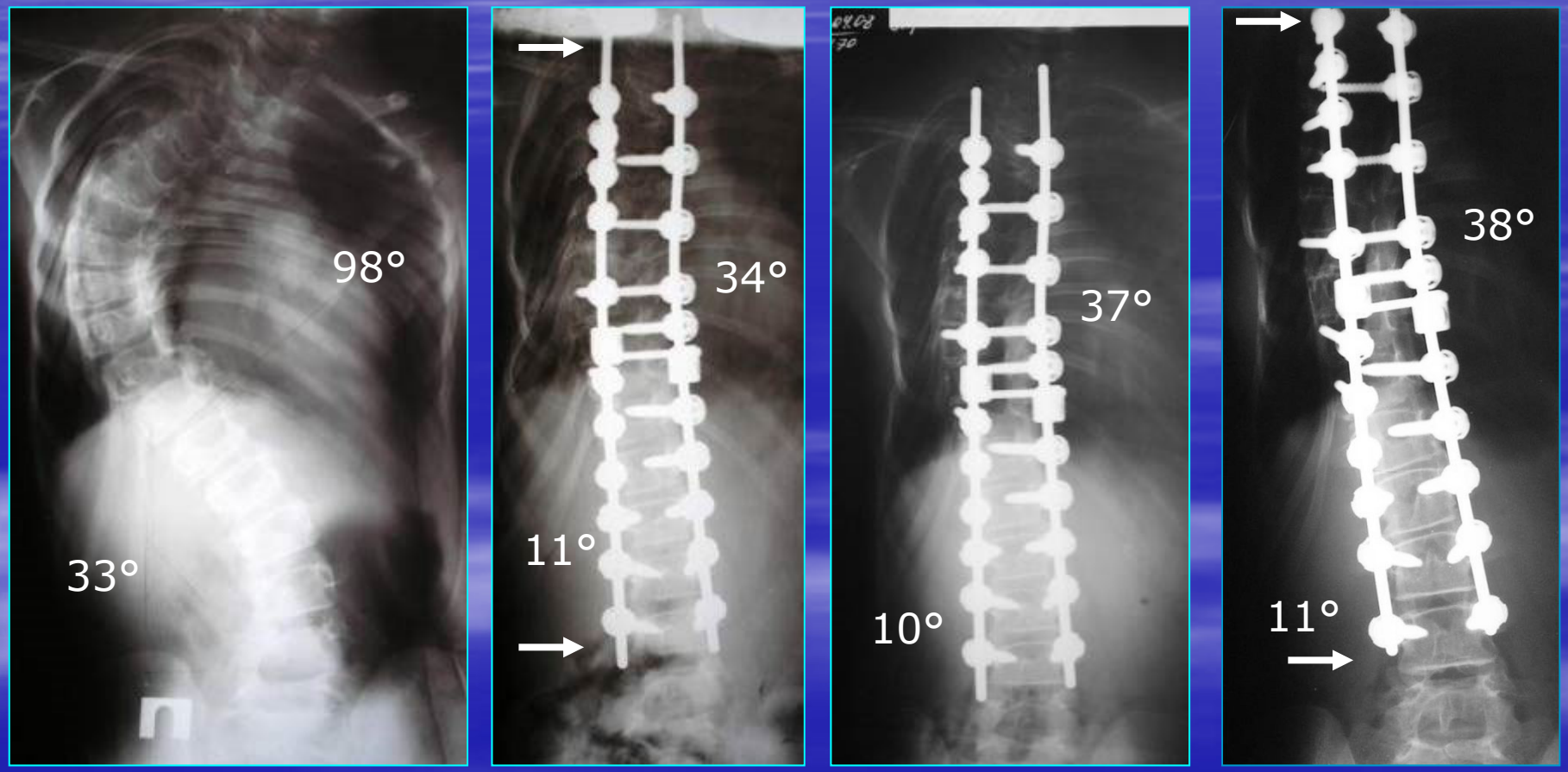
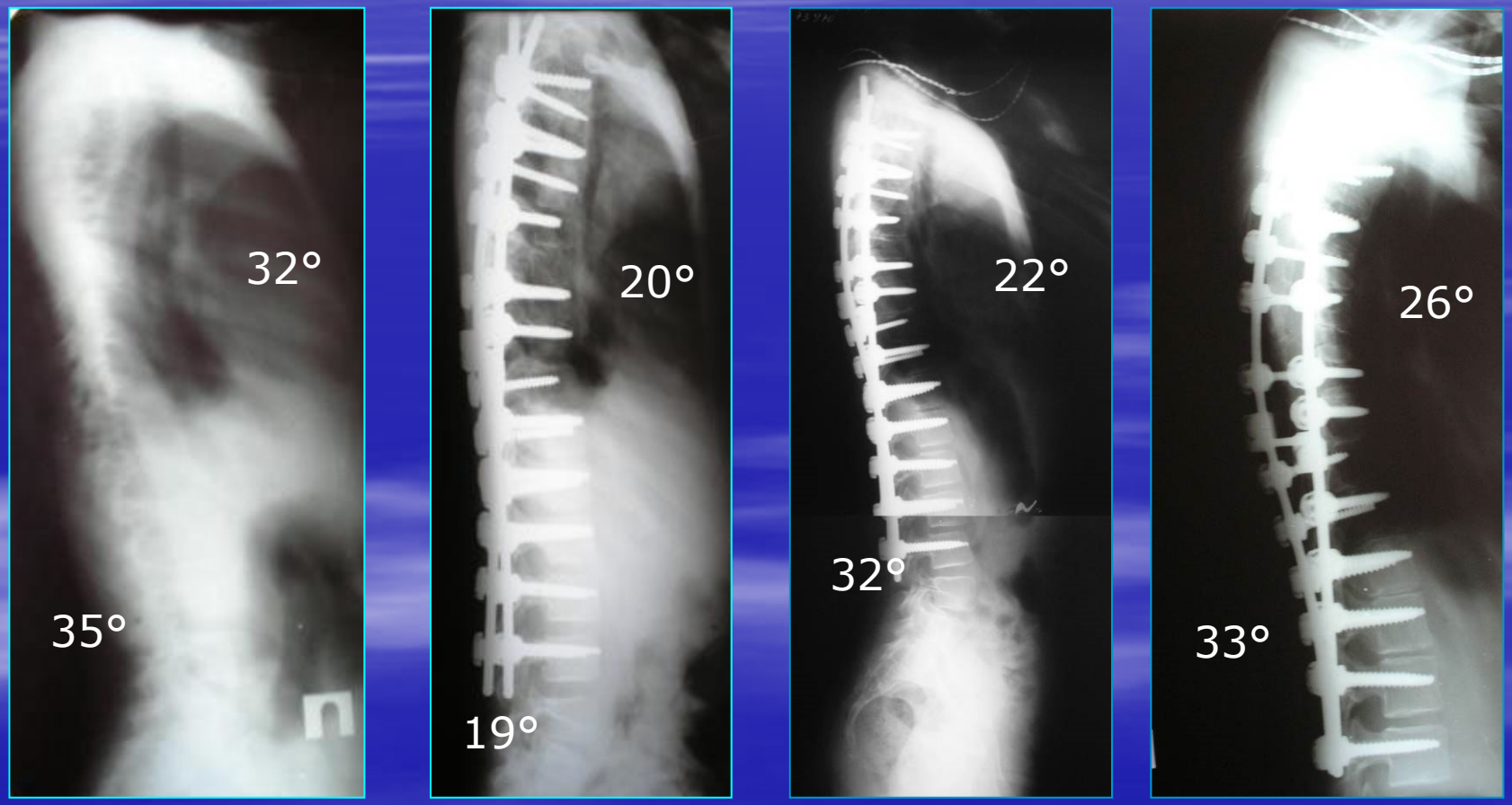


Preop | Postop | After 1 year | After 3 years

Female patient, 7 yo, infantile idiopathic scoliosis



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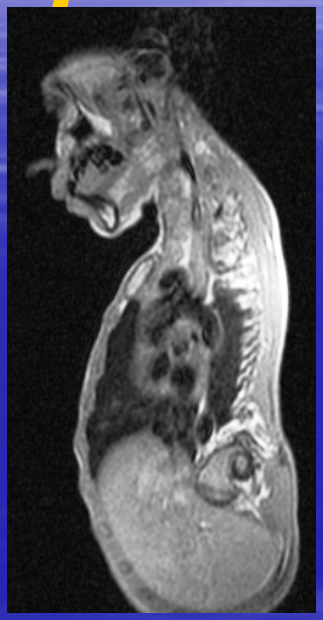
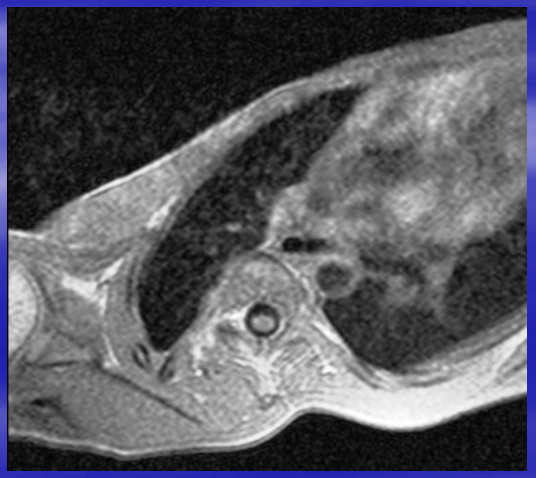


Preop



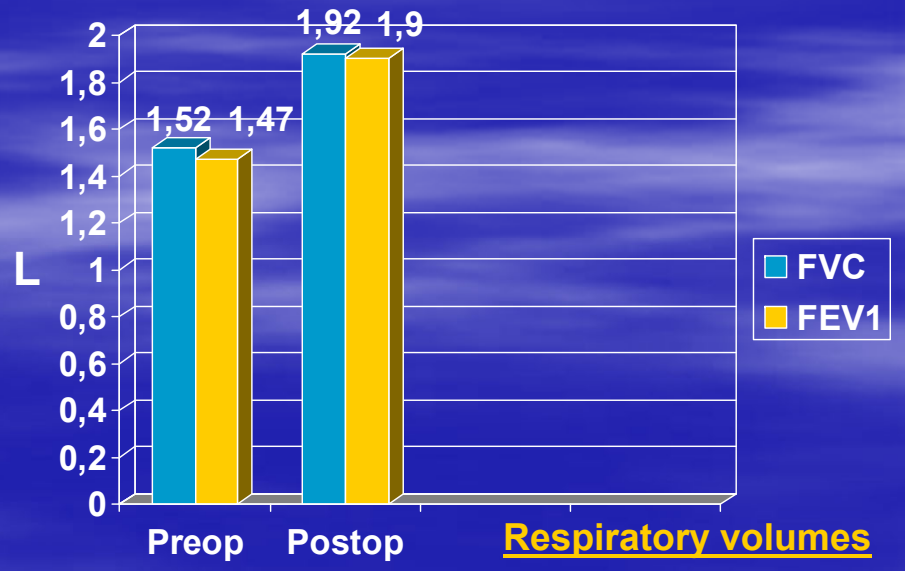
3 yrs postop

Results

	Cobb angle	LHL	RHL	TTL	LHVL	RHVL	LAPHL	RAPHL
Preop	74,3º	7,7	12,4	14,3	8,2	10,1	8,1	7,6
Postop (3 yrs)	22,7	10,8	10,8	19,1	13,4	12,9	10,2	9,6

	FVC	FEV1
Preop	72,5%	57,7%
Postop (3 yrs)	57,7%	57,1%

Actual/Predicted ratio



Respiratory volumes

Conclusion

-anterior convex growth arrest and posterior transpedicular instrumentation spare thoracic growth and pulmonary function after 3 years follow-up

- PFT volumes increased during follow-up

- FVC actual/predicted ratio decreased and FEV1 actual/predicted ratio didn't change 3 yrs after index surgery

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