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Growth of the instrumented spine in patients with EOS after growing transpedicular instrumentation

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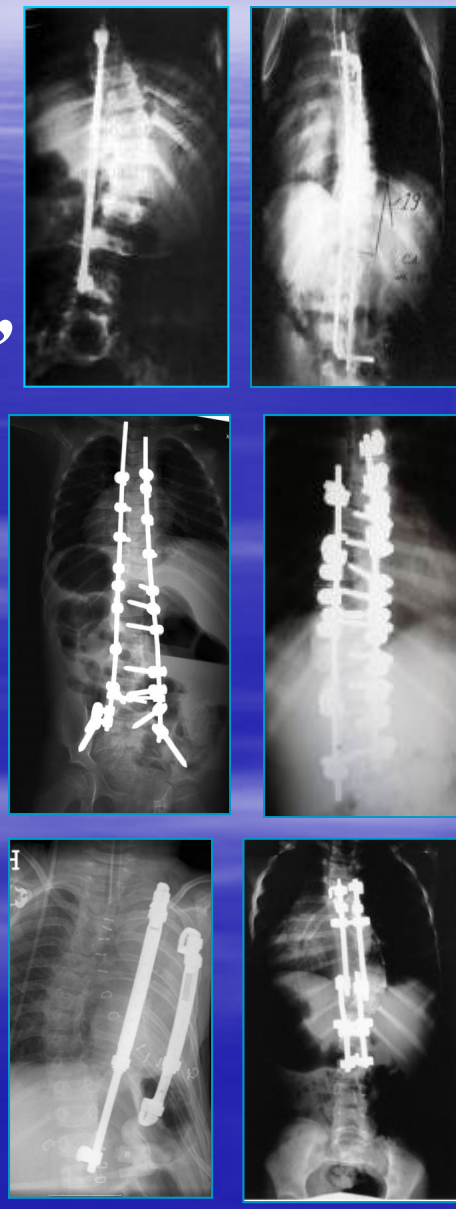
Background

- ***Distraction instrumentation: growing rods, CDI, VEPTR => implant failure, revision surgeries, 2D correction***
- ***Growth guiding instrumentation: Luque trolley-like, Shilla, Orthobiom, LSZ=>spontaneous fusion, 50% complication rate***
- ***Compression instrumentation: staples, tether => few clinical reports, effective in the deformities 25°-30°***



The purpose of this study to define does growing transpedicular instrumentation spares spinal growth

Inclusion criteria: ***EOS pts, before 10 yo, Risser 0***

Design: ***prospective study***

Materials

- *Dx: idiopathic scoliosis – 10*
  congenital scoliosis (segmentation failure) – 2
- *Males – 1*
- *12 patients, 2007-2010 yrs*
- *Females - 11*
- *Age – 9,1 yo (range 7-10)*
- *Mean follow-up 3 yrs*
- *Surgery: convex epiphyseodesis, transpedicular posterior spinal instrumentation*

Female, 7 yo, congenital scoliosis (formation failure)

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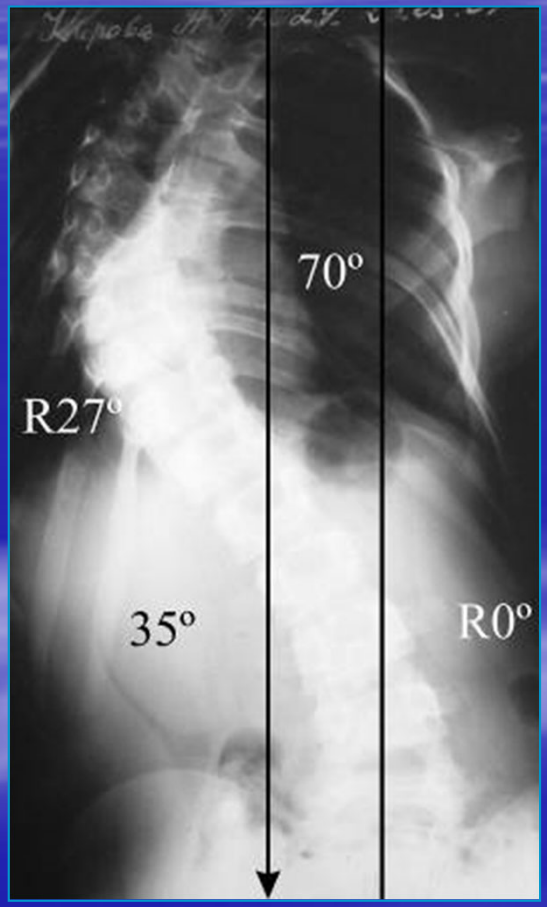

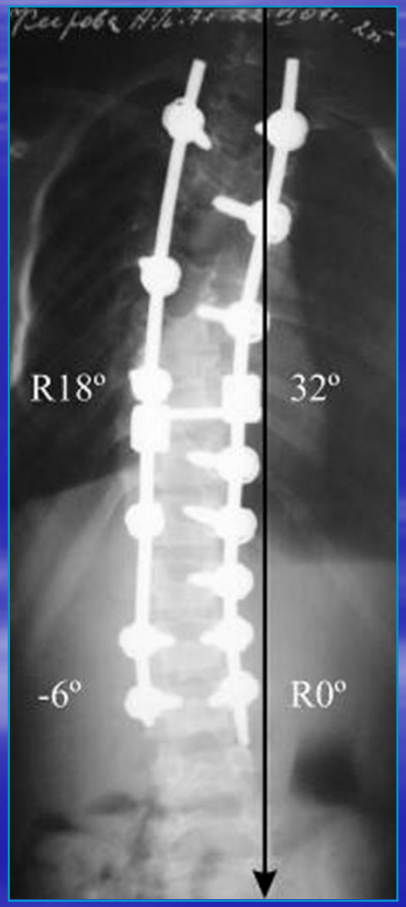

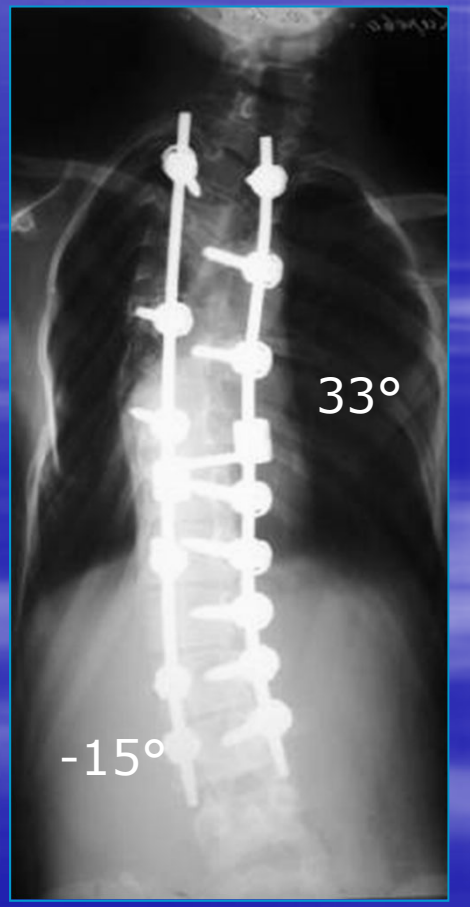

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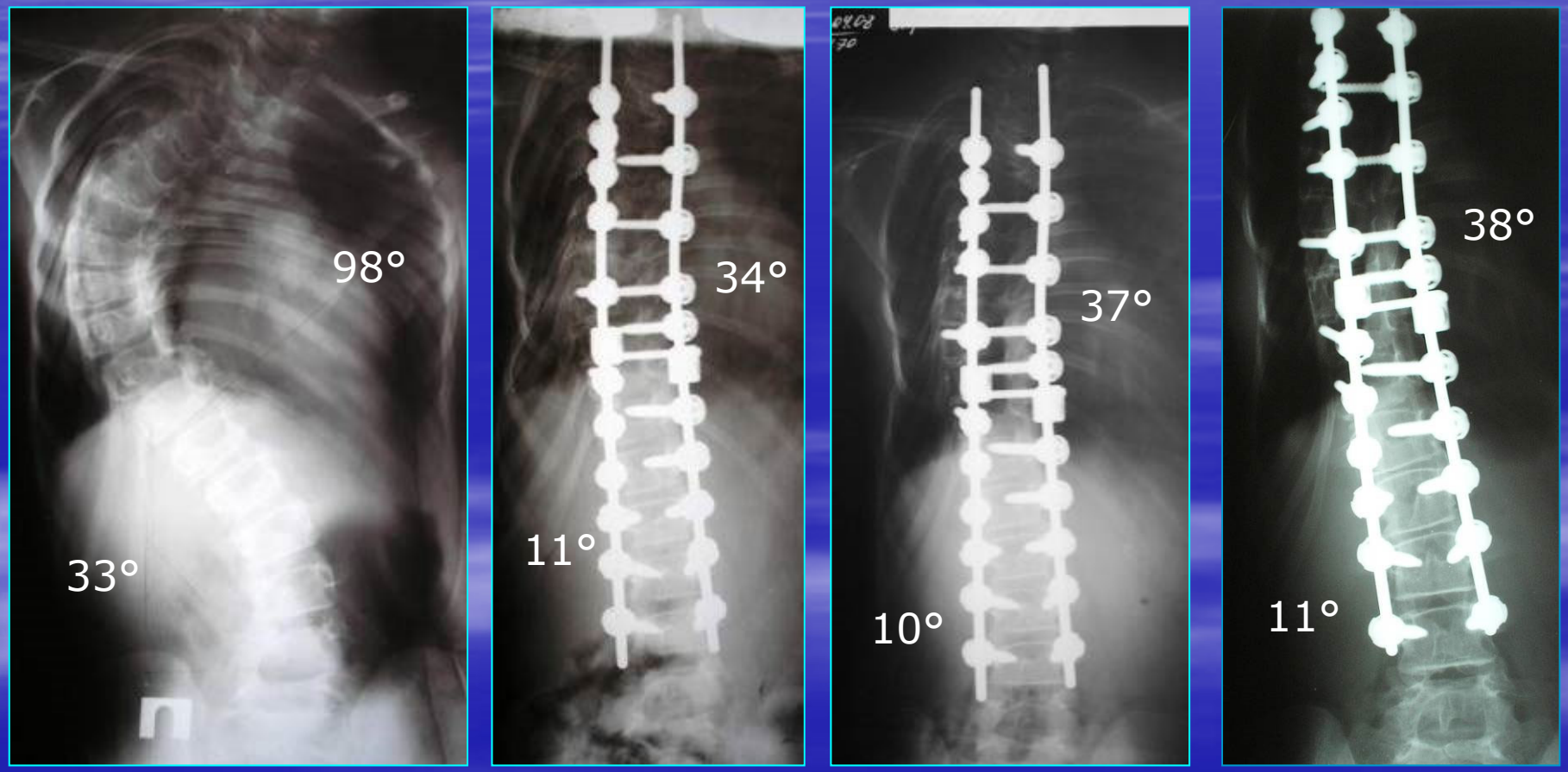
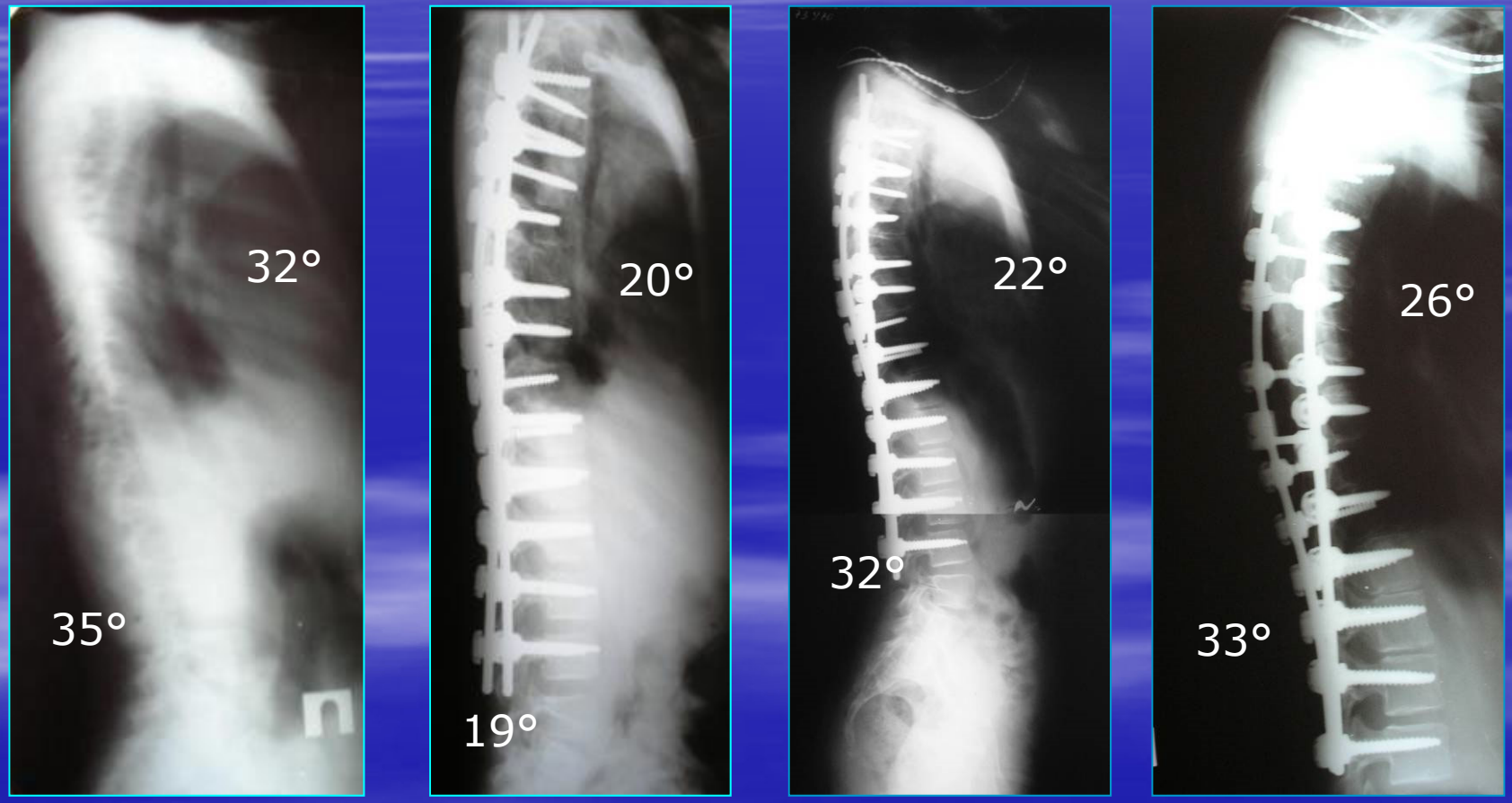
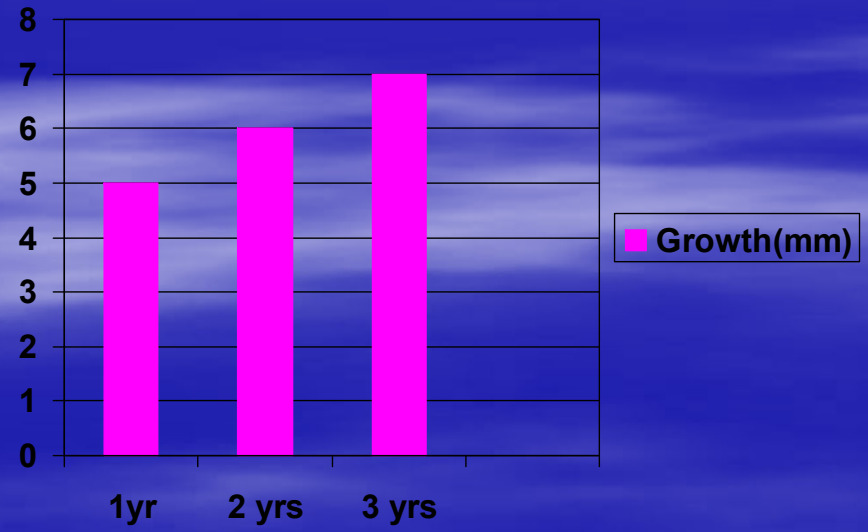


Female patient, 8 yo, infantile idiopathic scoliosis



Results

	Pre-op	Post-op	3yrs f/u
Major curve	74,3°	22,7°	27,2°
Minor curve	32,2°	5,7°	5,4°
T- kyphosis	27,2°	26,2°	28°
Lumbar lordosis	41°	29,9 °	36,2 °



Length of the instrumented spine increased by 18 mm on the average

Complications

- *Insufficient rod length – 1 pt (rod exchange);*
- *Pleural effusion – 2 pts;*
- *Wound infection - 0;*
- *Neurological deficits – 0.*

Conclusion

- ***anterior convex growth arrest and polysegmental transpedicular spinal instrumentation with growing construct spare spinal growth in patients with EOS***
- ***Spinal derotation by polysegmental screw spinal instrumentation allows to control scoliotic deformity before final fusion.***