

Early Onset Spinal Deformities – Multistage Surgical Treatment (The First Experience in Russia)

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Introduction

Treatment of progressive spinal deformities in growing children is a challenge. Whatever the etiology, such deformities require multistage surgical treatment that is equally difficult for the patient, parents and surgeon

Material

Study group consisted of 60 patients (34 girls, 26 boys).

Out of them 23 patients had congenital deformities (including 3 kyphosis), 23 – idiopathic, 12 – syndromic and two – paralytic

Methods

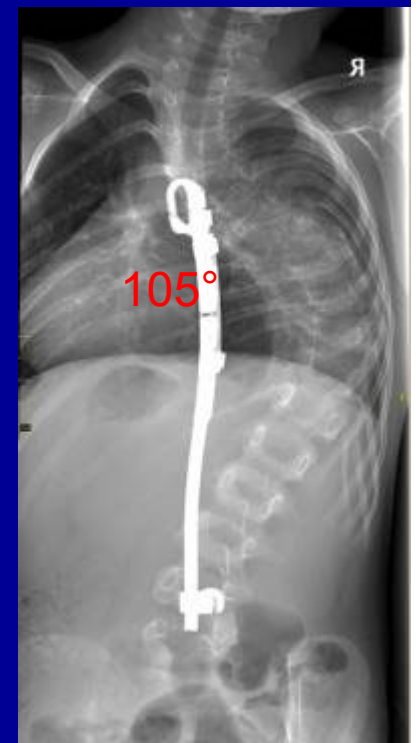
All were treated with VEPTR instrumentation. Lengthening procedures were performed every 6-10 months. The rib-to-rib rod was used in eight patients.

Totally 191 surgeries including implantation were performed (from one to seven expansions per a patient). No external support was used. The mean follow-up period was 22.2 months (1-50)

Results

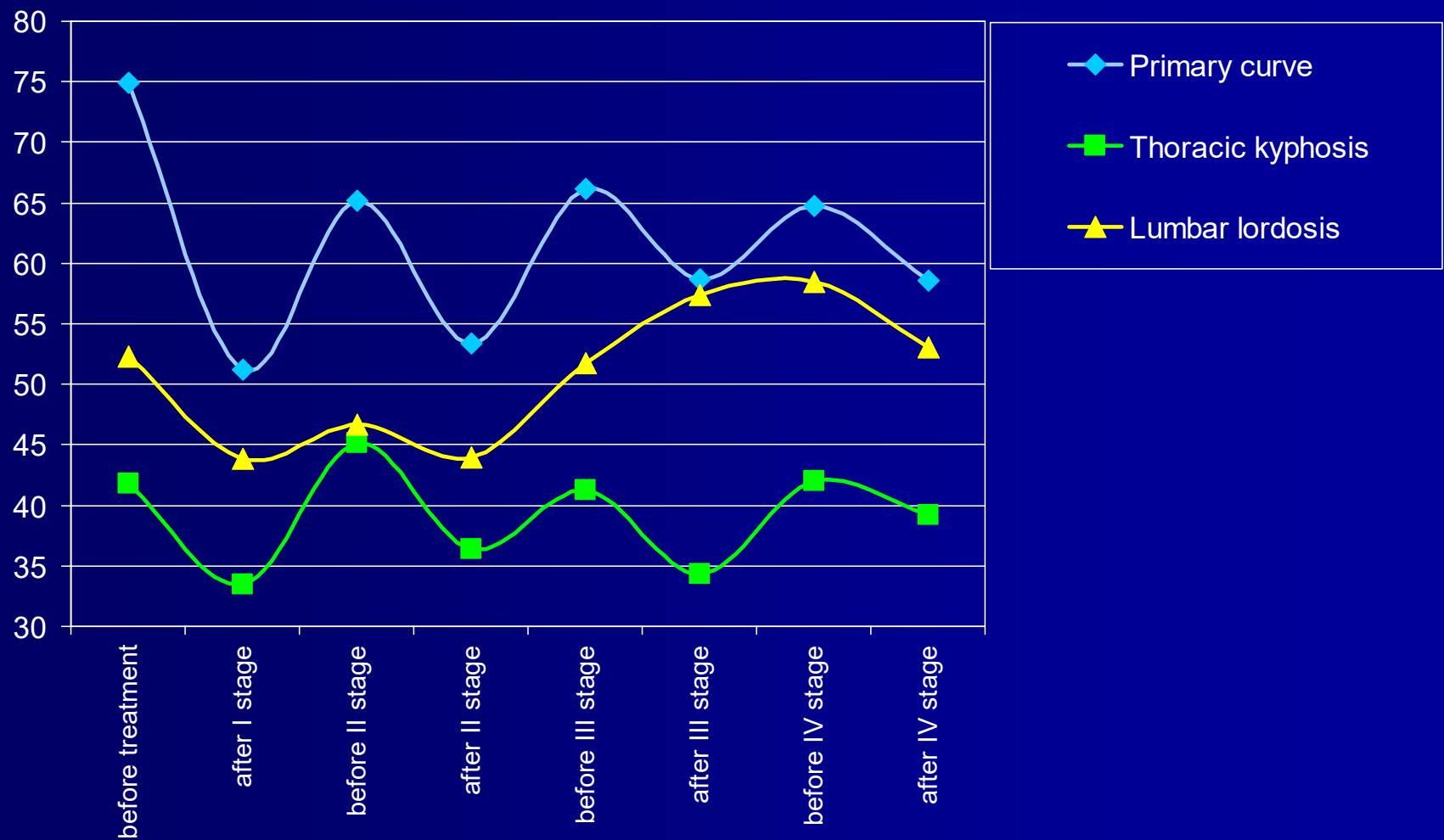
The Cobb angle of scoliotic patients was 74.7° before treatment, 51° after initial correction and 56.5° after the third stage procedure (37 patients).

Mean thoracic kyphosis and lumbar lordosis remained in normal parameters.



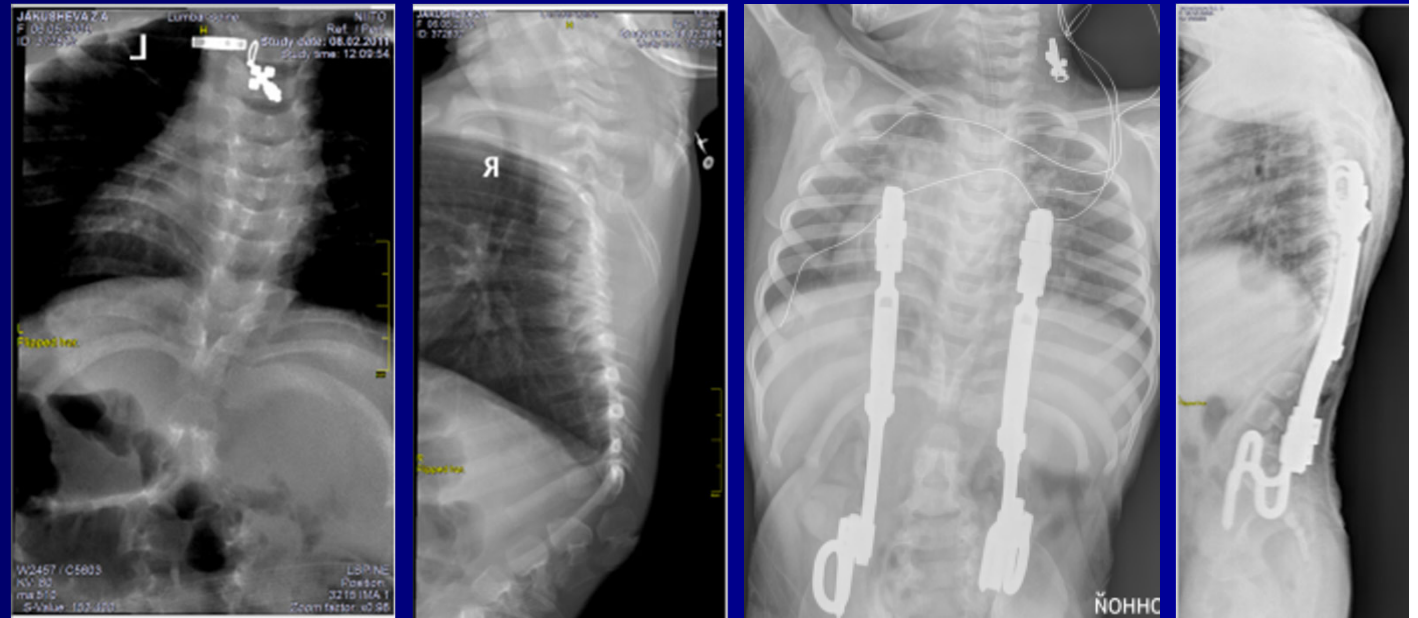
5 years

Spinal deformity dynamics



Results

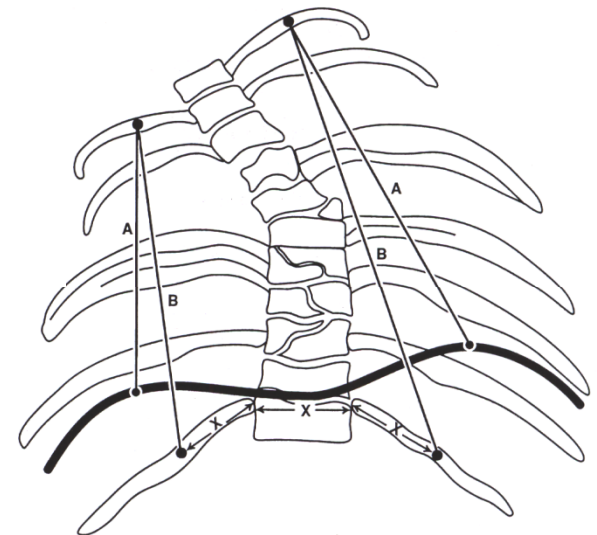
Three congenital kyphosis are currently fully corrected.



3 years

Results

Space available for lungs before treatment was 86.8%, after initial procedure – 94.4% and at the latest follow-up – 97.6%.



Results

Frontal trunk imbalance changed from 15.5 mm before treatment to 21,2 mm after VEPTR implantation and 11.8 mm at the latest follow-up.

Patients' average height was 101.9 cm before treatment and 120.7 cm at the latest follow-up, and average weight – 15.9 cg and 18.5 cg, correspondingly

Complications

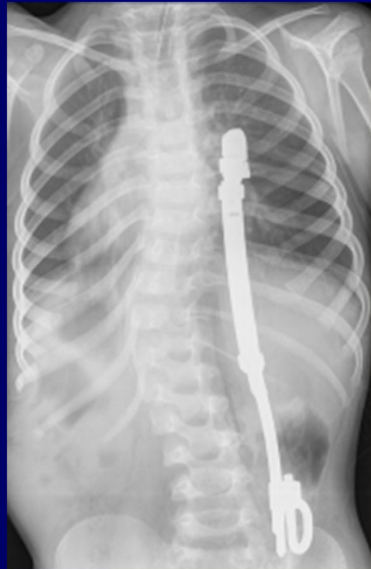
included two early wound infections, three rod breakages, 13 cranial and 3 caudal rod instabilities.

In three children severe trunk imbalance developed which required changing the fixation point or implantation of the second rod. All mechanical complications were treated during stage surgeries.

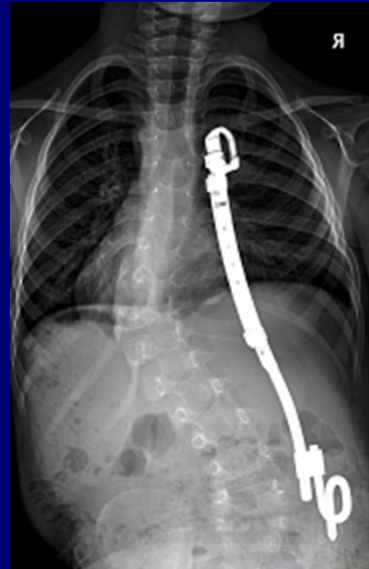
Trunc disbalance



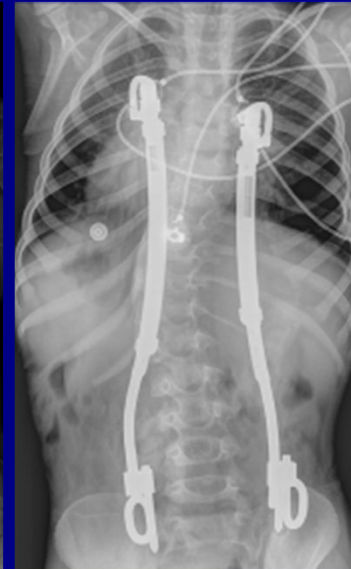
Pre-op



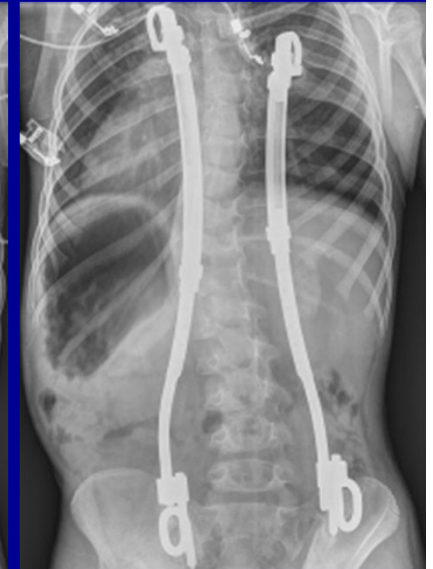
Initial correction



Trunc disbalance



Second rod
insertion



After third distraction

5 years

Conclusion

The application of VEPTR instrumentation for early onset spine deformities provides quite sufficient current results and complication rate is acceptable

