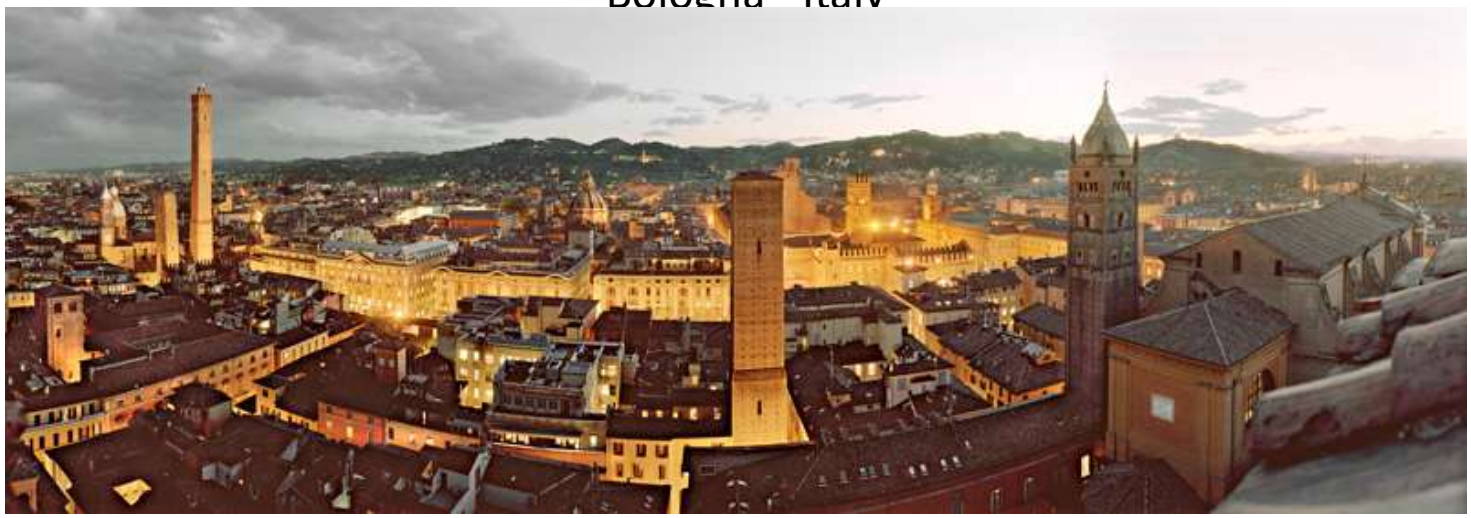
TEMPORARY DISTRACTION USING MAGNETIC GROWING RODS FOR SEVERE SCOLIOSIS SURGICAL TREATMENT

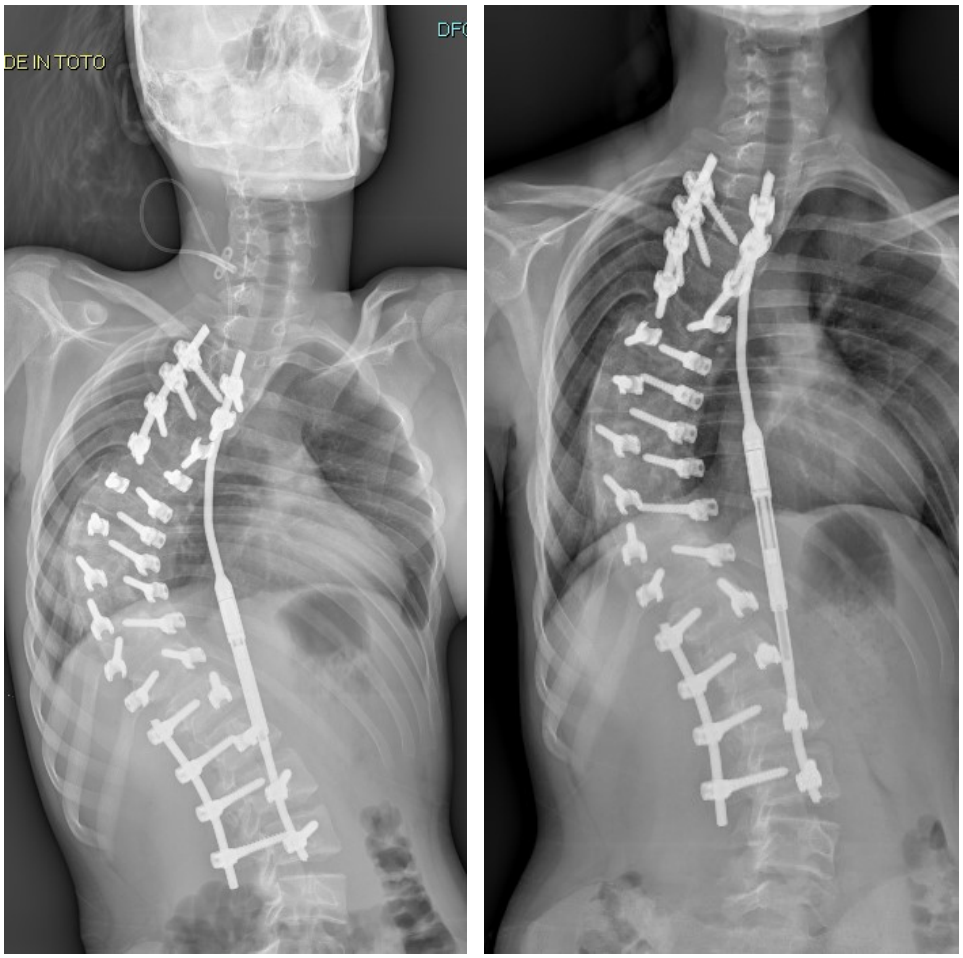
K. Martikos, A.Scarale, F.Vommaro, L. Boriani, A. Ricci, A. Morigi, M. Bacchin, T.Greggi

Spinal Deformities Division – Rizzoli Orthopaedic Institute
Bologna - Italy



Introduction

The aim of the study is to evaluate the efficacy and safety of a new surgical technique for surgical treatment of severe scoliosis. Magnetically controlled growing rods, can actually be used as a gradual temporary distraction of the curve before definitive surgery, instead of the traditionally used Halo traction.



Methods

Twenty patients with severe scoliosis treated from 2015 to 2019 were retrospectively reviewed

They underwent implant of a single temporary magnetic growing rod together with pedicle screws as well as multiple Ponte osteotomies at first surgery.

After approximatively three weeks of daily magnetic distraction the final fusion procedure was performed.

Methods

The mean age of the patients was 15.5 yrs (10-19)

15 females and 5 males with severe scoliosis

4 patients presented spinal cord malformations (3 syringomyelia and 1 tethered cord)

Patients had a mean pre-operative major curve Cobb angle of 114.3° (range 91 ° -137 °)

Mean 71.8 ° kyphosis (range 15 ° -126 °).

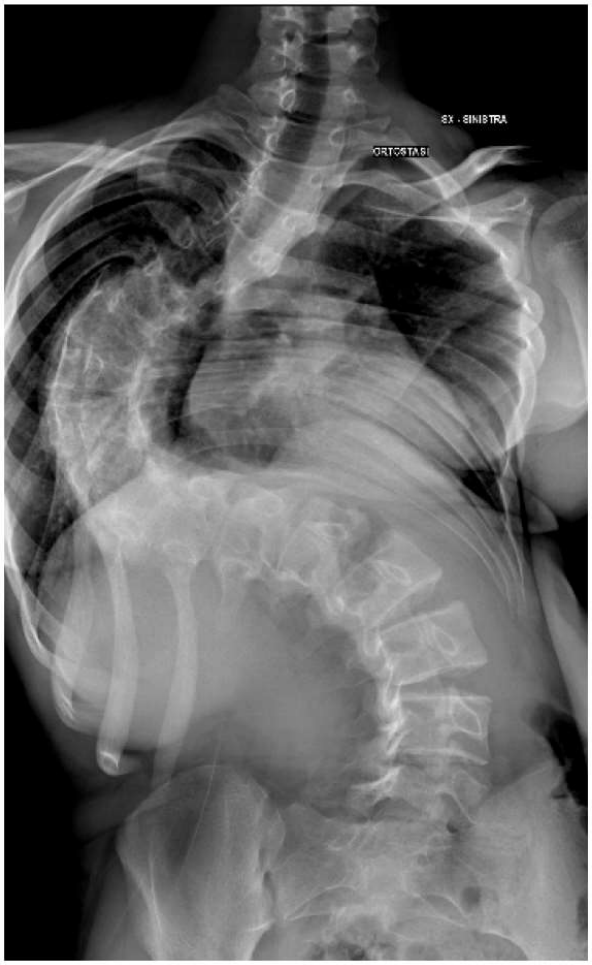
Results

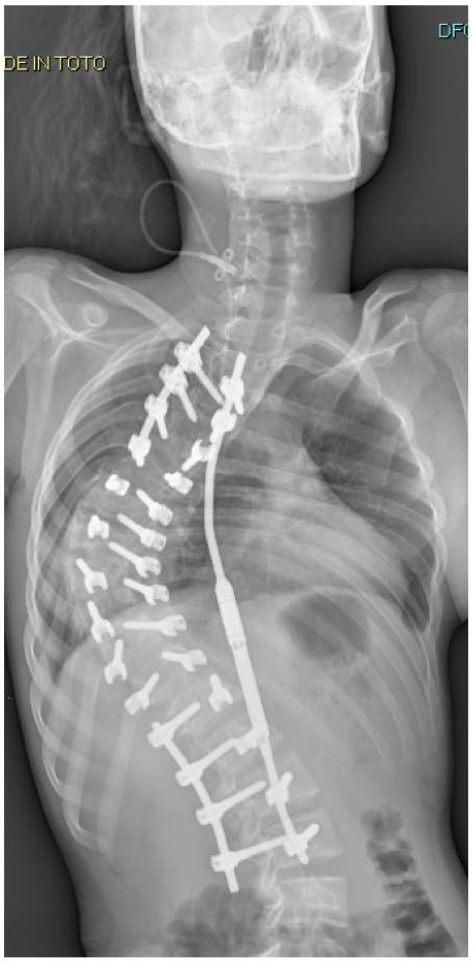
The main curve improved from a mean 114.3 ° (range 91 ° -137 °) to a mean value of 77.2 ° Cobb after the implant of a temporary magnetic growing rod (range 48 ° - 103 °)

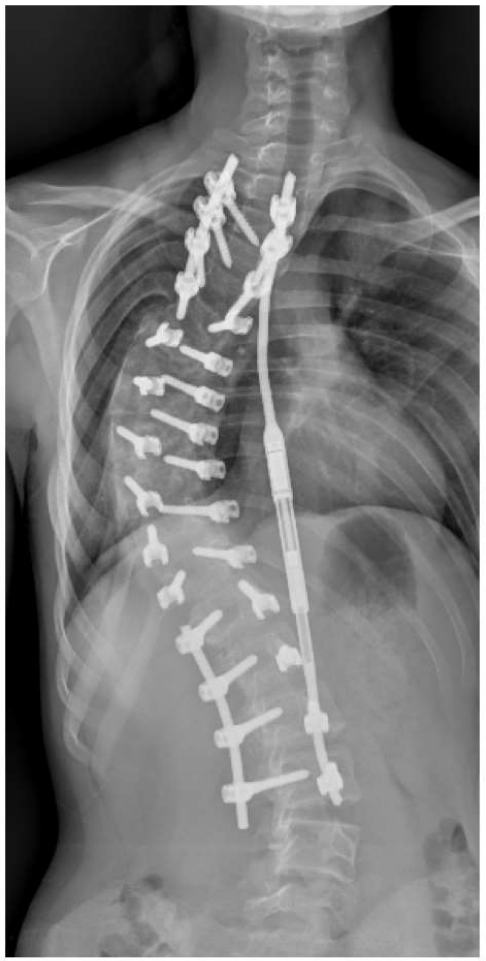
Mean Cobb angle at final implant was 56.2 ° (range 41 ° -82 °).

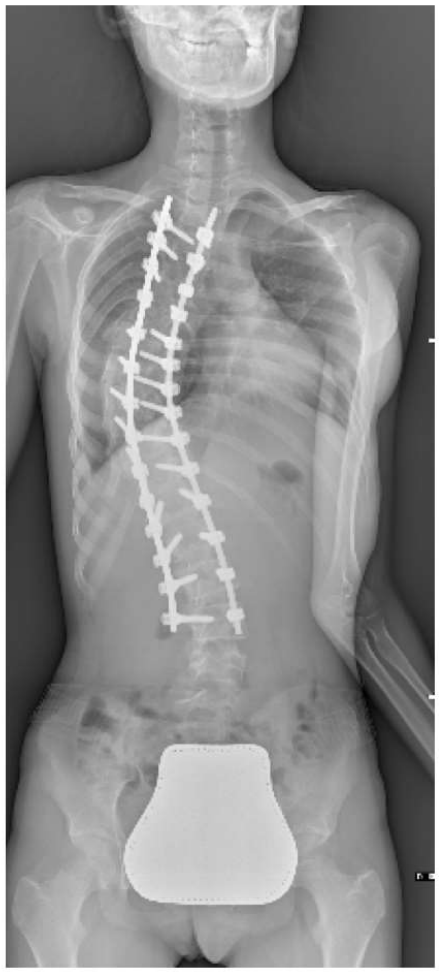
The data shows how strong the correction was, both after the first operation (32% improvement) and after the definitive surgery

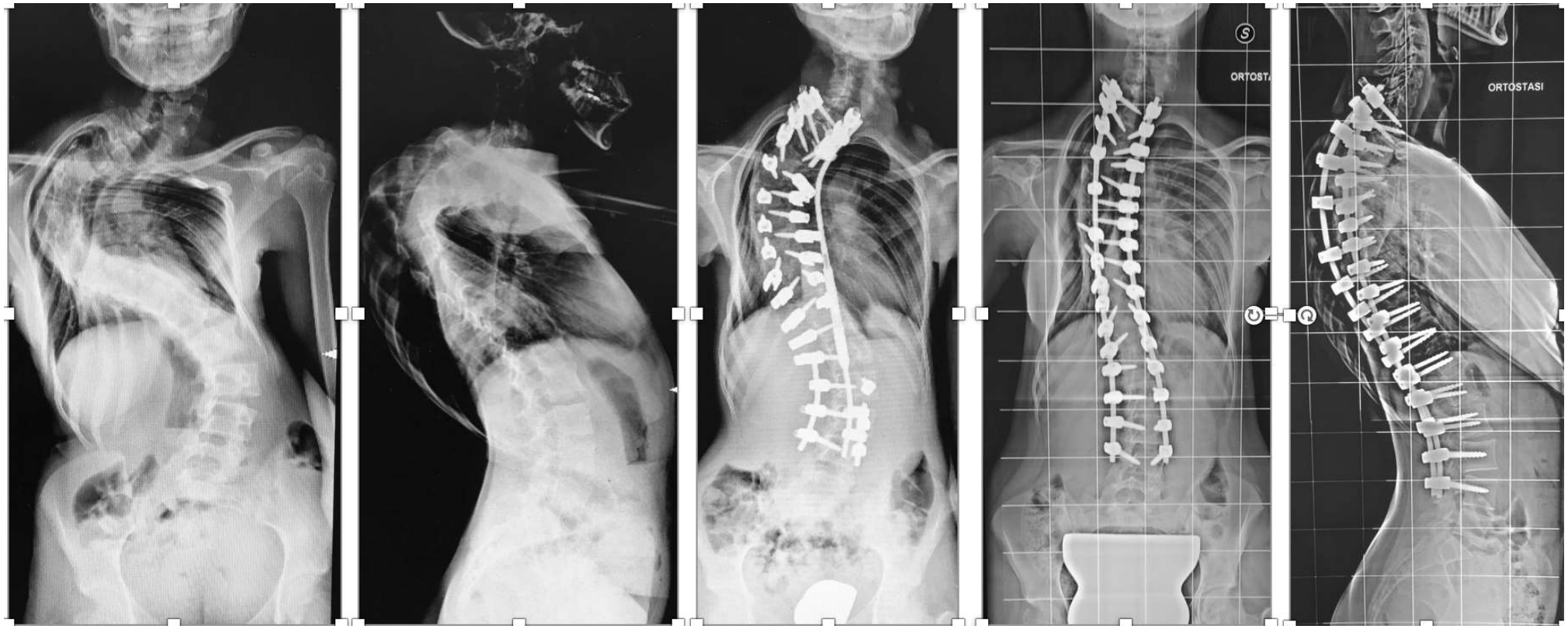
Overall mean correction was 50.1%

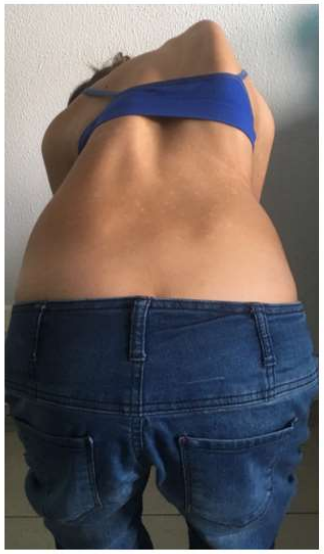

SX - SINISTRA
ORTOSTASI


DE IN TOTO






ORTOSTASI



Conclusion

The temporary magnetically controlled rod is a safe and useful method severe scoliosis correction, avoiding the need for halo traction or aggressive vertebral osteotomies

Better results were observed when the magnetic rod was placed in a more linear fashion.

The tecnique may be combined to intraoperatory tremporary distraction

The technique may not be effective in patients with vertebral apical fusions