BRACING FOR EOS

6TH ICEOS . DUBLIN 2012

F.SANCHEZ PEREZ-GRUESO
HOSPITAL LA PAZ. MADRID .SPAIN

DISCLOSURE

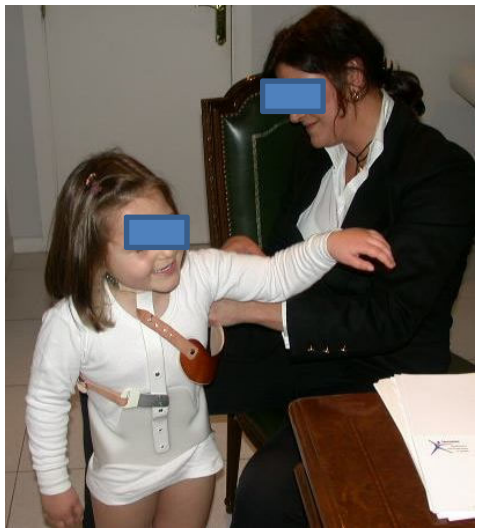
- DEPUY. a , b: Grants Research support
  Consulting
- K2M a : Grants Research support

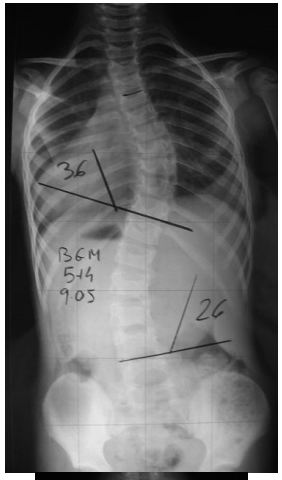
Early Onset Scoliosis

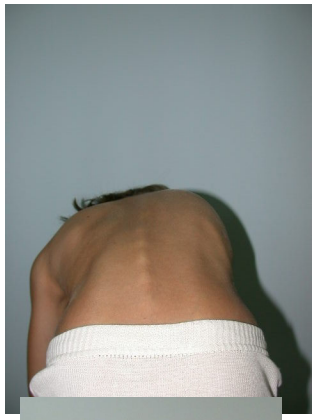
- PROGRESSION
- DIFFERENT ETIOLOGIES
- ASSOCIATED DISEASES
- SMALLER SIZE ANATOMY
- IMMATURE RIB CAGE

Braces

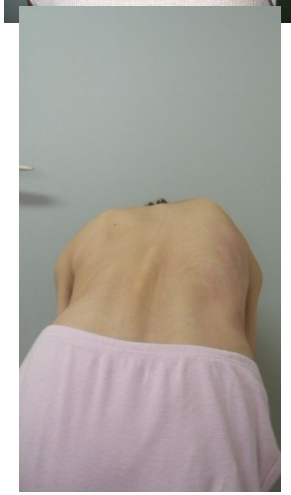
- Indicated in mild deformities
- Do not provide immediate correction
- Treatment aimed to "hold" the spine and prevent further progression
- Literature does not support the efficacy of braces
- Poor compliance / commitment.



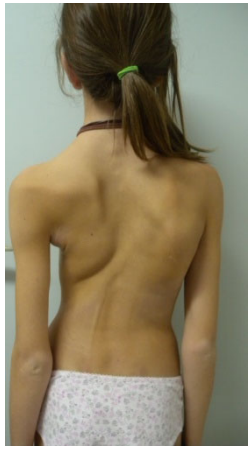


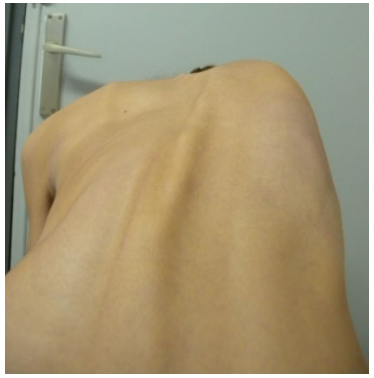


AGE 5



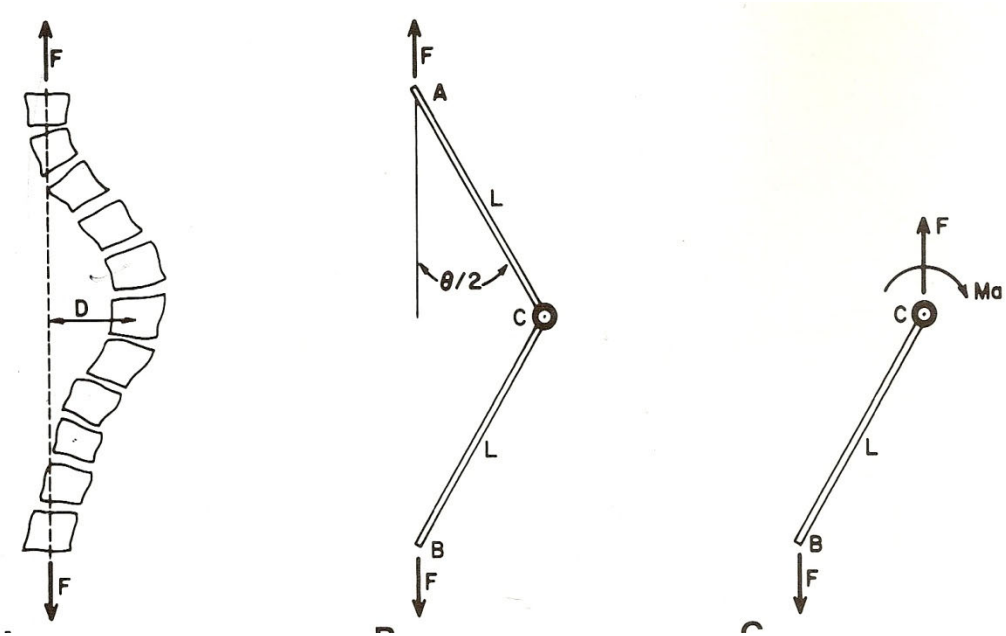
AGE 11

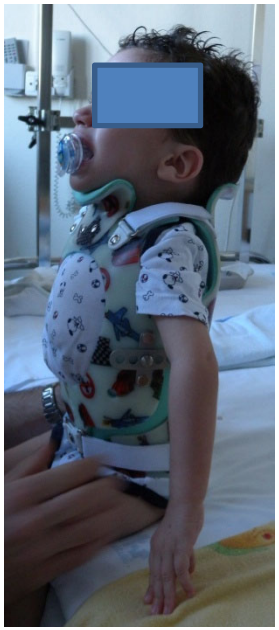




AGE 12+6

DISTRACTION



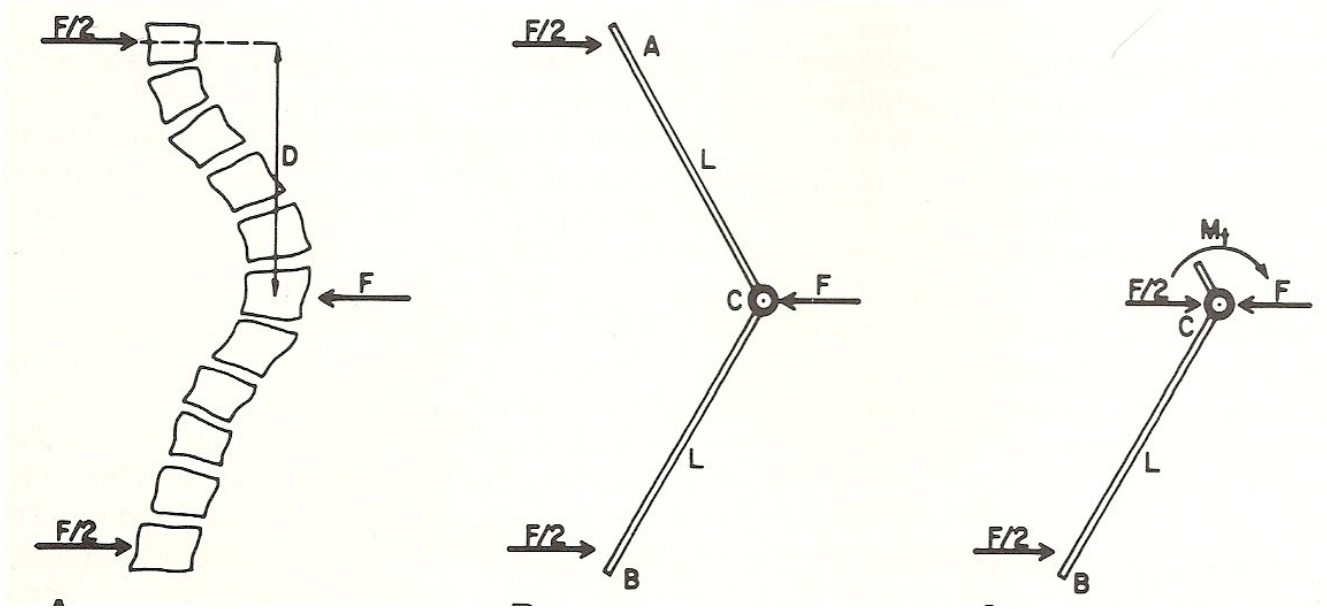


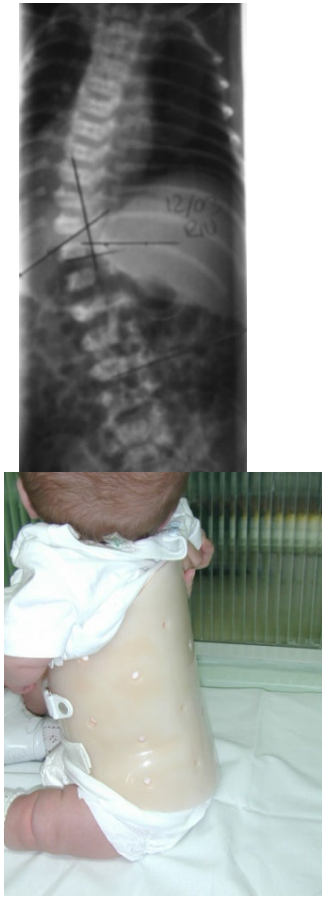
•Axial force stretching the spine

Correctional ability increases with the severity of the curve and decreases as correction proceeds

•***Traction can not be retained unless the occiput or the mandible are supported***

TRANSLATION

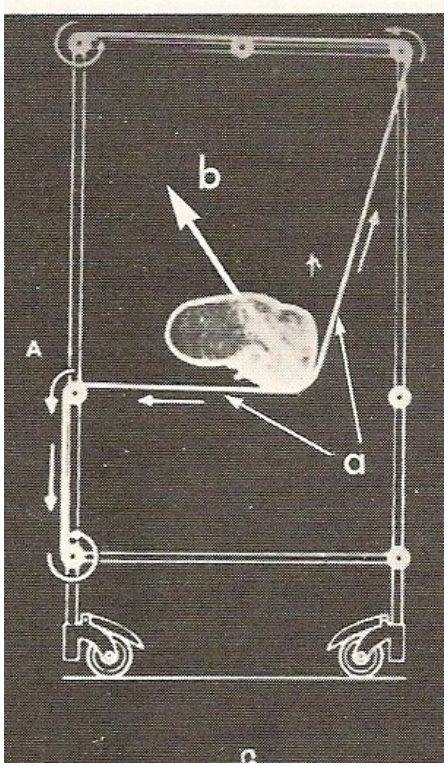




Corrective effect of the lateral forces increases as the deformity decreases

Do not push the ribs toward the spine. Deformed rib cage

Derotation



Rotational correction applied from posterior: Ribs are rotated anterior (???)

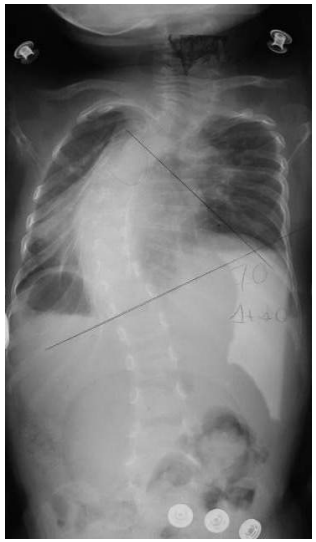
CASTS

•PREFERRED TREATMENT

•PROVIDE CORRECTION

•EARLY SERIAL CASTS, MAY REVERSE THE SCOLIOSIS, WHEN USED IN MILD CURVES AT AN EARLY AGE

•DELAY SURGERY



CASTS
disadvantages

•SKIN PROBLEMS

•IMMATURE RIB CAGE OFTEN DEFORMS BEFORE SIGNIFICANT CORRECTION IS TRANSMITTED TO THE SPINE

•POOR COMPLIANCE

•INABILITY TO PREVENT PROGRESSION

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[FUNCTIONAL BANDAGE THERAPY OF DORSAL SCOLIOSIS IN INFANTS AND SMALL CHILDREN. (PRELIMINARY REPORT)].

KALLABIS.M

Z Orthop Ihre Grenzgeb. 1964 May;98:442-7

Three-point principle.

“Indicated in neonatal period until the baby is large enough to fit a Milwaukee brace”

Rachis, 1995, vol. 7, nº 1 pp 23-30

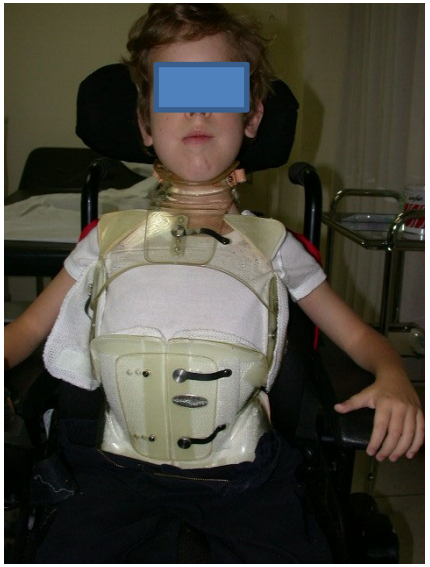
ARTICLE ORIGINAL

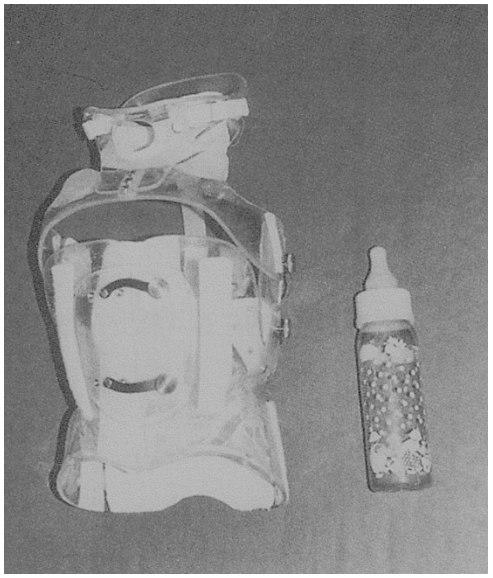
INTERET DU CORSET EN PLEXIDUR TYPE GARCHOIS CHEZ LE TOUT-PETIT ENFANT (OU CORSET DE LA 2EME GENERATION)

USE OF THE GARCHES BRACE IN VERY YOUNG CHILDREN

C. TOUZEAU*, C. BRENIERE*

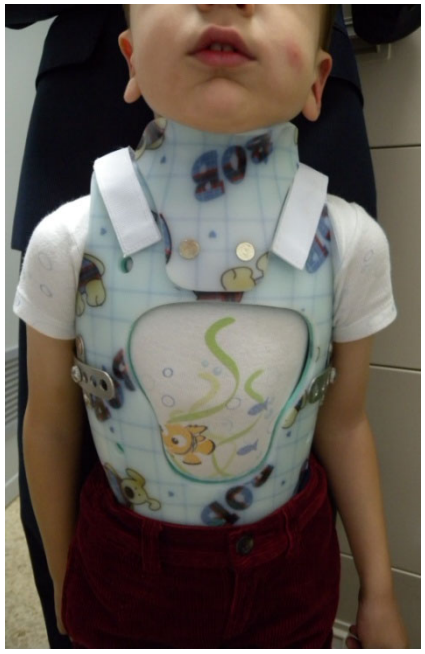
*Centre Elisabeth de la Panouse-Debré 37, rue Julien Penn 92160 Antony



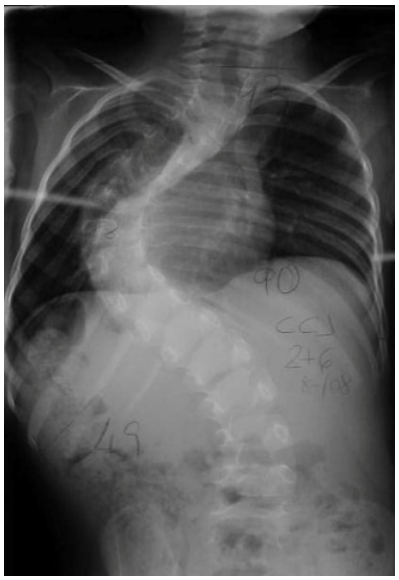


CTLSO PLASTIC BRACES
(under traction & anesthesia)

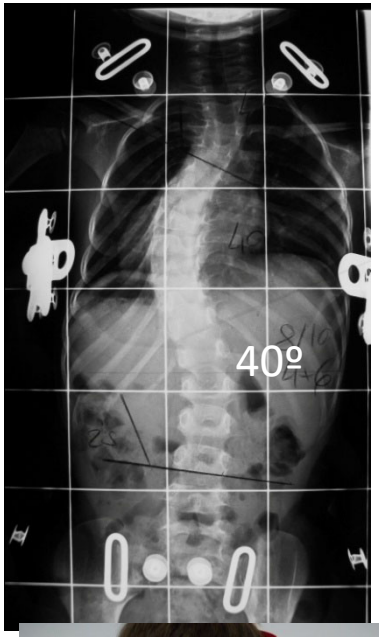
- DIMINISH CAST DISADVANTAGES
- FACILITATES SKIN CLEANING
- HIGHER COST
- REPEATED LIGHT ANESTHESIA
- COLLABORATIVE PARENTS

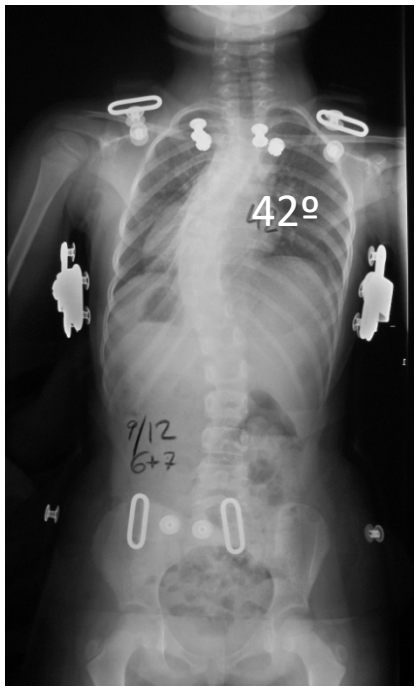


CASTS & BRACES



FOLLOW UP





POST PLAST BRACE

AGE 3

AGE 6+7

Patients

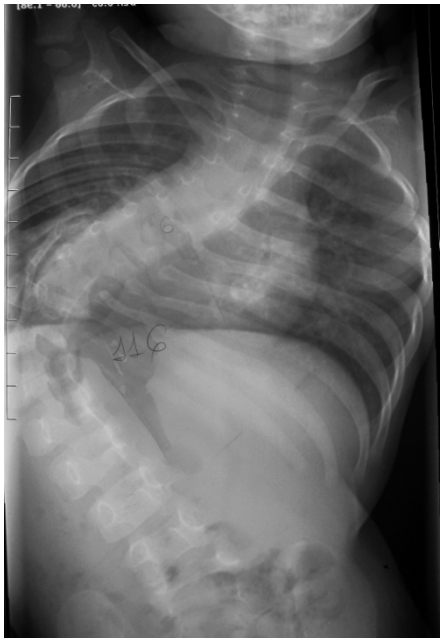
• 65 children under age 5 treated for progressive scoliosis

•**11 p** met inclusion criteria.
- •7 female . 4 male
- •***Age : 2+3 (1-4)***

•ETIOLOGY: IDIOPATHIC 7. SYNDROMIC 3
NEUROM. 1

•RADIOLOGY:
- •LEFT THORACIC 5
- •RIGHT THORACIC 3
- •LEFT C TYPE 3

•**COBB: 78.5º** (60º-116º)
•KYPHOSIS:48º (30º-95º)



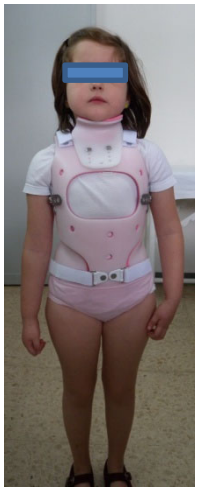
Treatment

•Pre halo traction: 4 p

•CASTS: 1.5 (1-3)
•PLASTIC BRACES: 2.3 (1-4)

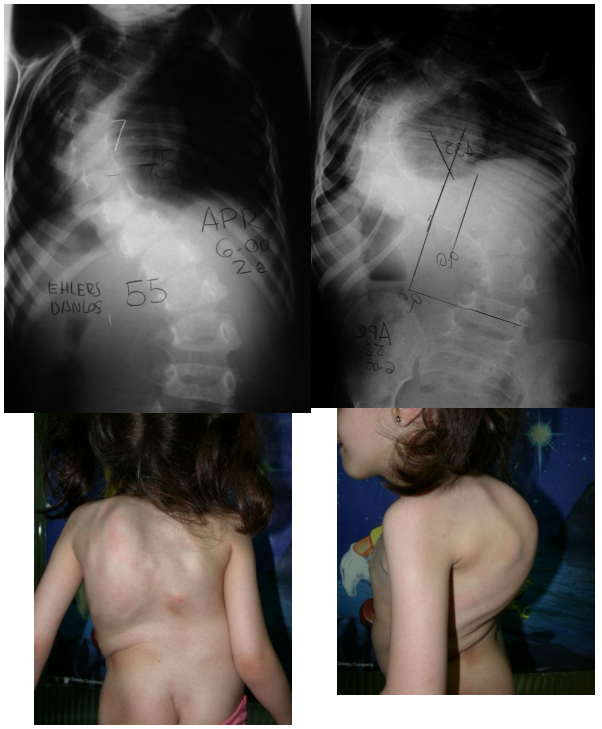
•FOLLOW UP: 3 YEARS (1-5)

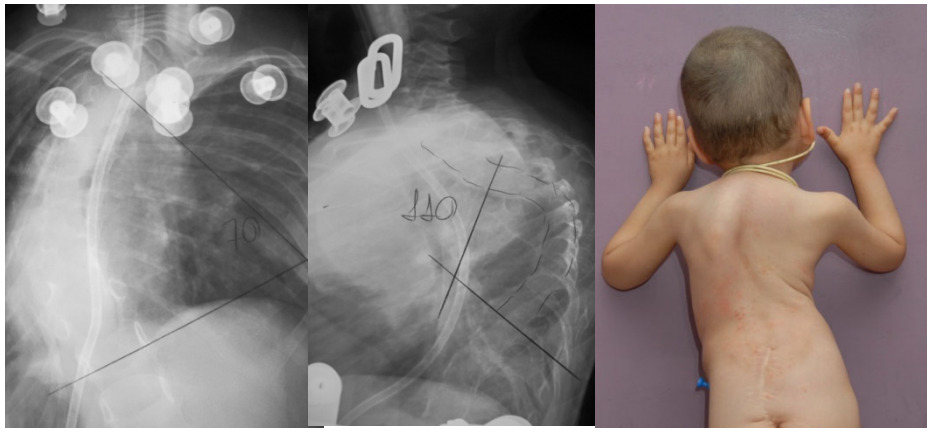
	PRE	POST CAST		FOLLOW UP 1 YR	LAST FOLLOW UP
SCOLIOSIS	78.5º	43º (30-76º)		59º (48-80º)	65º (35-135º)
KYPHOSIS	48º				65º(30-95º)



Complications

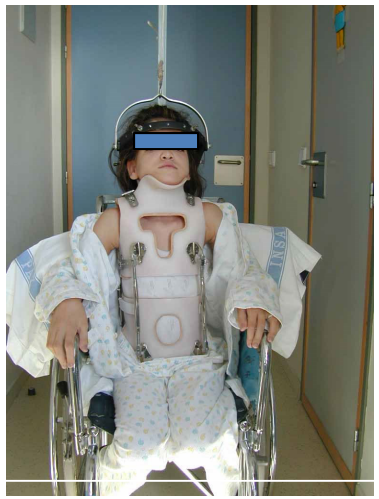
- SKIN PROBLEMS: ALL PATIENTS
- SEVERE PROGRESSION: 1P. FUSION
- ABANDON TREATMENT: 1P
- CONVERSION TO GROWING RODS: 2





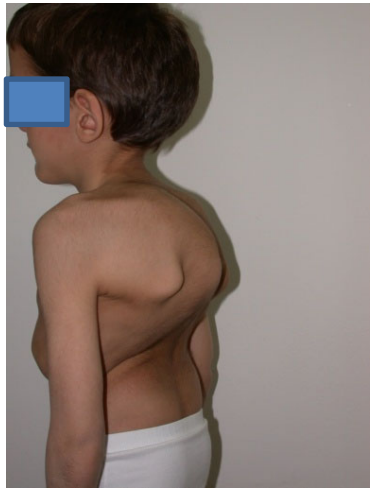
Elongation cast(Turnbuckle)

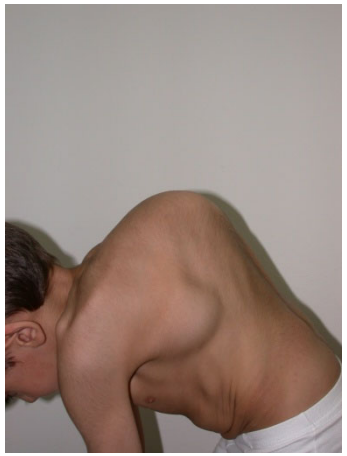
Zeller RD, Jacquot F, Dubousset J. ***The preoperative Stagnara elongation cast in severe spinal deformities. Does it help?*** 31st annual meeting, Scoliosis Research Society, Ottawa, Canada, 1996:149.

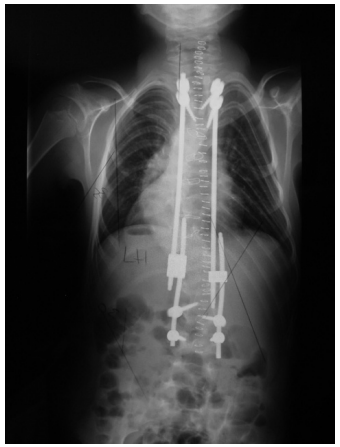


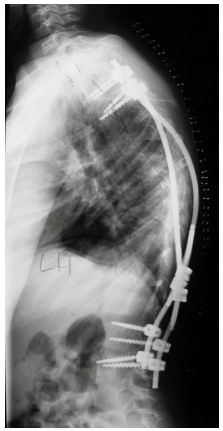
- Combination of the Stagnara Elongation turnbuckle cast with halo gravity traction
- Slow rate of distraction (Spinal viscoelasticity)
- Continuous uniaxial loading

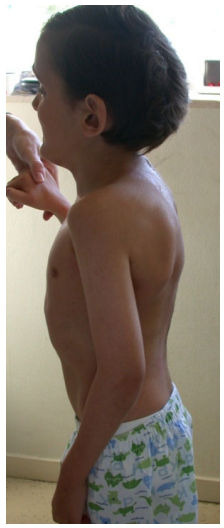
TURNBUCKLE CAST/BRACE



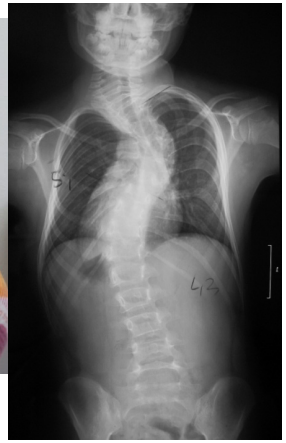


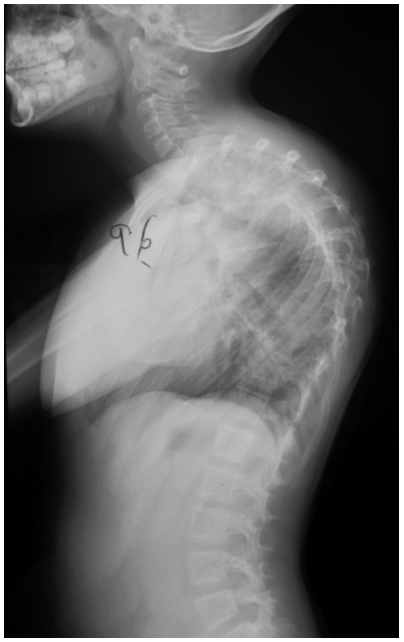


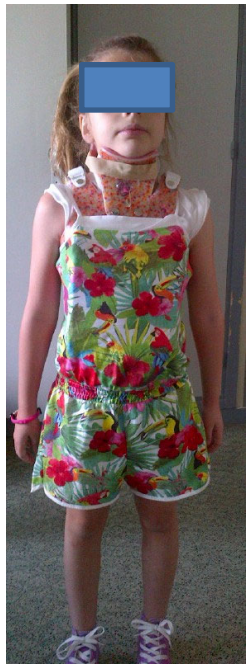


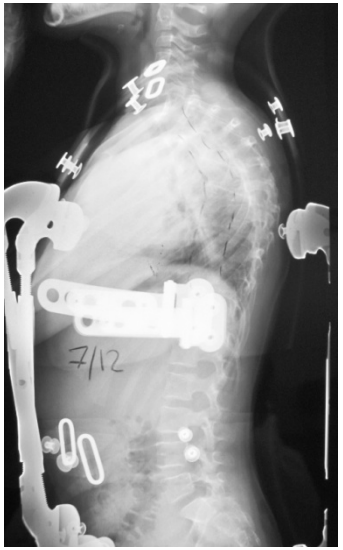


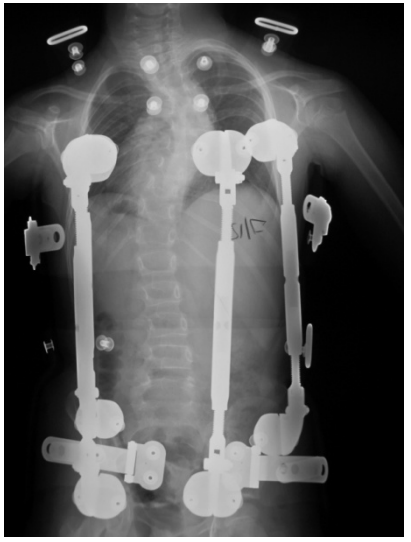
TURNBUCKLE CAST/BRACE











Early Onset Scoliosis Questionnaire (EOSQ)

Michael G. Vitale, MD MPH
Hiroko Matsumoto, MA
Jacqueline Corona, MD
David P. Roye, Jr., MD

Parental burden: in the last 4 weeks				
17. How often have you felt anxious or nervous because of your child's condition?				
Always	Often	Some of the time	Not often	Not at all
18. How often has your child's condition interfered with family activities?				
Always	Often	Some of the time	Not often	Not at all
19. To what extent has your child's condition affected your level of activity?				
A lot	Quite a lot	Somewhat	A little	Not at all
20. How often have you missed or arrived late for work or social activities because of your child's condition?				
Always	Often	Some of the time	A few times	Not at all
21. Have you been able to spend enough time with your family/partner/spouse despite your child's condition?				
Not at all	Not much time	Some of the time	Most of the time	All the time

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Financial expenditure: in the last 4 weeks				
22. What financial expenditure has your child's diagnosis of early-onset scoliosis involved?				
Very high expenditure	High expenditure	Moderate expenditure	Low expenditure	No expenditure

MESSAGE

- CORRECTIVE CASTS & BRACES REDUCE INITIAL DEFORMITY BUT BARELY KEEP IT OVER TIME.

- DELAY SURGERY BUT MOST PROBABLY WILL NOT AVOID IT

- TREATMENT OF EOS BY MEANS OF CASTS & BRACES CAN NEGATIVELY AFFECT FAMILY LIFE