

Casting Without Anesthesia for EOS (Alternately Repeated Cast Treatment)

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Reports of Serial Cast Treatment

- Mehta MH (2005) : 136 pts. Age 1+10 (0+6~4+0)

- General anesthesia for very young children
- Intervals of Jacket-change
 - ≤2 yrs 8-10 weeks
 - >2 yrs. 12-16 weeks

- Sanders JO (2009) :

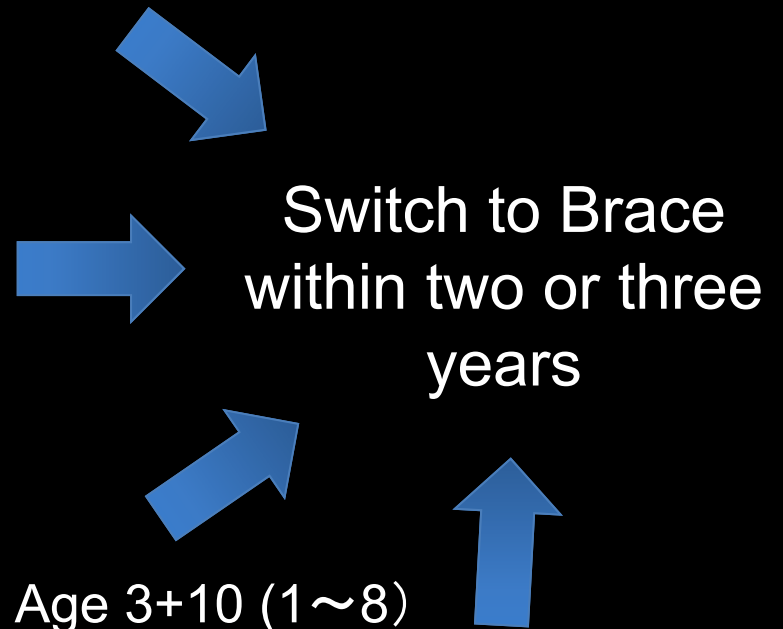
- General anesthesia
- Cast changes based on age:
 - ≤2 yrs 2 months
 - 3yrs 3 months
 - ≥4yrs 4 months

- Waldron SR et al. (2013) : 20 pts. Age 3+10 (1~8)

- General anesthesia
- Length of cast treatment 16.9 ± 9.1 mo (4-35 mo)

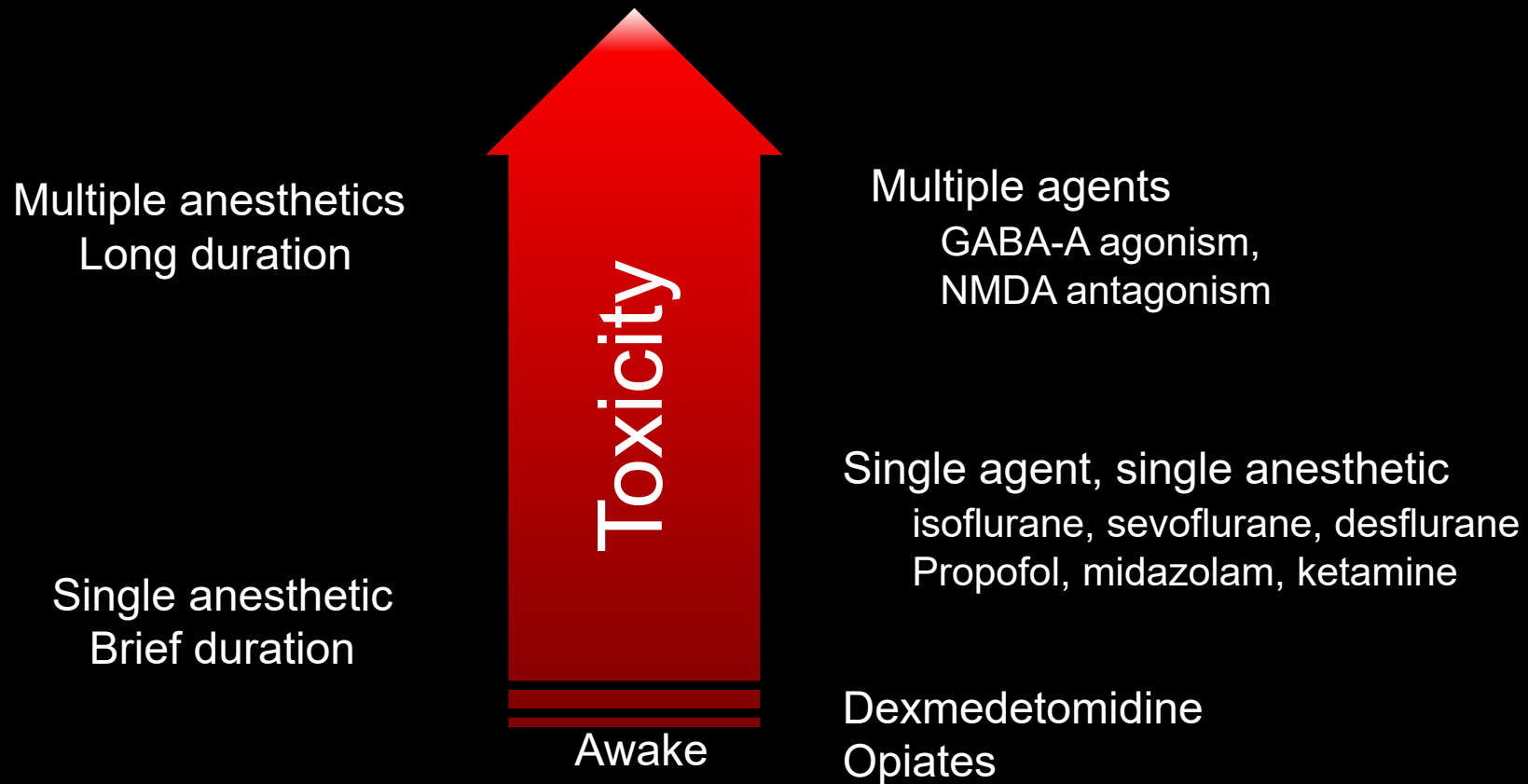
- Gussous YM et al. (2014) : 74 pts. Age 17mo (IS), 22 mo (NIS)

- General anesthesia
- Length of cast treatment 16.9 ± 9.1 mo (4-35 mo)



Anesthetic Toxicity in Children

Presented by Piyush Patel in ICEOS, 2013



In summary, anesthesia produces structural changes to the brain. Clearly, more basic and clinical research is needed. There are, however, no data to indicate that anesthesia care providers should alter their practice.

Aim of this Presentation

To demonstrate our cast treatment
combined with brace treatment
without general anesthesia



“Alternately repeated cast/brace treatment (ARCB)”

Three Key Points of Casting without Anesthesia

1. Aid of patient's mother during casting

➡ Ask mother staying besides patient, holding patient's rt. hand

2. Use of iPad

➡ Ask patient to choose favorite "Anime"" for taking patient's mind off

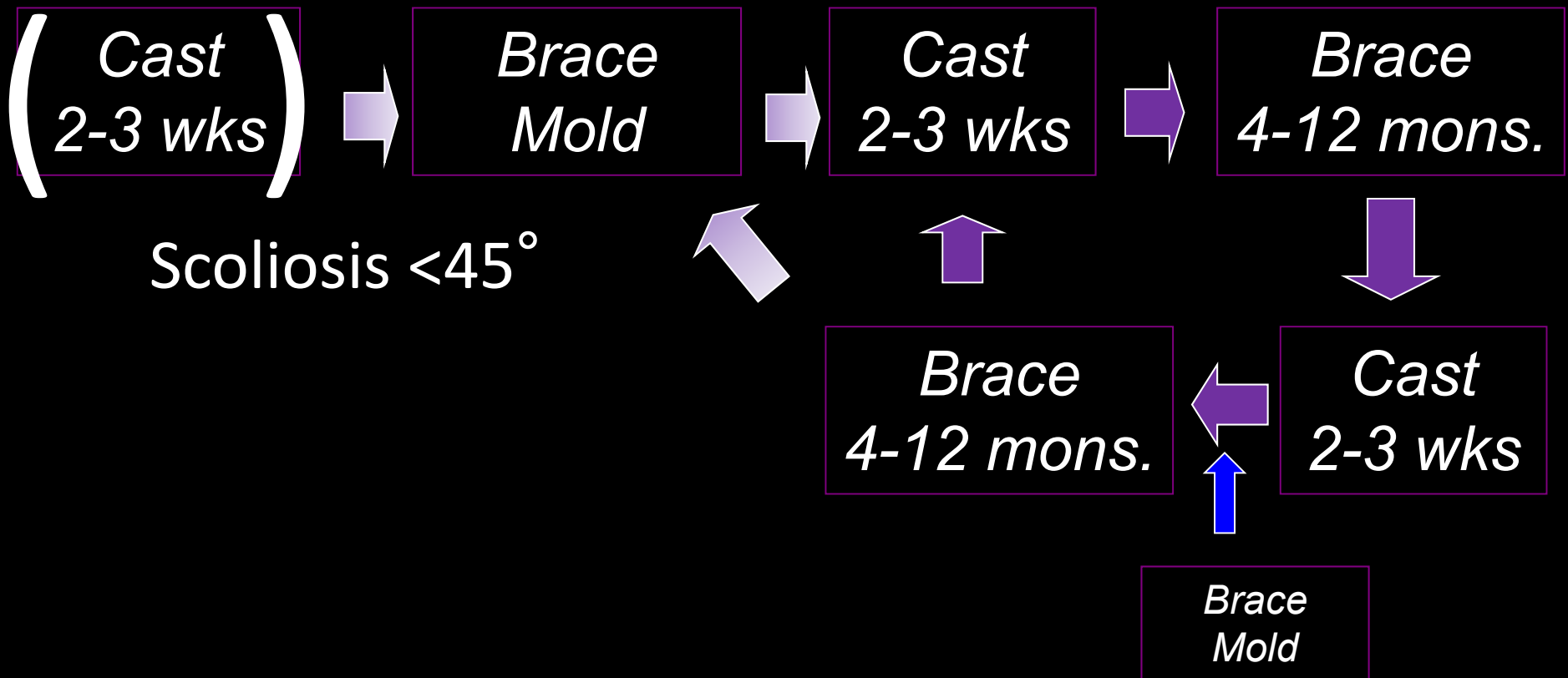
3. Putting of a Neck Collar (Philadelphia collar) with manual traction instead of a halter strap

➡ Children do not like a halter strap for traction because it ropes into the skin.

Casting without Anesthesia



Alternately Repeated Cast/Brace (ARCB) Treatment Timetable

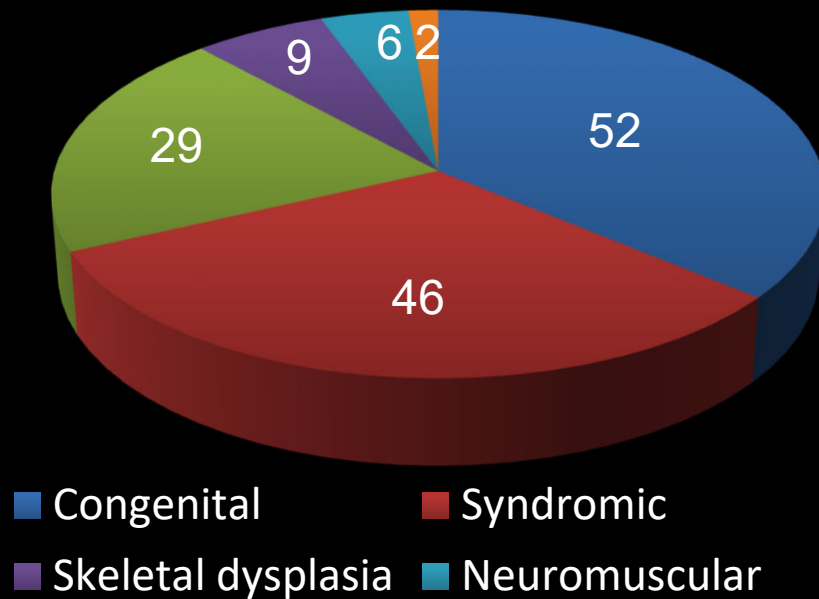


Duration of brace should be determined by checking the effect of brace treatment in each patient..

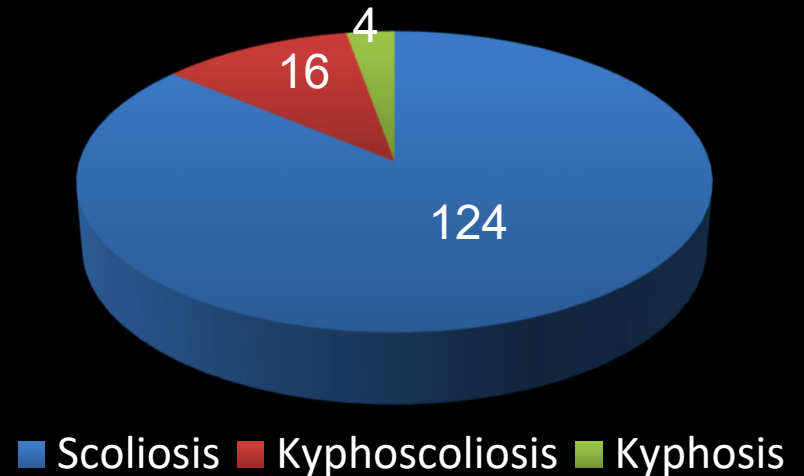
Patients N=144 (min. F/U 1 yr)

- Sex Male 46, Female 98
- Age at the 1st Casting 3+5 (0+9~9+7)
- Scoliosis $55.1 \pm 16.8^\circ$ (20-114)

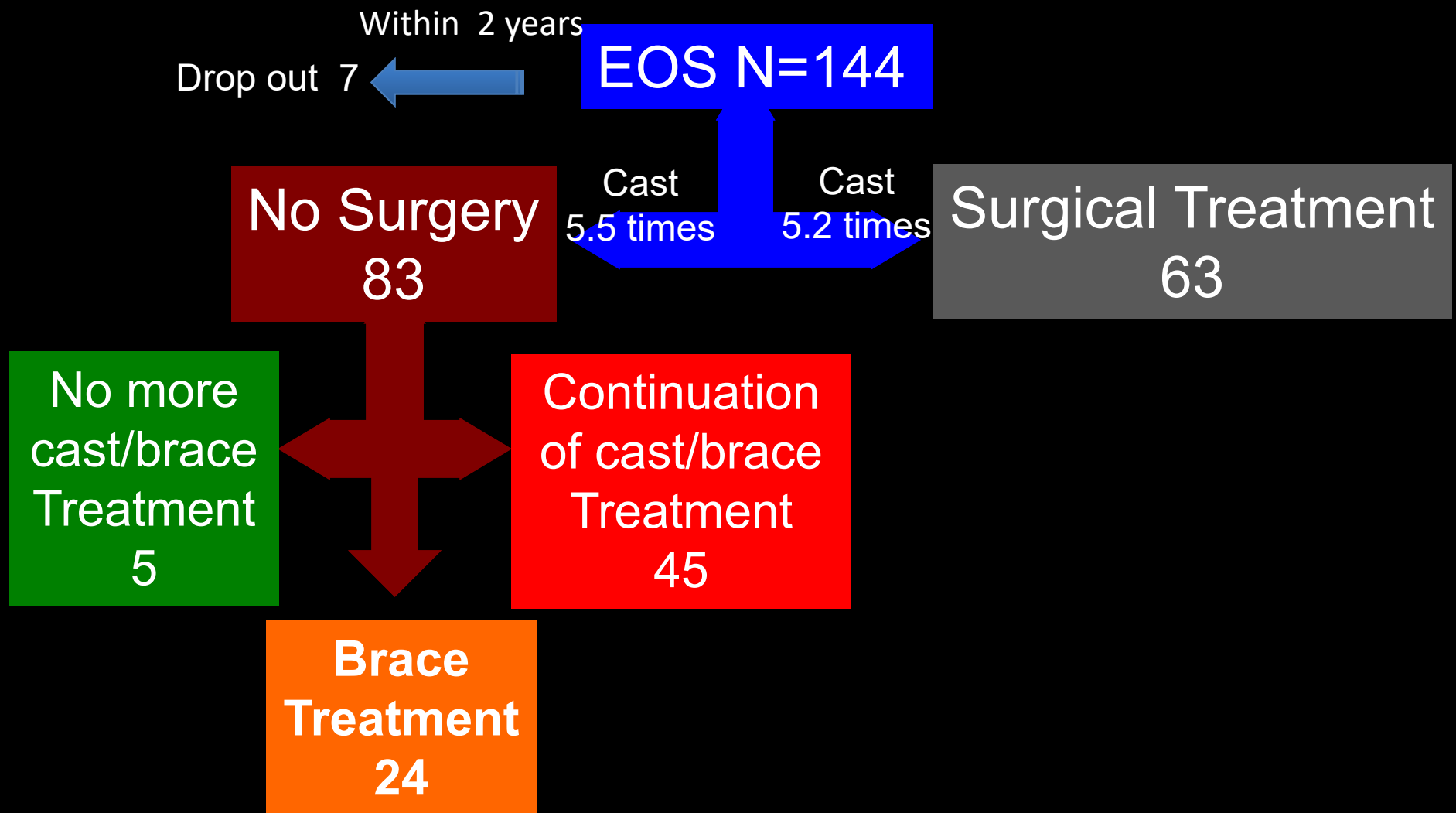
Diagnosis



Type of Spinal Deformity



Alternately Repeated Cast/Brace Treatment in Meijo Hospital (1995-2014)

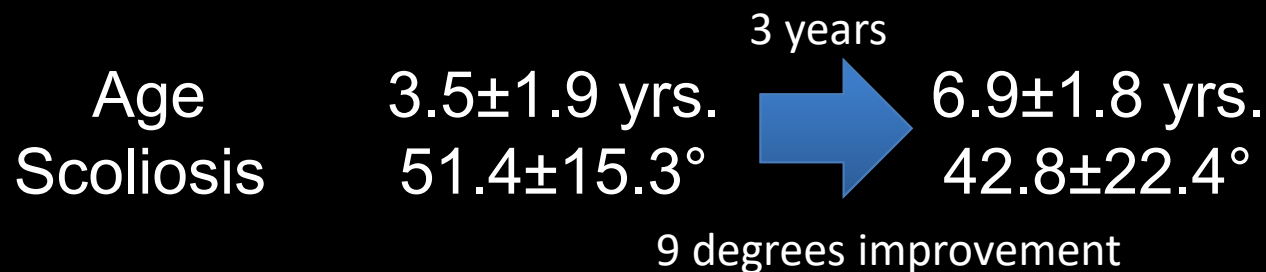


The Result of Cast Treatment

- Patients who underwent surgeries following ARCB treatment
N=63

	Pre 1 st casting	Periop.		Final F/U
		Preop.	Postop.	
Age (y)	3.6±1.6	7.0±2.3		10.7±2.4
Scoliosis(°)	59.9±17.4	61.4±21.7	30.9±17.8	32.3±15.4

- Patients who are currently being treated with ARCB or brace.
N=69



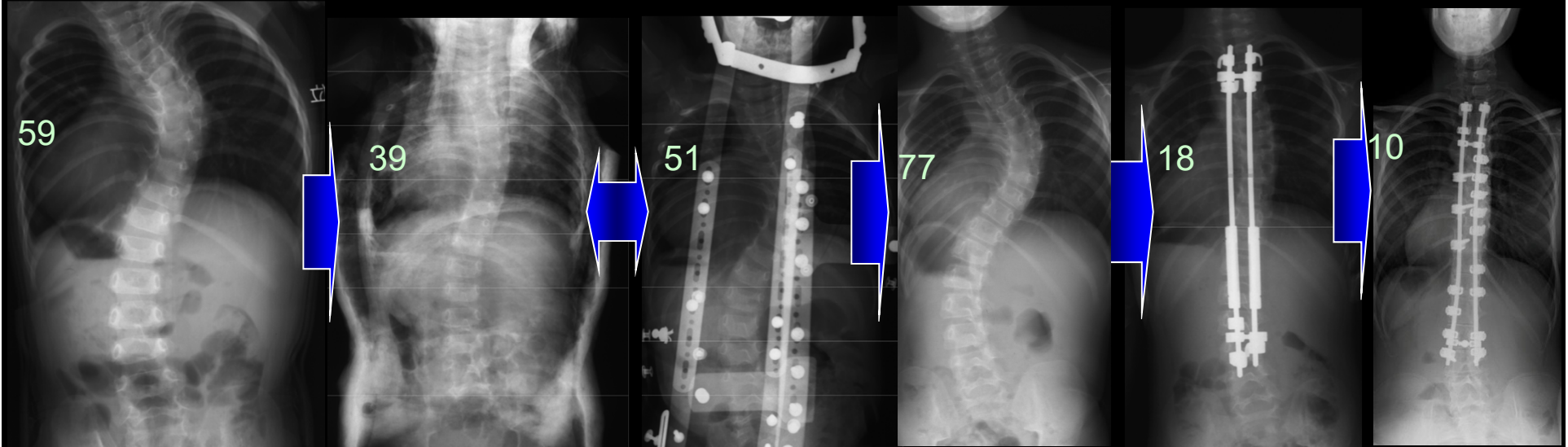
Case: Female SOTOS Syndrome

2+5 :
Height 90 cm,
BW 13 kg

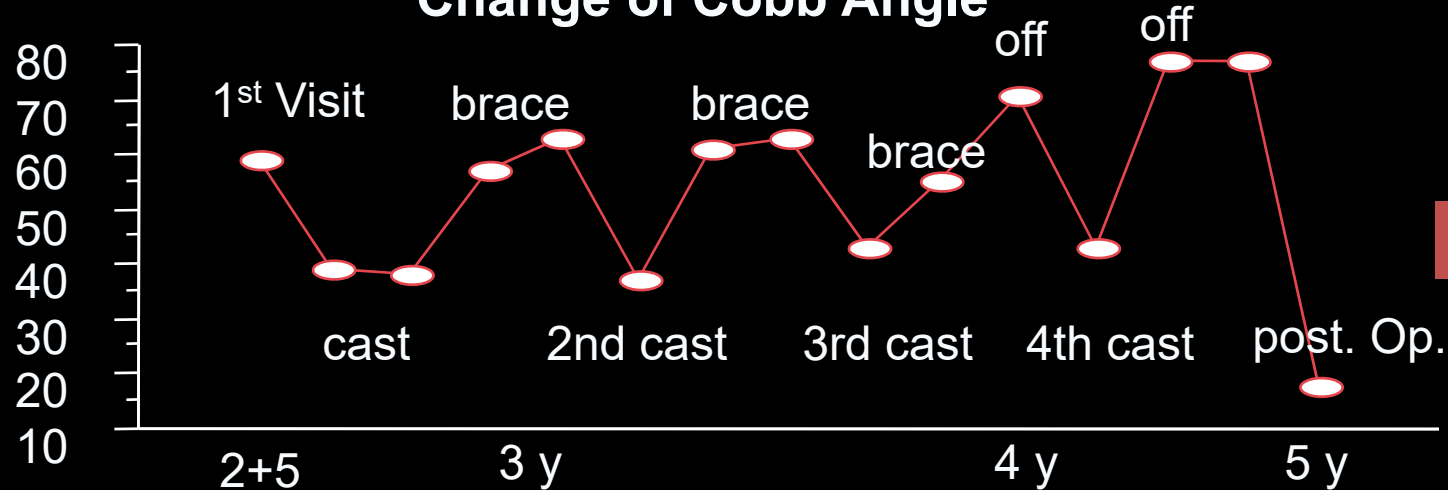
ARCB Treatment

5+4
Growing rod

14+0:
Ht. 154 cm,
BW 54 kg



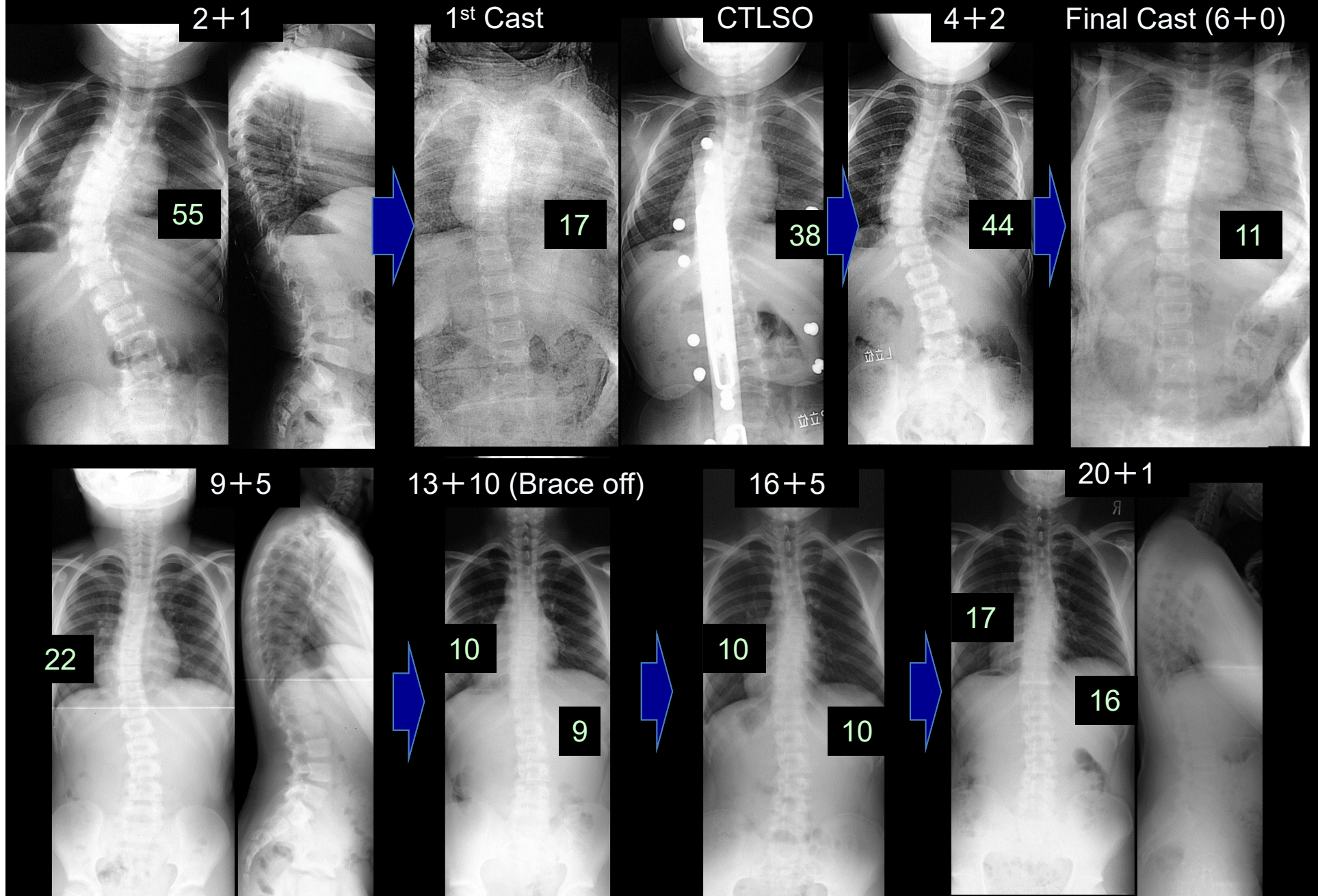
Change of Cobb Angle



11+10
Final fusion

Time saved - 3 yrs.

Case: 2+5 Infantile Idiopathic Scoliosis



Limitations of ARCB Treatment

1. Almost all children cry from anxiety at the 1st and 2nd time of casting.
2. Co-operation and understanding for cast treatment by parents are definitely required.
3. Need of man-power for casting
4. Prevention of adverse side-effects such as decubitus and cast syndrome must be required.

Conclusions

The ARCB Treatment is an alternative method for the conservative treatment of EOS.

It does not require any anesthesia.

Most important tricks are

- 1) Important to obtain **parent's support** during casting.
- 2) **A tablet device** with age-appropriate shows that children like is quite useful to keep the patients' mind off from anxiety
- 3) Cranial traction using a **Philadelphia collar** prevent railcut on strap into the neck



We can apply a corrective cast more frequently with combination of brace wearing.



Parents

Nurses

Pediatric Spine
surgeons

Orthotists/
Cast technicians

Thank you for your attention