

Outcomes of Growth-Sparing Instrumentation in EOS Patients with Multi-level Congenital Anomalies

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Background

- Highly complex population
- No standard of care
- Growth sparing instrumentation (GSI)
 - Growing rods
 - Titanium rib based implants
 - Guided Growth
- Outcomes of graduates not yet described



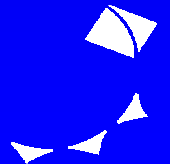
Purpose

What is the clinical course and progress of EOS patients with multi-level congenital curves treated to completion with GSI?



Methods

- Multi-center EOS database
- Inclusion: Multi-level congenital anomalies
- Graduates:
 - Final fusion, or
 - No further surgery planned + 5 years f/u
- Outcomes:
 - Radiographic: Cobb, balance, height
 - Complications

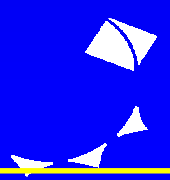


Results

26 patients

- 17 TGR
 - 12 spine-based
 - 5 rib-based
- 7 Ti rib implants
- 2 guided growth
- Avg 10.4 surgeries

Comorbid Conditions

- 5 VACTER
 - 1 CP
 - 1 Arthrogryposis
 - 1 Rett
 - 2 Tethered cords
 - 1 Trisomy 14
 - 1 Thoracic dysplasia
- 

Results: Outcomes

	Pre-op		Final follow-up		
	Avg	Range	Avg	Range	Change
Age	5.5	1.9 - 14.8	15.2	9.7 - 23.3	9.7 years
Major curve	73°	37 - 128°	48°	20 - 80°	-35%
T1-T12	15.2	9.5 - 24.7	19.8	13.3 - 31.9	30%
T1-S1	23.7	14.4 - 38.3	32.4	23.0 - 49.5	37%
Cor. Balance	3.2	0 - 14.4	3.2	0 - 11.6	2%
Sag. Balance	3.1	-21.4	3.1	-16	0%

Cobb > 40°	54%
Coronal balance > 4cm	31%
Sagittal balance > 4cm	20%
T1-T12 height < 18cm	42%



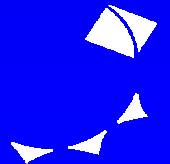
Results: Complications

Complication	#	Per Patient	Per Surgery
Implant Failure	43	165%	16%
Wound Problem	14	54%	5%
Neuro Deficit	4	15%	2%
Medical	5	19%	2%
Other	1	4%	0.4%
Total	67	258%	25%



Conclusions

- Modest correction
- Numerous complications
- Complex population requiring individualized treatment strategies



Thank You

