Does Initial Cast Correction Predict Treatment Success for Infantile Scoliosis?

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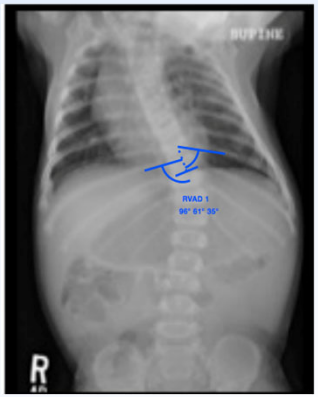
Can We Predict Casting Results for EOS?

Patient 1



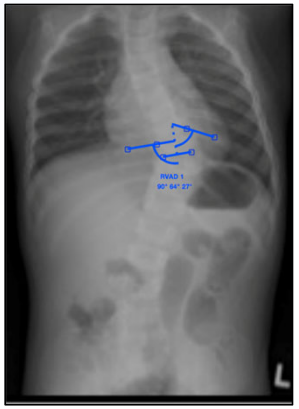
Cobb 42°

Initial X-ray

Cobb 5°

12 months after casting treatment

Patient 2



Cobb 47°

Cobb 53°

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Background

Previous research has shown in-brace correction predicts treatment success in AIS

Purpose

Examine casting outcomes and identify factors that correlate with lower Cobb angles at end of treatment.

Hypothesis

Initial cast correction can predict success

- % Change in Cobb
- % Change in RVAD

Methods

Inclusion Criteria

Idiopathic

Initial treatment in cast

F/U radiographs available

- **Multicenter**
- **2005 - 2013**

GSSG Growing Spine Study Group

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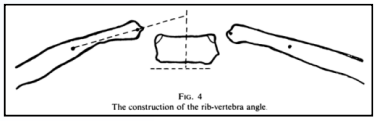
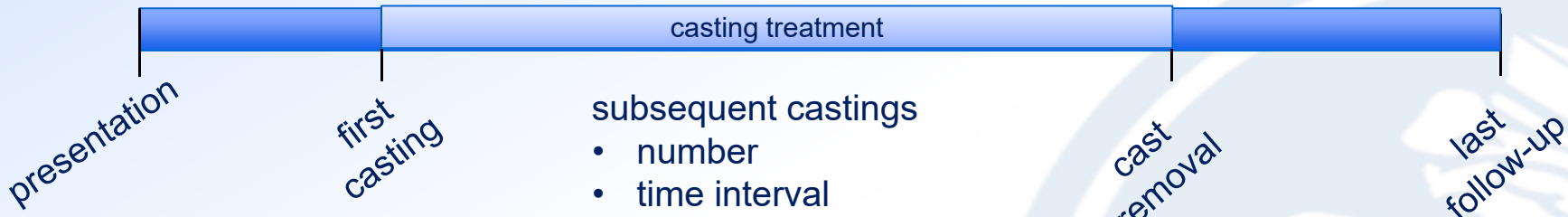
Surgimap
The Physician Driven Imaging Solution

Methods

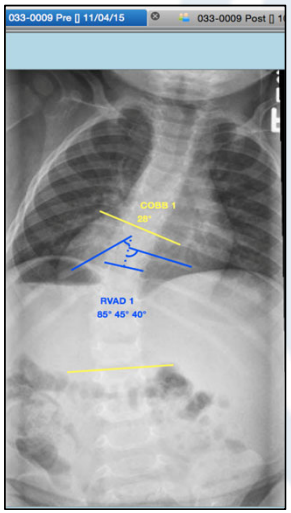


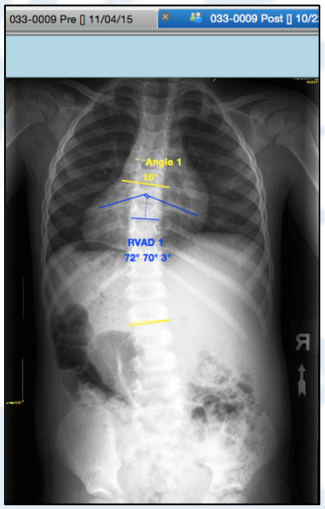


Radiographic:

Cobb angle, RVAD

- **Precast, In cast, Last f/u**





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Methods

Linear Regression Analysis

- Assess change in Cobb over time

Logistic Regression Analysis

- “Cure” after casting <15º vs >15º

Other statistical methods

- Pearson’s correlation analysis
- Uni- and multivariable regression

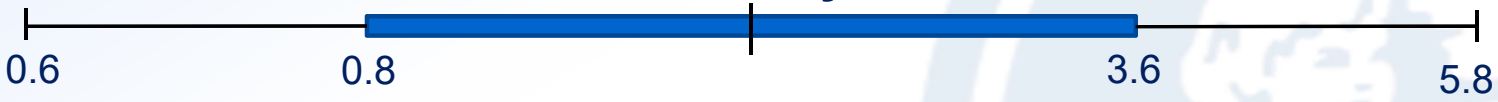
Results

Sample **(N = 68 patients)**

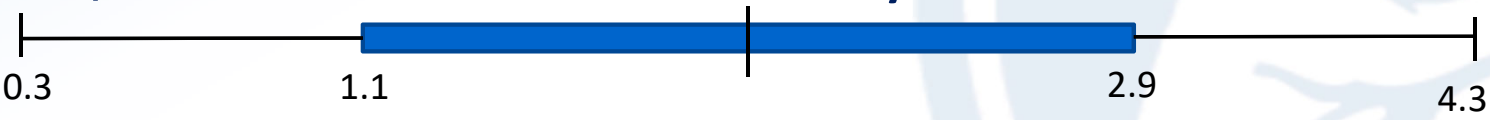
27 Female	41 Male (60%)

Average

Age at initial casting = **1.8 ± 1 y/o**



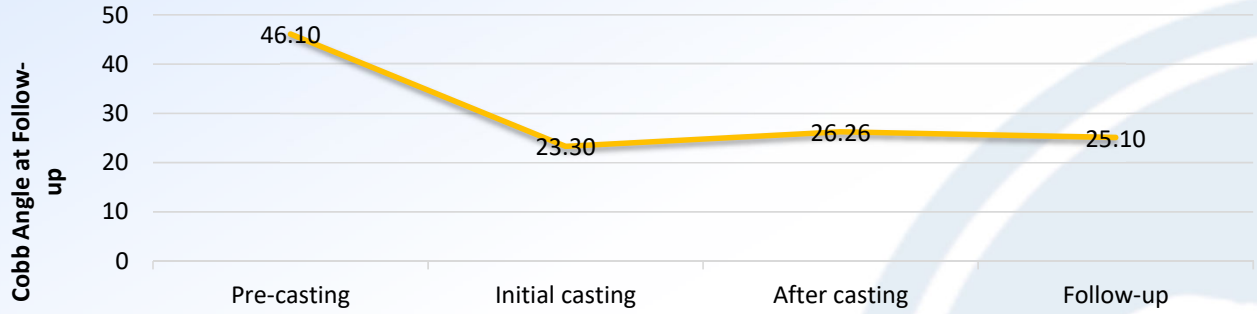
Follow-up = **Mean = 2.4 y**



Treatment duration = 16.7 ± 11.4 months

Number of casts = 6 casts (4-8); 2.7 M in cast

Linear Regression Model



Initial Cobb:

- Each 10 degrees increase in Cobb = 7.6º at f/u *(p=0.001)*

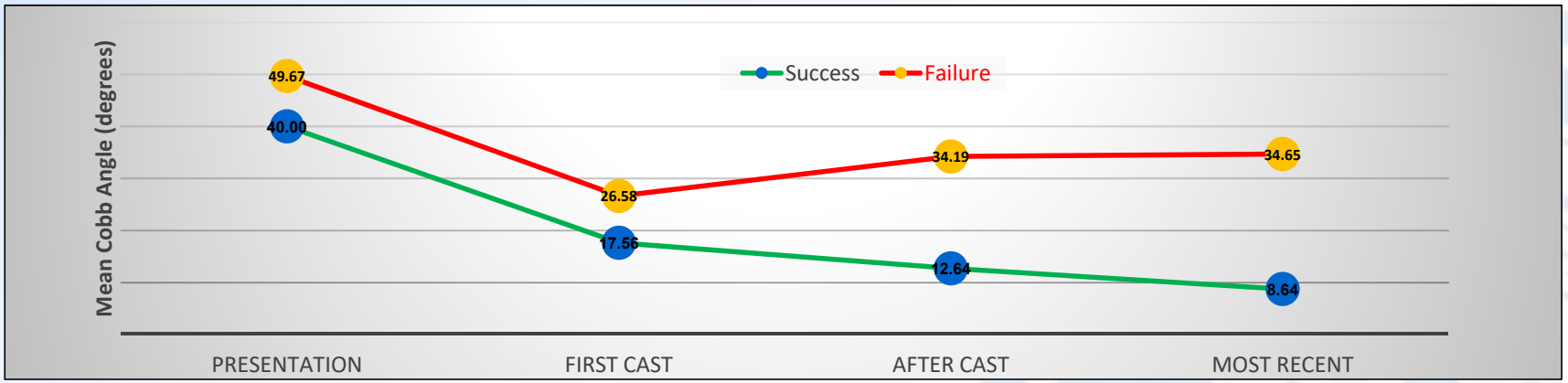
Casting Age:

- Each 1 yr = Cobb increased 4.5º*(p=0.02)*

% Cobb Correction:

- 10% Cobb correction = F/u decreased 2.3º *(p=0.006)*

“Cure” Analysis - Logistic Regression Analysis



	<15º	>15º	
Age 1st Cast (yr)	1.4	2.1	*P=0.006*
1st Cast Cobb	17.6º	26.6º	*P=0.04*
RVAD % Corr	50%	15.8%	*P=0.01*

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Limitations

- Sample size
- X-ray technique variability
- Measurement variability
- Casting technique differences
- No clear “cure” definition

Conclusions

Lower Cobb at Final F/U

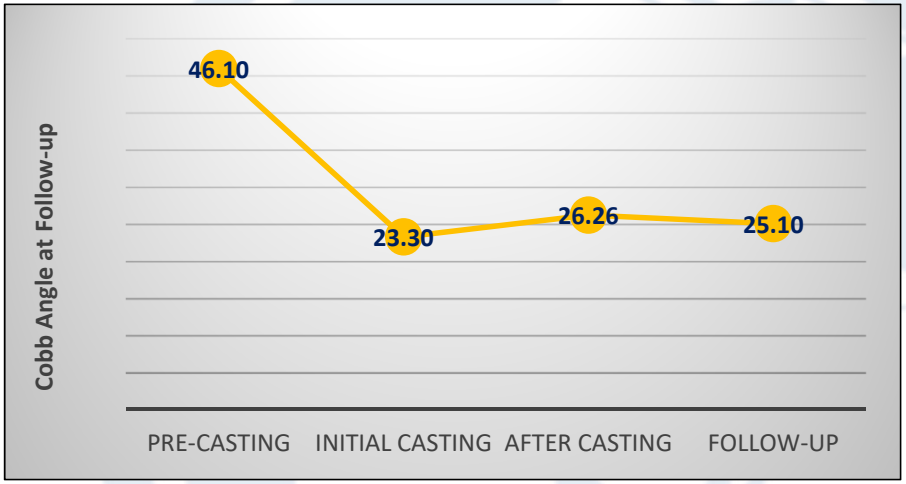
Smaller initial Cobb

Younger age 1st cast

- Start early

% Cobb Correction in cast

- Flexibility or cast quality?



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Conclusions

"Cure" Predictors

Age @ 1st Cast (yr)

- *Start early*

1st Cast RVAD % Correction

- Flexibility or cast quality?

Thank You!!

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