

Age Stratified Outcomes of Mehta Casting in a Large Multi-Center Cohort of Idiopathic Early-Onset Scoliosis Patients



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Disclosures

- I (or my co-authors) have nothing to disclose



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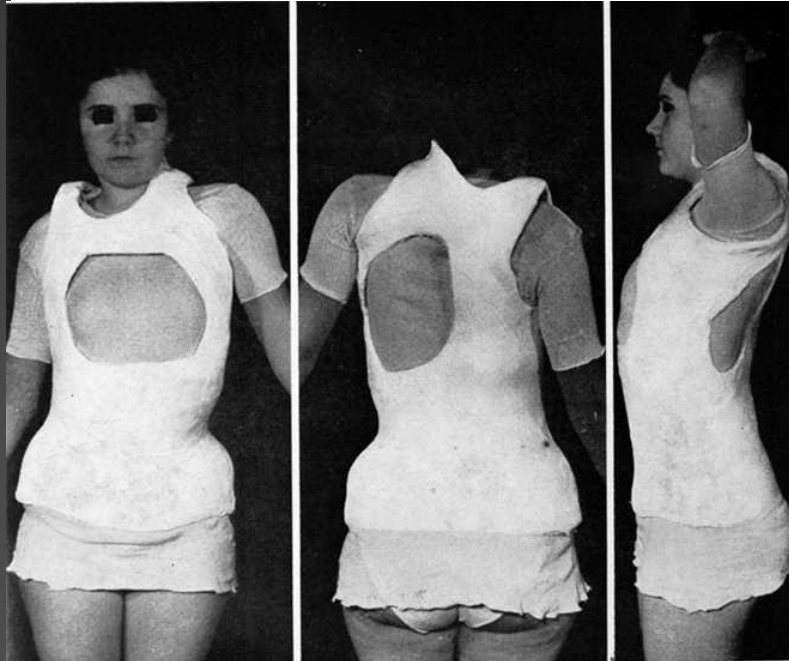
Mehta/EDF Casting

La technique de l'E. D. F. dans la correction
des scolioses ·

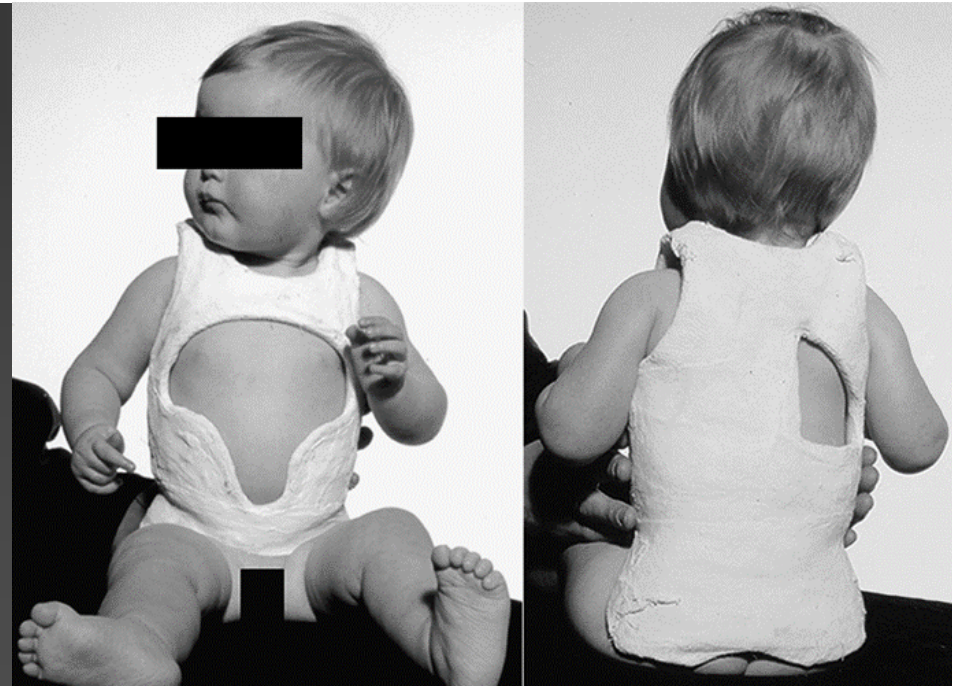
par

Yves COTREL et Georges MOREL

Revue de Chirurgie orthopédique et réparatrice de l'Appareil Moteur (Paris)
Tome 50, 1964, n° 1, pp. 59 à 75.



Growth as a corrective force in the early
treatment of progressive infantile scoliosis



Mehta MH. *J Bone Joint Surg Br.* 2005;87-
B:1237-47

Predictors of “Success”

- Mehta 2005: n=136
 - Success: 94 (69%):
 - 19 months (6-48 months)
 - 32° (11-65°)
 - “Reduced but not reversed deformity”: 42 (31%)
 - 30 months (11-48 months)
 - 52° (23-92°)



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Brace vs Cast and Equipoise

- Can you achieve the same results with bracing?



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Brace vs Cast and Equipoise

- What's the dividing line for feeling good about saying to parents, “we can try bracing instead of casting”?
 - > 18 months?
 - > 24 months?
 - > 3 years?



Objective

- Provide age stratified outcomes of Mehta casting to allow us to have more informed discussions with our patients' families.



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METHODS



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Methods

- Retrospective review of Mehta casting from 2000-2016
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Inclusion / Exclusion

- Inclusion:
 - Idiopathic EOS
 - Minimum 2 years of follow-up AFTER casting
- Exclusion:
 - < 2 casts; > 3 casts at outside facility;
Scoliosis < 20° pre-treatment



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Age Groups

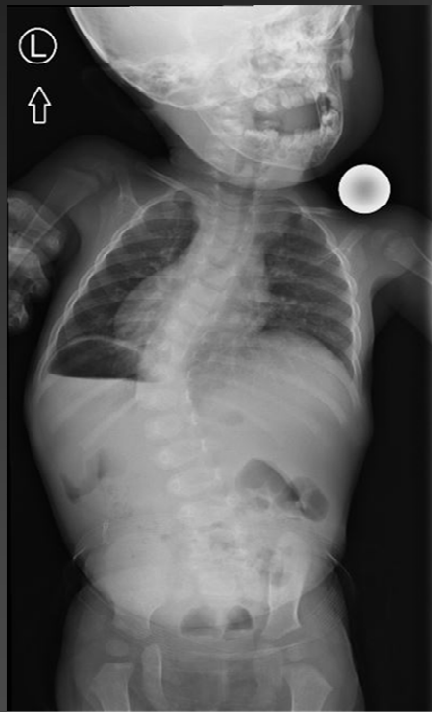
- Stratified by Age at first cast:
 - < 2 years
 - 2-3 years
 - 3-4 years
 - > 4 years
- Subsequently: < 2 yrs into < 18m; 18-24m



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RESULTS



Initial



Seven months later



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Numbers

- 331 patients casted during study period
 - 99 excluded < 2 years FU after casting
 - 12 excluded for other criteria
 - 75 excluded – NON-idiopathic EOS
-

Idiopathic EOS Cohort

- 138 children with idiopathic EOS
 - < 18 month = 60
 - 18-24 months = 30
 - 2-3 years = 21
 - 3-4 years = 13
 - > 4 years = 14



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Idiopathic EOS Cohort

- 138 children with idiopathic EOS
- Mean 5.1 years follow-up (2.1-12.3 years)
- Initial Scoliosis: 51° (22-109°) (NS all groups)



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	< 18 m	18-24 m	2-3 yrs	3-4 yrs	> 4 yrs	p
N	<u>60</u>	<u>30</u>	<u>21</u>	<u>13</u>	<u>14</u>	
Age at first cast (years)	1.1 (0.2)	1.7 (0.1)	2.4 (0.3)	3.5 (0.3)	5.5 (1.7)	<0.0001
BMI	17.3 (1.9)	17.2 (1.9)	16.4 (2.0)	15.5 (2.2)	15.7 (2.4)	0.0249
Curve Convexity (L:R)	40 : 19	20 : 9	12 : 9	5 : 8	9 : 5	0.3182
Sex (M:F)	39 : 21	13 : 17	15 : 6	8 : 5	10 : 4	0.2026
<u>Initial Scoliosis (deg.)</u>	<u>47.7 (15.1)</u>	<u>50.4 (18.6)</u>	<u>56.7 (15.6)</u>	<u>49.7 (20.5)</u>	<u>59.8 (17.2)</u>	<u>0.0984</u>
Initial RVAD (deg.)	31.7 (15.8)	31.1 (19.2)	32.8 (13.0)	25.8 (12.1)	33.9 (26.1)	0.7845

< 18 months (n=60)

- Mean scoliosis: 11.1° (14.6°)

Scoliosis < 15°	72.4%
Improved 20°	84.2%
Scoliosis < 30°	83.3%
Surgery or scoliosis >50°	8.3%



18-24 months (n=30)

- Mean scoliosis: 24.2° (26.0°)

Scoliosis < 15°	35.7%
Improved 20°	57.1%
Scoliosis < 30°	39.3%
Surgery or scoliosis >50°	16.7%



2-3 years (n=21)

- Mean scoliosis: 23.7° (16.6°)

Scoliosis < 15°	33.3%
Improved 20°	52.4%
Scoliosis < 30°	61.9%
Surgery or scoliosis >50°	23.4%



3-4 years (n=13)

- Mean scoliosis: 34.6° (38.2°)

Scoliosis < 15°	23.1%
Improved 20°	30.8%
Scoliosis < 30°	46.2%
Surgery or scoliosis >50°	30.8%



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> 4 years (n=14)

- Mean scoliosis: 32.6° (17.4°)

Scoliosis < 15°	7.1%
Improved 20°	35.7%
Scoliosis < 30°	21.4%
Surgery or scoliosis >50°	64.3%



CONCLUSIONS



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Key Points

- >70% “success” if < 18 months
- Drop off after that is steeper than expected:
 - ~ 1/3 “success” 18-24 m; 2-3 years
- Don't mess around and “watch and wait”.
Treat early.