
Halo-Gravity Traction for the Treatment of Cervical Spine Disorders

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Disclosures

I have **no relevant financial relationships** with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services



Case Example

Issues

- Young age (size, compliance)
- Neurologic deficits
- Poor head control
- Significant kyphosis



1 yo M w/ NF1 + rhabdoid tumor

- Tumor resection + laminectomies
- CT + RT



Case

2 years later

Experimental CT
Loss of head control + ambulation
Failed bracing



Problems

- Loss of posterior elements
- Small anatomy
- Radiated bone
 - Poor quality
 - Poor growth potential



Definitive solution ??

Case

HGT 25d



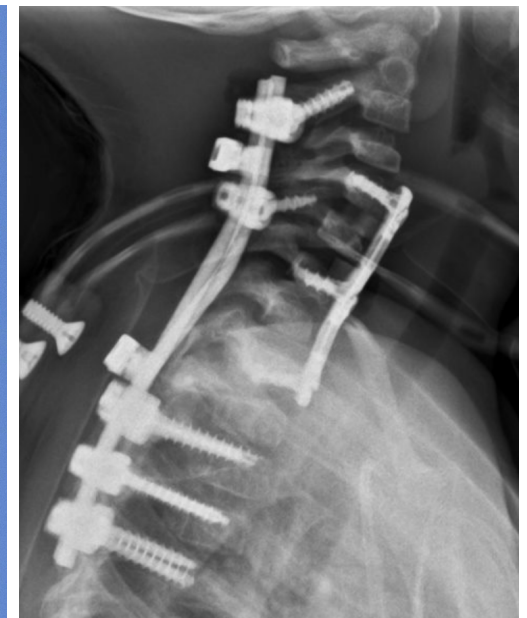
In-traction CT



Clinically



Postop



Objectives

1. HGT efficacy
2. Safety + complications
3. Protocol for pediatric cervical spines disorders

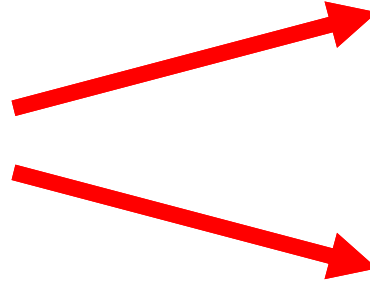


Methods

Study Design: Retrospective cohort

Inclusion

- Age <25 years
- Cervical spine deformity
- HGT

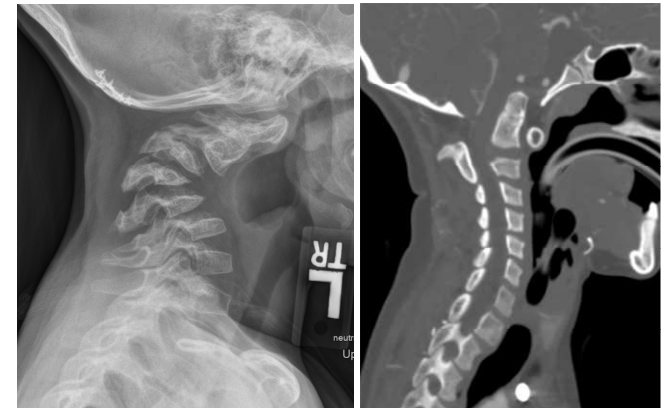


Cervical deformity

- Cervical kyphosis
- Atlantoaxial rotatory subluxation
- Basilar invagination
- Os odontoideum
- Cervical arthritis causing deformity


Data

- Correctability
- Mod. Clavien-Dindo-Sink classification

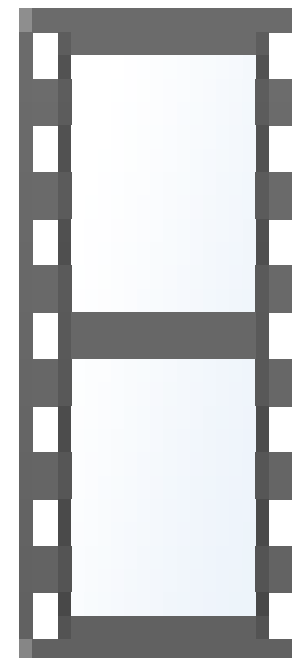


Methods: HGT Protocol


Traction Details

- Halo-crown w/ 4-8 pins 
- 1-2 lbs / day
- 20%-50% BW
- Pin-site care / neuro exams

** n=3 HVGT

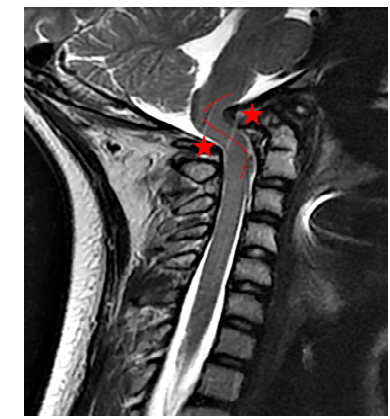
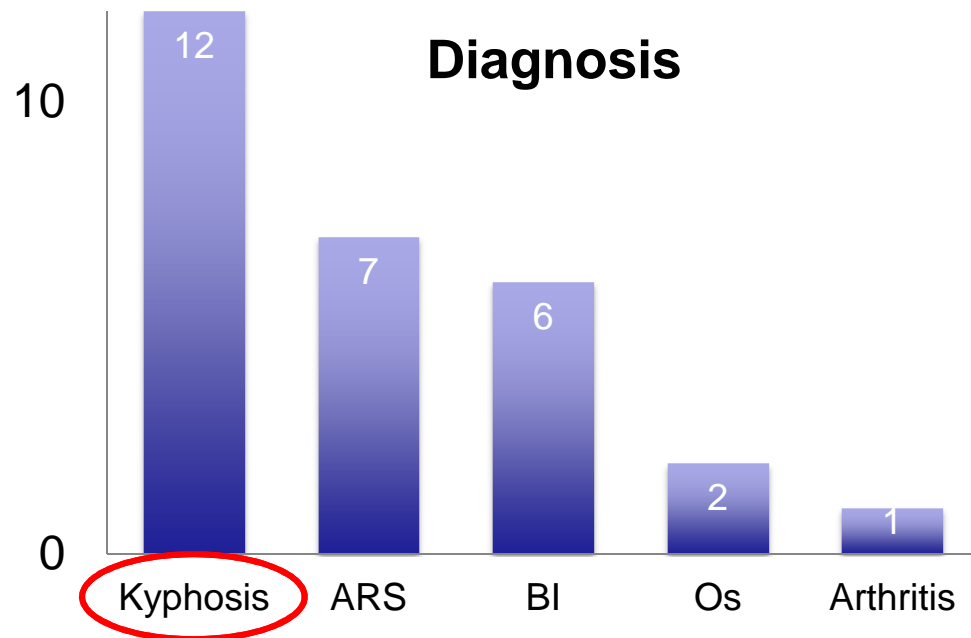


Duration

- Variable
- 24/7 traction (excl. bathroom / shower)
- No activity restrictions 

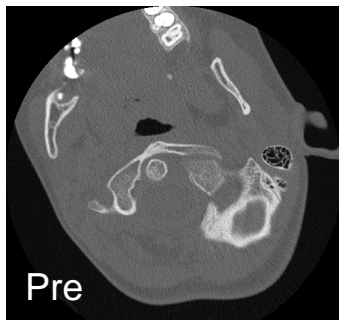
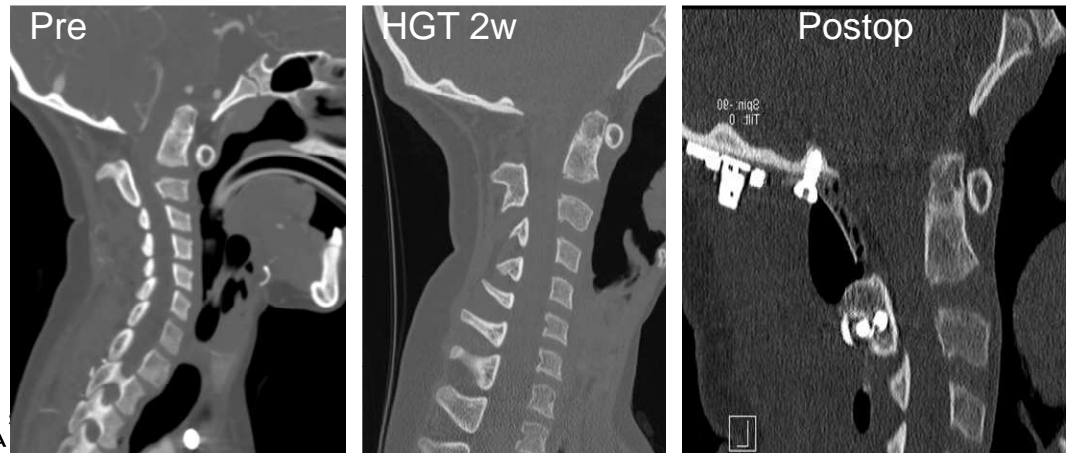
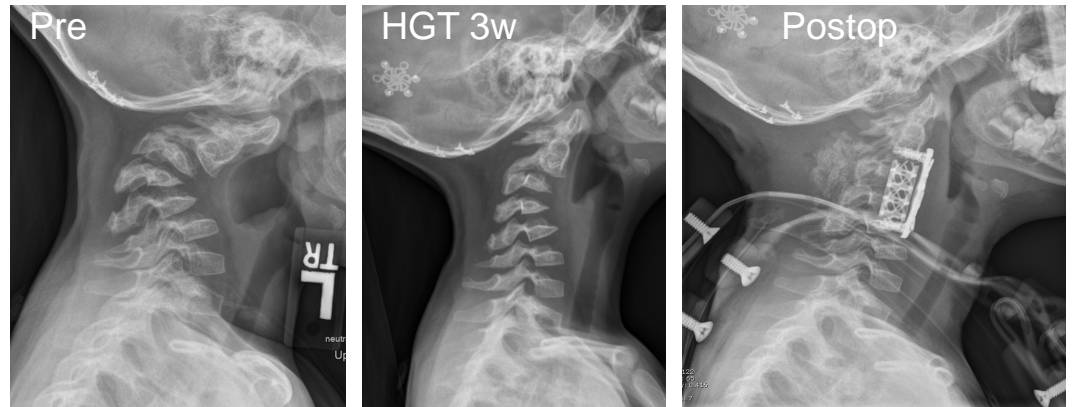
Results: Demographics

Cohort: 28 cases (mean 11.3 yo)

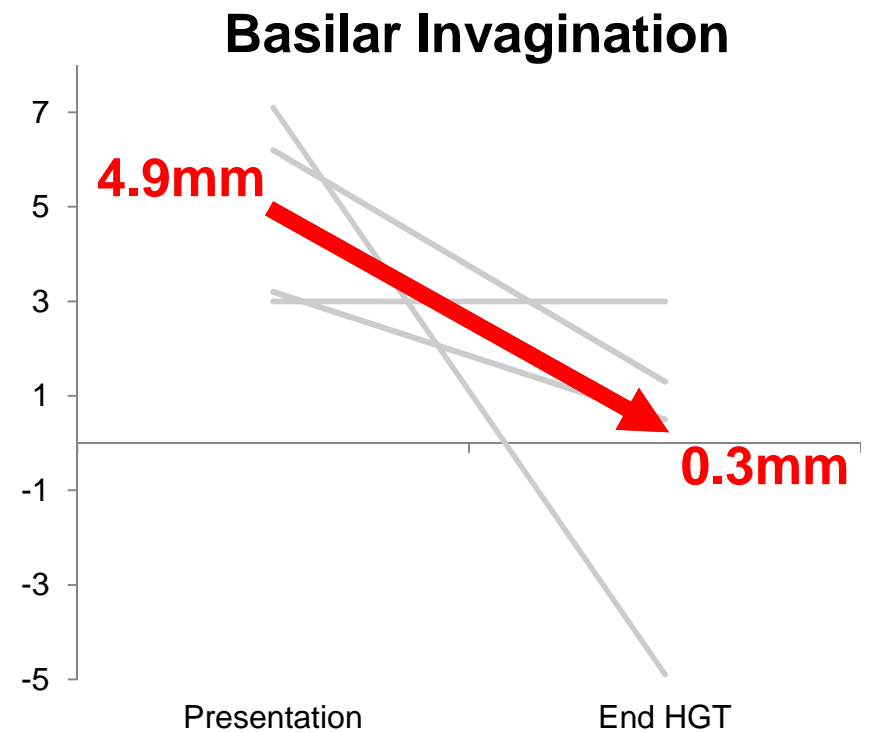
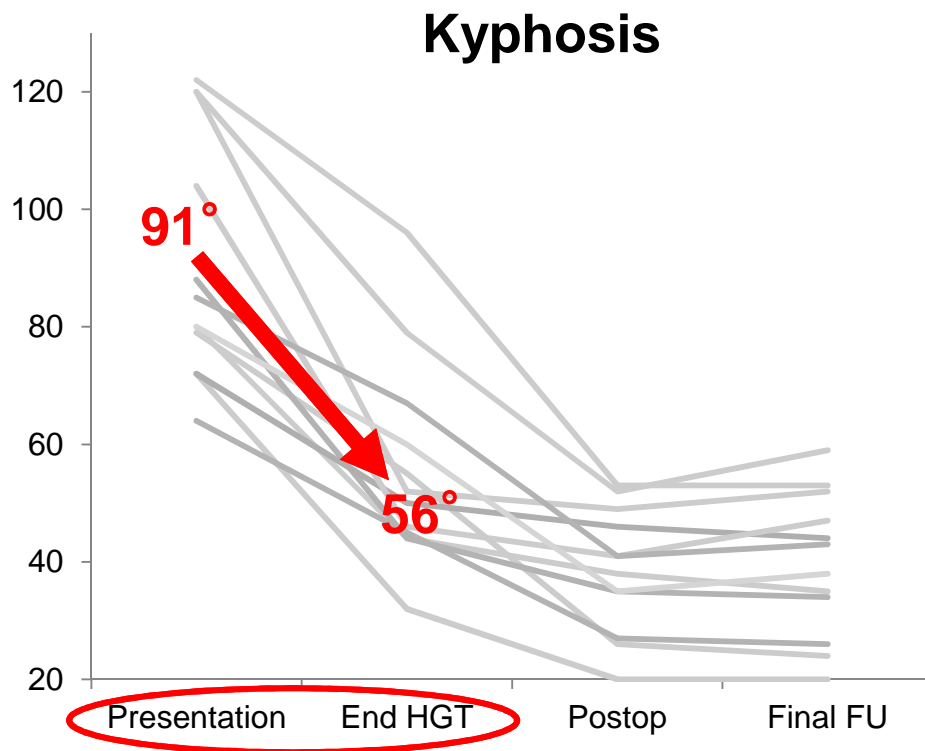


Results: HGT Details

Outcomes		
Characteristic	Mean	IQR
% Body weight (<i>kg</i>)	29%	19%-40%
HGT duration (<i>days</i>)	25	13-29
Length of stay (<i>days</i>)	35	17-43
Surgical stabilization (<i>n; %</i>)	25	89%



Results: HGT Efficacy

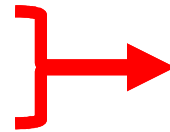


Methods: HGT Complications

9 AE (32%)

Grade I

- 4 pin-site infections (14%)
- 4 transient paresthesia's (14%)



Minimal clinical relevance

Grade II

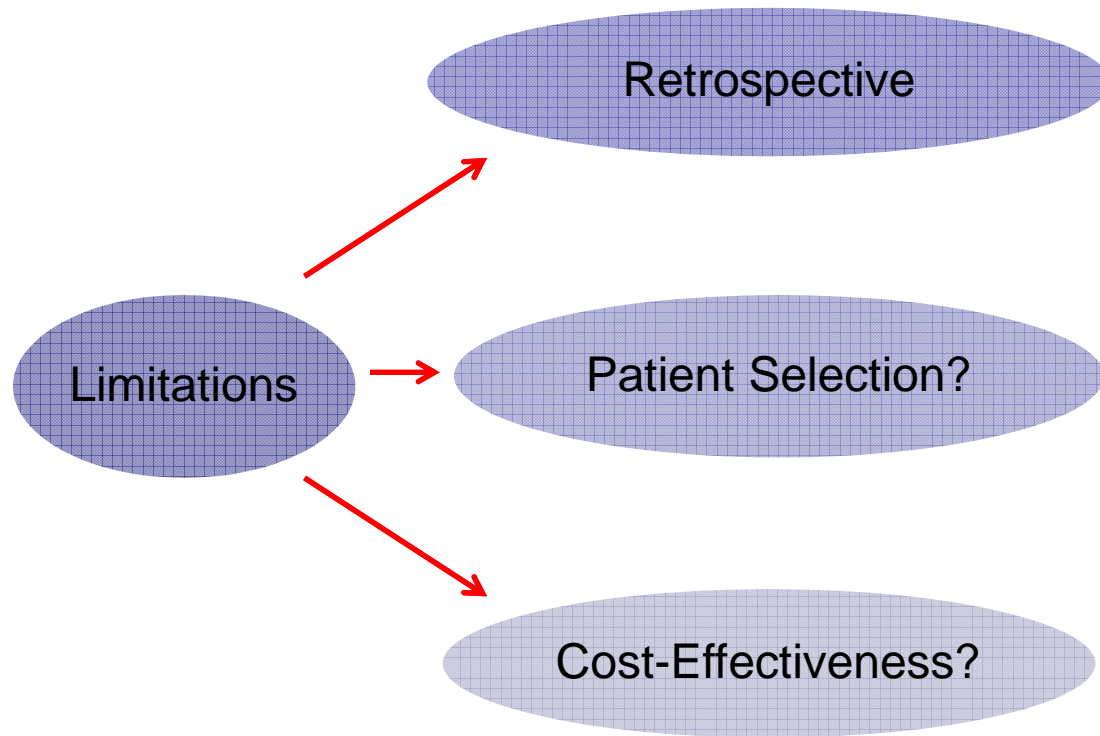
- 1 flaccid paralysis (4%)
- (T21 w/ Os, SCC, and myelopathy)



Weight removal
+ Reduced progression

No major Grade III-V AE's

Limitations



Conclusions

Efficacious + safe

Grade I AE's

Decreased surgical difficulties

Additional tool



Thank you!

