

# Sagittal Balance In Hyperkyphotic Patients With Growing Rods and the Effect of Preoperative Halo Gravity Traction

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Shriners for Children  
Medical Center –

# Background

Proximal junctional kyphosis (PJK) is a  
potential complication of growing rod  
surgery for EOS

Previously identified risk factors:

Pre-existing  
hyperkyphosis

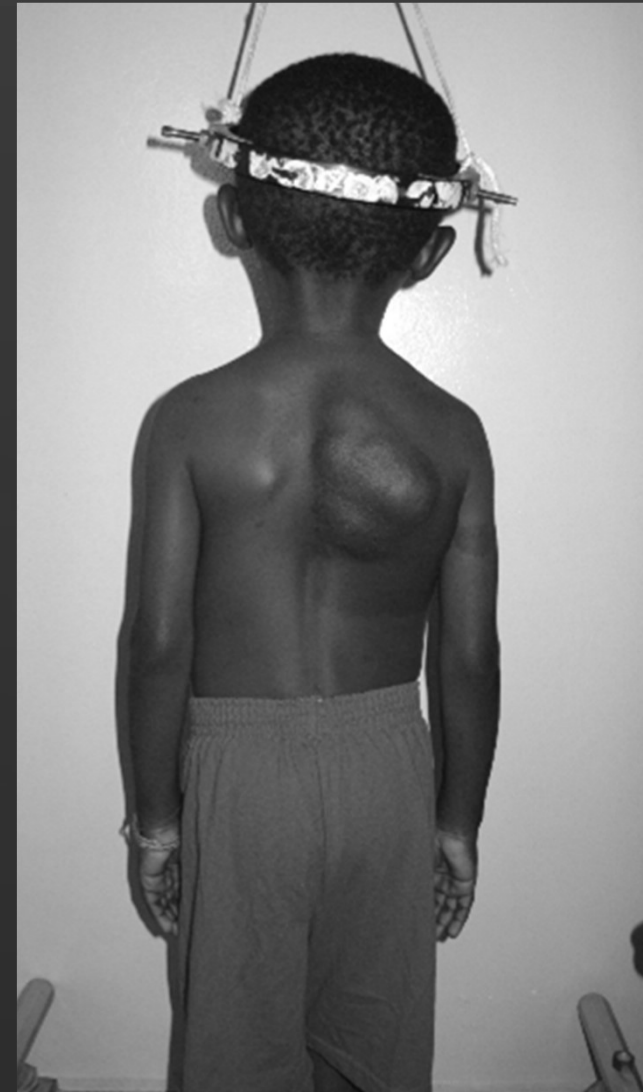
Abnormal pelvic incidence (PI)



# Background

population of patients who all have  
kyphosis, what are the risks of

and halo gravity traction (HGT) have  
protective effect on the risks of PJK?



# Materials and Methods

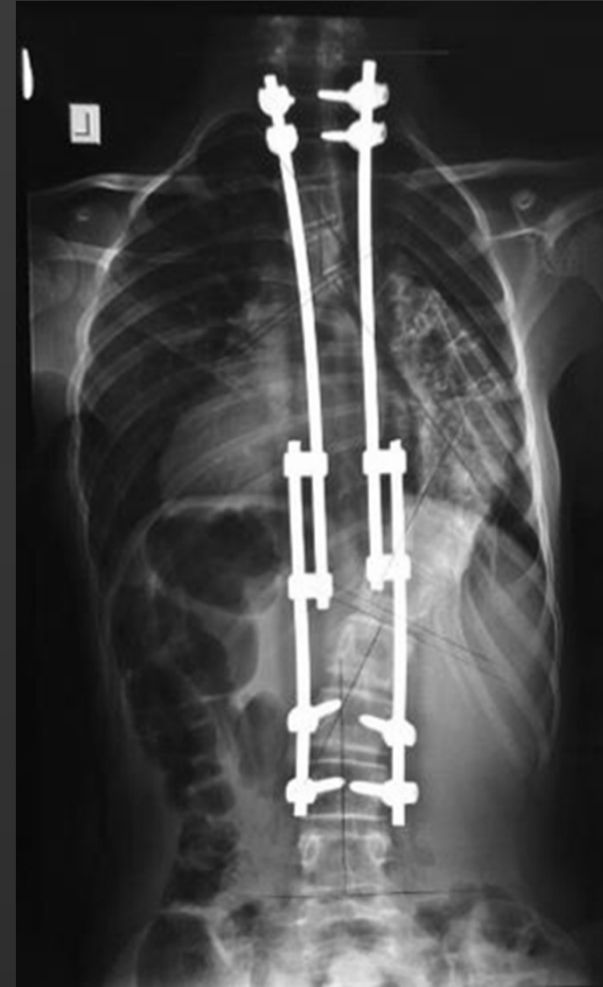
prospective review, single center

inclusion criteria:

patients treated with growing rods

preoperative kyphosis > 40 degrees

at least 2 years of followup



# Materials and Methods

al data collection

nographics

gical details

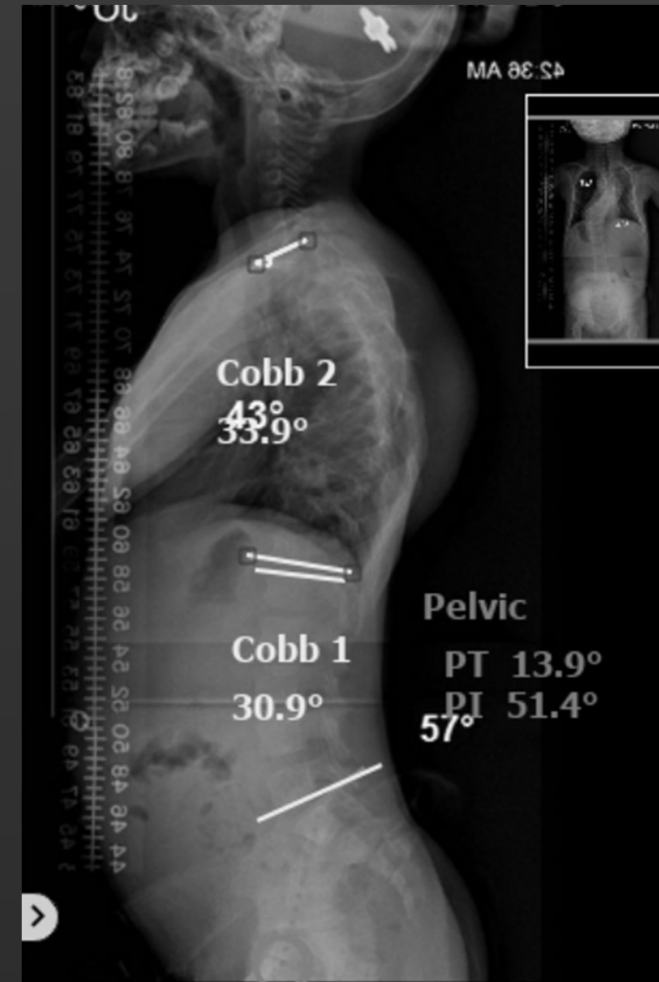
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ographic data collection

ys were taken at regular follow-up

cs

ittal parameters measured



# Results

Patients met inclusion criteria

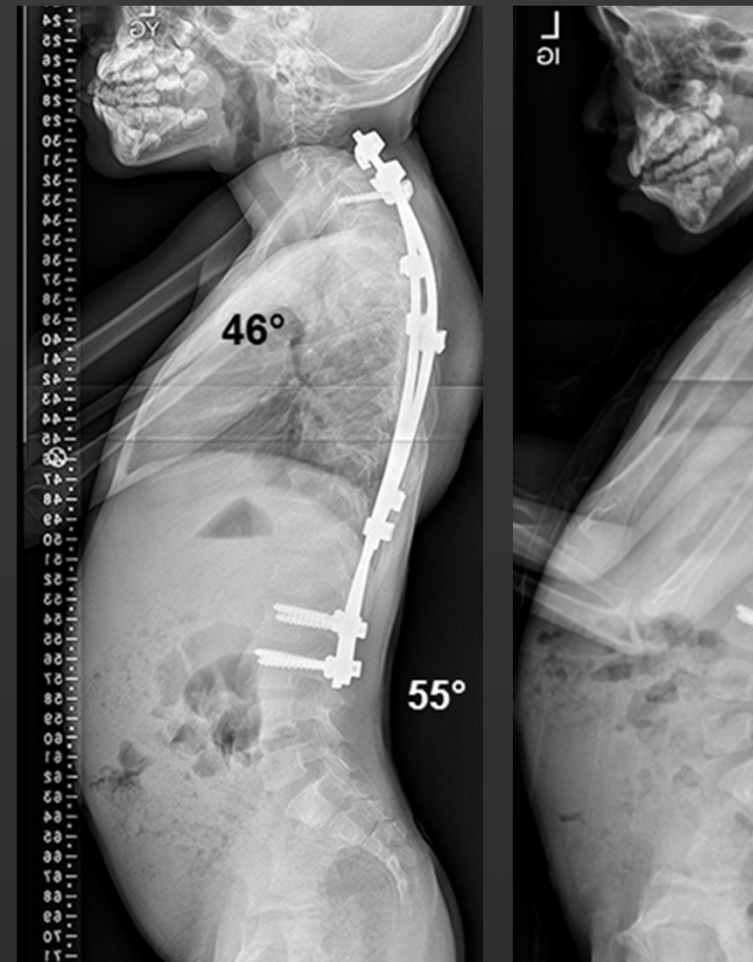
Average age at surgery: 7.5 yrs (range 2-

underwent preop HGT

Average duration 9.3 wks(range 4-20)

Rate of PJK

of PJK was identified within 1 year of  
ry



# Results

	Non-PJK group (n=49)	PJK group (n= 19)	p-value
ive kyphosis	71.0 ± 16.1°	84.4 ± 14.0°	0.008
ative kyphosis	48.9 ± 18.1°	53.5 ± 19.5°	0.42
ative pelvic	39.8 ± 10.5°	49.3 ± 14.0°	0.02
	7.4 ± 2.8	7.8 ± 2.2	0.63
of levels	14.6 ± 0.9	14.5 ± 1.2	0.63
correction	0.7 ± 0.2	0.6 ± 0.2	0.09



# Results

Variable	No HGT (n=30)	HGT (n= 19)	p-value
Flexion at presentation	72.5 ± 16.8°	106.5 ± 11.7°	0.00
Preoperative flexion	72.5 ± 16.8°	81.2 ± 15.2°	0.09
Postoperative flexion	41.7 ± 14.3°	64.0 ± 16.3°	0.00
Use of PJK	8/30 (27%)	9/19 (47%)	0.14





# Conclusions

**Asymptomatic patients with growing rods have high risk of PJK**

**Early identification**



# Conclusions

**Hyperkyphotic patients with growing rods have high risk of PJK**

**Early identification**

**Significant factors for PJK in growing rods:**

**Amount of preoperative kyphosis**

**Amount of pelvic incidence**



# Conclusions

kyphotic patients with growing rods have high risk of PJK

y identification

ificant factors for PJK in growing rods:

ount of preoperative kyphosis

ount of pelvic incidence

ite starting out with more kyphosis, HGT patients did not have

gests that HGT has a protective effect against PJK



# Thank You!

