

Proximal Tibia Vara is a Hidden Deformity in a Subset of Patients with Congenital Posteromedial Bowing of the Tibia

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Disclosures

- JMF has no disclosures to report.
- JEH is a consultant for Bonus BioGroup, Orthofix, OrthoPediatrics, NuVasive Specialized Orthopedics, Smith & Nephew, and WishBone Medical.
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Methods (continued)

- Magnitude of tibial bow in the sagittal plane was measured using two anatomic lines on a lateral view
- Magnitude of oblique plane deformity was calculated in the Oblique Plane Deformity calculator in the Multiplier App



Fig. 1-B. Lateral view of the tibia and fibula of the same girl in Fig. 1-A with a 26° apex posterior tibial bow.

Results

- n = 18
- 3 of 18 had secondary deformity in the proximal tibia
- 15 of 18 did not have a secondary deformity
- 9 (4 boys, 5 girls) of 18 patients had surgery
- 9 of 18 patients not yet indicated for surgery

Results (continued)

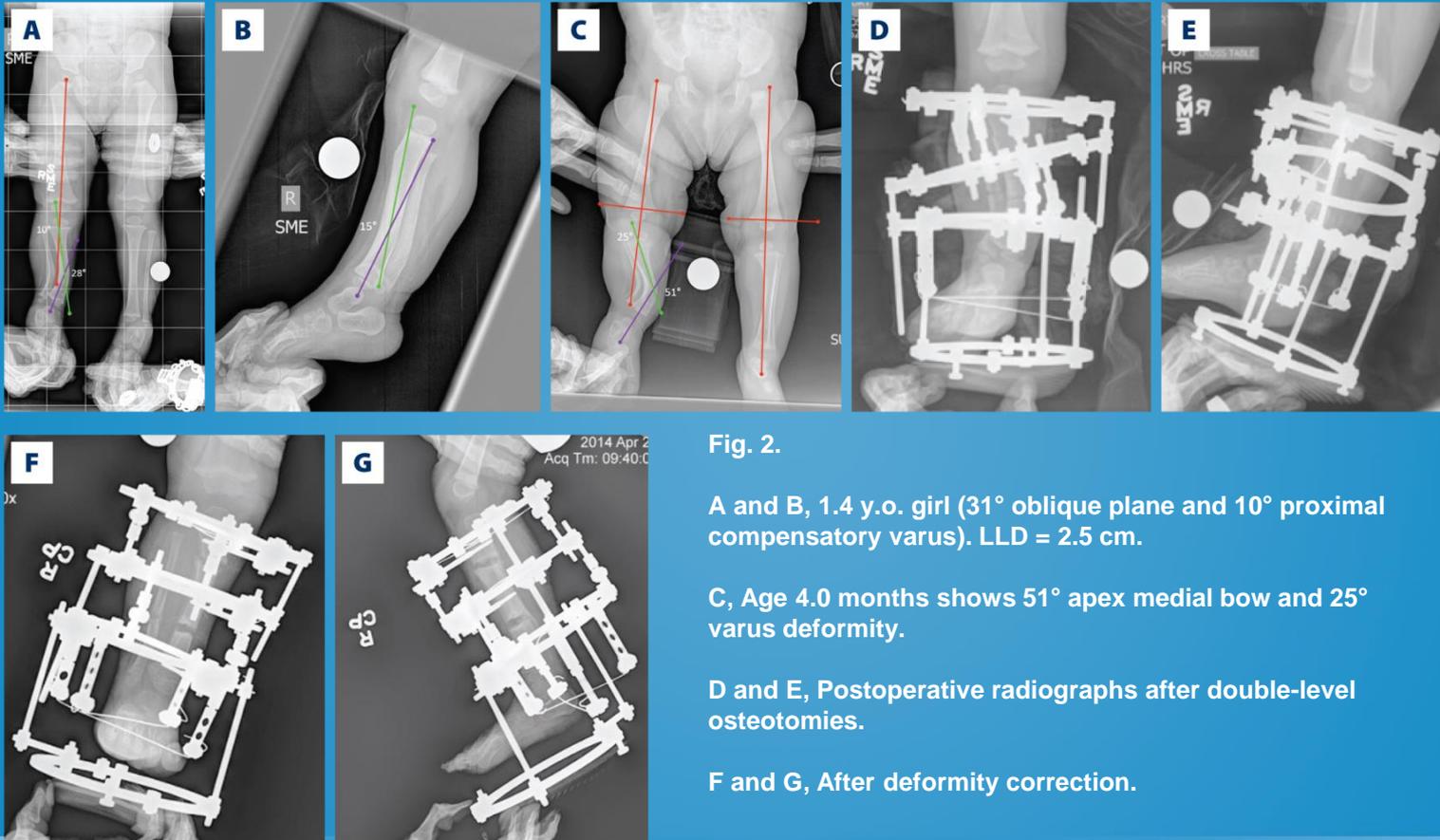


Fig. 2.

A and B, 1.4 y.o. girl (31° oblique plane and 10° proximal compensatory varus). LLD = 2.5 cm.

C, Age 4.0 months shows 51° apex medial bow and 25° varus deformity.

D and E, Postoperative radiographs after double-level osteotomies.

F and G, After deformity correction.

Results (continued)

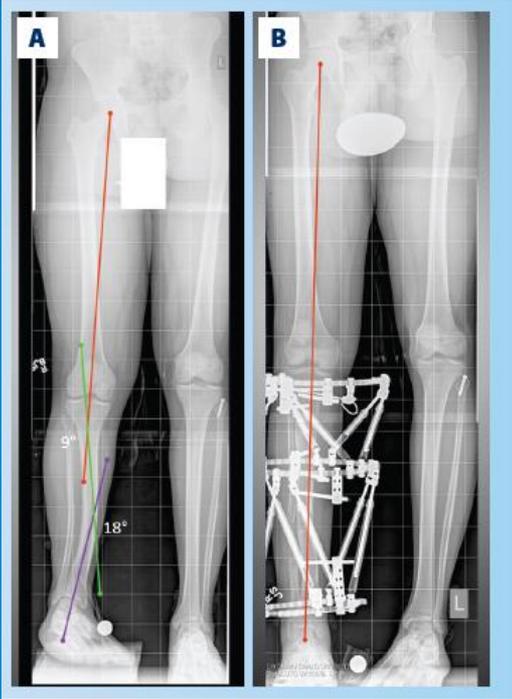


Fig. 3. Standing AP radiograph of 17-year-old. Oblique plane posteromedial deformity of 19° (18° in coronal plane, 6° in sagittal plane), 9° proximal tibial varus deformity, and 7-cm LLD. B, Standing AP radiograph after double-level tibial deformity correction with hexapod external fixators.

Discussion

- Three of the 18 patients with CPMB had hidden varus deformity of the proximal tibia.
- Two of the 3 patients with proximal varus deformity demonstrated the deformity on the earliest available radiographs. It is difficult to surmise if this is compensatory and develops over time or is present in some children and not others.
- Limitation: Small sample size
 - Not powered to comment on etiology or age at which the proximal tibial deformity may appear in children with CPMB
- Failure to recognize a hidden proximal tibial varus deformity in children with CPMB undergoing surgical correction could result in post-treatment mechanical axis deviation.
- Double-level gradual deformity correction in young patients with small tibiae can be challenging. Guided growth is an alternative option for proximal tibia varus deformity in skeletally immature patients.

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