

PEDIATRIC L-SHAPED DEFORMITY OF THE HALLUX: A Case of Bilateral Severe Hallux Valgus Interphalangeus

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INTRODUCTION

Hallux valgus interphalangeus (HVI), unlike the more common deformity hallux valgus, has not received much attention in foot and ankle literature. Hallux valgus interphalangeus involves lateral deviation with valgus rotation of the distal phalanx in relation to the proximal phalanx. The deformity usually presents early in life and can rapidly progress during growth spurts. Possible etiologies of HVI reported by Barnett included obliquity of the articular surface of the proximal phalangeal head and an asymmetrical shape of the distal phalanx.¹ Sorto et al found a deviation of the articular surfaces of the interphalangeal joint present in the deformity.² Cansü cited lateralization of the extensor hallucis longus (EHL) tendon insertion as an influencing factor.³ Operative treatment options include the Akin osteotomy of the proximal phalanx or interphalangeal joint fusion. While mild cases of the deformity can be corrected after skeletal maturity with the Akin osteotomy, arthrodesis of the interphalangeal joint provides the greater amount of correction with more reliable long term results.



Figure 1. Clinical photograph of the right foot showing weight bearing attitude of the deformed toe.

CASE REPORT

A 9-year-old male presented with HVI involving both feet. His symptoms included pain in the interphalangeal joint region with increase in activity and a painful callus that developed over the dorsomedial aspect of the head of the proximal phalanx. Padding and wider shoes failed to relieve his symptoms. There was no family history of great toe deformity, and the past medical history was unremarkable.

Physical examination revealed a semi-rigid angular deformity of the hallux interphalangeal joint on both feet (Figures 1, 2). The distal phalanx was positioned lateral to the proximal phalanx with a valgus rotation of the distal phalanx, as well. A mild pes planovalgus deformity was also noted on both feet. Radiographs confirmed the diagnosis of HVI (Figures 3, 4).

A hallux interphalangeal joint fusion was performed on both feet under general and local anesthesia. A double transverse semi-elliptical incision was made over the interphalangeal joint along with a midline linear incision over the proximal phalanx. The EHL tendon was noted to



Figure 2. Clinical photograph of the left foot showing weight bearing attitude of the deformed toe.



Figure 3. Preoperative weight bearing radiograph showing bony deformity of the right foot.



Figure 4. Preoperative weight bearing radiograph showing bony deformity of the left foot.



Figure 5. Postoperative radiograph, right foot.



Figure 6. Postoperative radiograph, left foot.

insert just lateral to the midline of the distal phalanx. The articular surface of the proximal phalanx was mildly laterally deviated. The distal phalanx articular surface lateral deviation was more pronounced. The head of the proximal phalanx was resected removing the entire articular surface perpendicular to the long axis of the proximal phalanx. Because of the open epiphyseal plate, the cartilage of the distal phalanx was resected to the subchondral plate with more resection medially. The

deformity was reduced and fixated with percutaneous parallel 0.062-inch Kirschner wires (Figures 5, 6). The EHL tendon was repaired and the skin was closed.

The patient was placed in bilateral post-surgical shoes for 6 weeks, and the wires were removed at 6 weeks. A return to full activity was allowed at 10 weeks. At the 12 week follow-up, the patient was without symptoms. A solid arthrodesis of both hallual interphalangeal joints was noted clinically and on radiographs (Figures 7-10).



Figure 7. Clinical postoperative photograph, right foot at 12 weeks.



Figure 8. Clinical postoperative photograph, left foot at 12 weeks.



Figure 9. Postoperative radiograph of the right foot at 12 weeks.



Figure 10. Postoperative radiograph of the left foot at 12 weeks.

CONCLUSION

Hallux valgus interphalangeus is a complex deformity involving the articulation as well as the neighboring soft tissue influences. The deformity can progress rather rapidly, so early surgical intervention is recommended. Because the deformity is usually rigid and severe, arthrodesis of the interphalangeal joint is recommended to provide reliable and long-lasting correction. The joint resection and fixation techniques described are recommended for the patient with open epiphyses.

REFERENCES

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2. Sorto LA Jr, Balding MG, Weil LS, et al. Hallux abductus interphalangeus. Etiology, x-ray evaluation and treatment. *J Am Podiatric Medical Assoc* 1992;82:85.
3. Cansu E. L-shaped big toe: a case of severe hallux valgus interphalangeus. *J Am Podiatric Medical Assoc* 2009;99:244-6.