

Radiographic Outcomes following Percutaneous Distal Metatarsal Osteotomy in Adolescent Hallux Valgus

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INTRODUCTION:

Percutaneous osteotomy for adolescent hallux valgus has become an increasingly popular technique due to its simple, minimally invasive nature, quick recovery time, and efficacy. Few studies have been published to assess the radiographic outcomes of percutaneous osteotomy. We present a series that demonstrates acceptable radiographic correction using this approach for adolescent hallux valgus.

METHODS: A retrospective review of 20 distal percutaneous osteotomies for adolescent hallux valgus by a single surgeon was conducted at an urban, tertiary children's hospital. Cases were excluded if radiographic imaging and patient-reported outcomes (PROMs) were not available. Pre- and postoperative radiographic measurements, including hallux valgus angle (HVA), intermetatarsal angle (IMA), and distal metatarsal articular angle (DMAA), were collected and analyzed.

RESULTS: Twenty cases from 2018-2022 were included in this analysis. Mean age was 14.3 ± 3.67 years at time of surgery. Mean follow-up time was 62.2 ± 33.9 days for 16/20 (80%) patients. Four of 20 (20%) patients have not followed up and intraoperative fluoroscopy was utilized for measurements. Mean HVA correction was 25.76° (from 35.37° to 9.61° , $p < 0.005$), mean IMA correction was 7.23° (from 13.61° to 6.38° , $p < 0.005$), and mean DMAA correction was 16.69° (from 24.48° to 7.79° , $p < 0.005$). Postoperative radiographs demonstrated 7/20 (35%) had HVA values $> 15^\circ$, 17/20 (85%) had IMA values $> 10^\circ$, and 8/20 (40%) had DMAA values $> 8^\circ$.

DISCUSSION AND CONCLUSION:

Percutaneous osteotomy remains a minimally-invasive, reliable way to address adolescent hallux valgus. Our patients had a reasonable correction per radiographic analysis. With quicker recovery times and the minimally-invasive nature of the procedure, percutaneous osteotomy is an effective method when treating patients with adolescent hallux valgus.

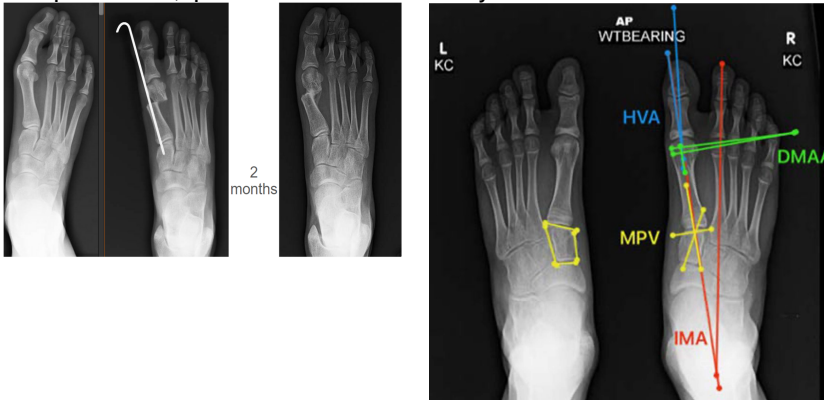


Table 1. Patient Characteristics

Gender	
Male	7
Female	13
Mean Age (years)	14.2 ± 3.7
Mean Weight (kg)	63.5 ± 29.4
Mean Follow Up (days)	60.2 ± 33.7