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Short Term Observations on Distal Chevron Osteotomy Without Lateral Soft Tissue Release in Mild to Moderate Hallux Valgus Deformity: A Prospective Study

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Abstract

Background: The purpose of this study was to observe short term results of distal chevron osteotomy in mild to moderate hallux valgus deformity with respect to deformity correction, radiographic and functional outcomes and record of complications.

Methods: The study was a prospective study and consisted of a total of 35 cases who were admitted in the Bone and Joint Surgery Hospital from September 2017 to March 2020. All the patients were treated by distal chevron osteotomy.

Results: In our study, the average value of hallux angle preoperative was 32° (range, 24°-40°) and at final follow-up it was 14° (range, 8°-31°). The average reduction was 18°. The average intermetatarsal angle showed mean reduction of 2.7° at the final follow-up. Average range of motion of the first metatarsophalyngeal joint preoperative and at final follow-up showed small reduction of 5 degrees. The average preoperative AOFAS score was 49, which improved by 35 points to 84 at the final follow-up. 11.4% of the patients in the study group recurrence.

Conclusions: Based on our experience with distal chevron osteotomy, we found the procedure easy to perform with good procedural outcomes. However, the patient or the parents should be counselled before the procedure of possible complications, particularly recurrence.

Keywords: Hallux valgus; Distal chevron osteotomy; AOFAS score; Recurrence

Introduction

Hallux valgus

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Hallux valgus angle: ≤ 15° (Hardy & Clapham) [13]

Inter metatarsal angle: ≤ 9°.

Range of Metatarsophalangeal joint movement [14]

Neutral position (slight extension): +16

Active dorsi exion: 51°

Additional passive: 23°

Active planter exion: 23°

e IMA is formed by the longitudinal bisection of the sha s of the rst and second metatarsal. e HVA is formed by the intersection of

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Scale	Score
Pain (40 points)	
None	40
Mild, occasional	30
Moderate, daily	20
Severe, almost always present	0
Function (45 points)	
Activity limitation	
No limitation	10
No limitation of daily activities, limitation of recreational activities	7
Limited daily and recreational activities	4
Severe limitation of daily and recreational activities	0
Footwear requirements	
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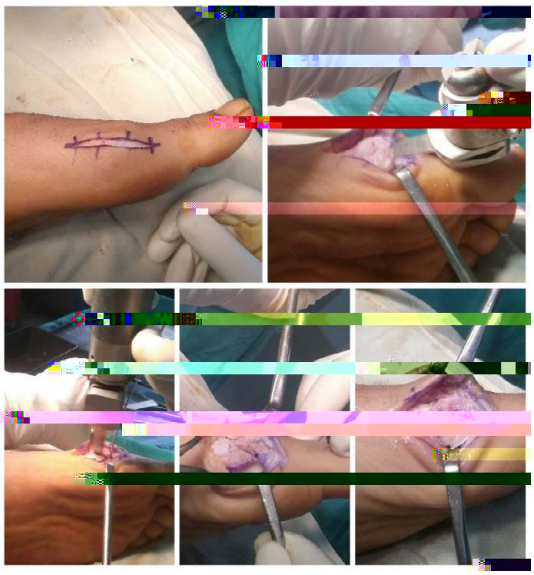

Figure 1: Showing important steps of the operative technique.

Figure 2: Clinical pictures of one of the patients preoperative (left) and at final follow up (right).

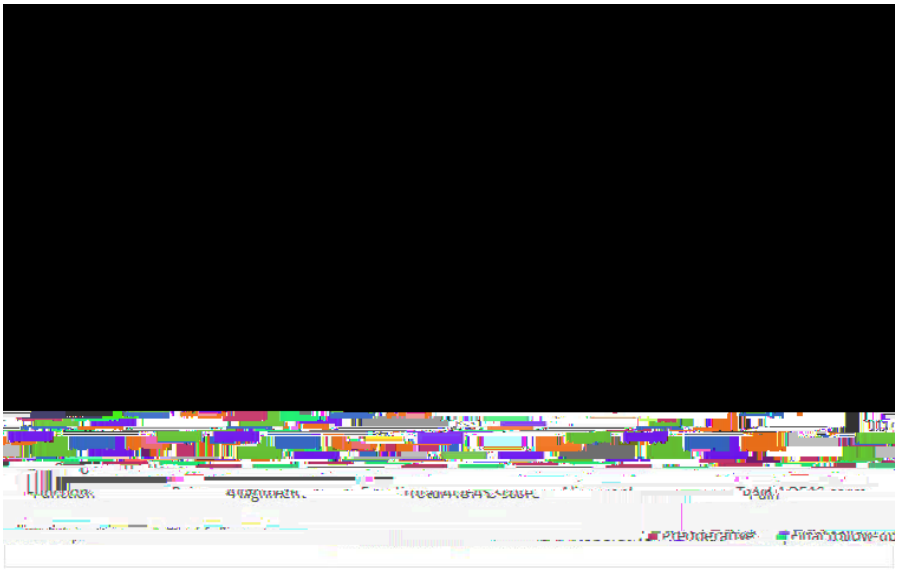

Figure 3: AOFAS score.

Total no. of patients	n=30
Age group	16-48 years
Sex distribution	80% females
	20% males
Feet involved	50% left
	30% right
	20% bilateral
Positive Family history	30% patients

Table 3: Patient characteristics.

Parameter	Mean preoperative value	Final follow-up	Mean change
Hallux valgus angle (°)	32 (24-40)	14 (8-31)	18
Intermetatarsal angle (°)	13.5 (10-16)	10.8 (8-15)	2.7
Range of motion of 1st MTP joint (°)	82	77	5

Table 4: Radiological parameters and R.O.M.

Discussion

Various nonoperative methods have been described for the management of hallux valgus. Nonoperative methods like modi cation of footwear and orthotics have been seen useful only in the treatment of mild deformities, but for management of moderate to severe deformities nonoperative methods have no role. Chevron osteotomy was described by Corless, et al. [19], in 1976, as a modi cation of the Mitch-