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Postoperative Position of the Sesamoids after Chevron Osteotomy: Correlation with Outcome?

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Background:
The correlation between the severity of lateral subluxation of the sesamoids and the severity of hallux valgus deformity has previously been established. Additionally, postoperative incomplete reduction of the sesamoids has been identified as a potential risk factor for hallux valgus recurrence after proximal osteotomy. However, it is not known whether the postoperative sesamoid position is a risk factor in hallux valgus correction via chevron osteotomy with or without first dorsal webspace release (FDWR).

Methods:
In this IRB-approved retrospective study, 169 patients (157 F, 12 M) who underwent Chevron bunionectomy with or without FDWR were reviewed. Pre- and postoperative (6 weeks, 6 months, 12 months) weight-bearing radiographs were evaluated. Functional hallux valgus angle (HVA), intermetatarsal angle (IMA), and the tibial sesamoid position were graded using the center of head method. To be consistent with prior literature, Grade IV or less was defined as normal while Grade V or more was displaced.

Results:
All results were evaluated by an independent biostatistician using the paired t-test. 76 radiographs were available for review at the 12 month follow-up. Of these, 41 patients underwent FDWR while 35 did not. 72 feet (95%) had sustained sesamoid correction less than Grade IV. There was no association with or without FDWR. Corrections in all three parameters; sesamoid position, HVA, and IMA in both groups were significant at the 12 months follow up. There was no postoperative difference statistically between the 2 groups; with or without FDWR.
The sesamoid position for Chevron with FDWR changed from 5.2 to 2.7; Chevron alone improved from 5.1 to 3.1. The functional HVA corrected from 27.9 degrees to 12.3 degrees in the FDWR group. Similarly, Chevron alone showed improvement from 25.9 degrees to 12.9 degrees.
The IMA improved from 13.4 degrees to 8.0 degrees with FDWR. Chevron alone improved from 12.8 degrees to 7.6 degrees. The overall complication rate was low. There was no case of AVN. Hallux valgus recurrence was 5.5% (n=4).

Conclusions:
Incomplete sesamoid reduction did not correlate with loss of hallux valgus correction after a Chevron bunionectomy. No significant relationships were found between postoperative sesamoid position and rate of recurrence whether the subjects had a FDWR or not. Postoperative tibial sesamoid position after a Chevron bunionectomy is not an accurate predictor of hallux valgus recurrence. Similar significant improvements for HVA, IMA and sesamoid position were seen in patients undergoing Chevron bunionectomy, with or without FDWR. While FDWR combined with Chevron bunionectomy is safe, it does not appear to significantly improve clinical and radiographic outcomes.