

07. Radiographic and Patient-Reported Outcomes After Lapidus Procedure for Hallux Valgus: A Single-Center Retrospective Study

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Background: The Lapidus procedure is an established surgical option for hallux valgus, particularly in cases where correction of first-ray instability and intermetatarsal malalignment is needed. Although radiographic correction after Lapidus arthrodesis is well described, the maintenance of correction over time and its relationship with patient-reported outcomes remain clinically relevant, especially in real-world retrospective cohorts. This study aimed to evaluate immediate radiographic correction, longitudinal maintenance of correction and subjective patient-reported outcomes after Lapidus arthrodesis for hallux valgus. **Methods:** A retrospective, single-center longitudinal outcomes study was conducted including patients who underwent Lapidus arthrodesis for hallux valgus between 2022 and 2026. Patients with available preoperative and immediate postoperative anteroposterior foot radiographs were included. Hallux valgus angle (HVA) and intermetatarsal angle (IMA) were measured preoperatively, immediately postoperatively and at a final radiographic reassessment when available. Paired comparisons were performed using the Wilcoxon signed-rank test and associations between follow-up duration and radiographic changes were assessed using Spearman's correlation. Patient-reported outcomes were collected through telephone follow-up, including satisfaction, pain, daily function, perceived recurrence, shoe-wear improvement, cosmetic outcome and willingness to undergo the procedure again. The study was reported in accordance with the STROBE guidelines for observational studies. **Results:** A total of 11 patients were included in the immediate radiographic analysis, and 8 underwent final radiographic follow-up. Median follow-up duration was 11 months. The Lapidus procedure achieved significant immediate correction of both radiographic parameters. Median HVA decreased from 39.6° preoperatively to 12.3° immediately postoperatively, corresponding to a median correction of 27.3° ($p < 0.001$). Median IMA also improved significantly, with a median correction of 5.08° ($p < 0.001$). Among patients with follow-up radiographs, median HVA increased from 12.3° immediately postoperatively to 26.4° at final follow-up ($p = 0.008$), although final HVA values remained significantly improved compared with preoperative measurements ($p = 0.008$). In contrast, median IMA showed no statistically significant change between immediate postoperative and final follow-up measurements ($p = 0.25$), suggesting maintenance of

intermetatarsal correction. No significant correlation was found between follow-up duration and changes in HVA or IMA. Telephone follow-up was completed in 8 patients. Overall satisfaction was high, with a median score of 8/10, cosmetic outcome was rated positively with a median score of 9.5/10 and 75% of patients reported that they would choose to undergo the same procedure again. Most patients reported low pain levels, improved daily function and improved shoe-wear comfort, while most did not perceive recurrence of deformity. **Conclusion:** Lapidus arthrodesis provided significant immediate radiographic correction in this single-center cohort, with maintained improvement at final follow-up despite an increase in HVA over time. IMA correction remained radiographically stable, supporting maintenance of intermetatarsal correction during the available follow-up period. Patient-reported outcomes were generally favorable, suggesting that moderate radiographic changes in HVA do not necessarily correspond to perceived clinical failure. Larger prospective studies with standardized weight-bearing radiographs and validated patient-reported outcome measures are needed to further clarify the relationship between radiographic maintenance and clinical outcome after Lapidus arthrodesis.

Key Words: Hallux Valgus; Arthrodesis; Orthopedic Procedures; Treatment Outcome; Patient Reported Outcome Measures (Source: MeSH-NLM).

Table 1. Radiographic and Patient-Reported Outcomes After Lapidus Procedure

Outcome	Available Cases	Result
Preoperative HVA, median (IQR), °	11	39.6 (16.2)
Immediate postoperative HVA, median (IQR), °	11	12.3 (11.3)
Final follow-up HVA, median (IQR), °	8	26.4 (7.9)
HVA decrease, preoperative to immediate postoperative, °	11	27.3 $p < 0.001$
HVA increase, immediate postoperative to final follow-up, °	8	14.1 $p = 0.008$
HVA decrease, preoperative to final follow-up, °	8	12.3 $p = 0.008$
Preoperative IMA, median (IQR), °	11	17.8 (8.1)
Immediate postoperative IMA, median (IQR), °	11	11.7 (5.1)
Final follow-up IMA, median (IQR), °	8	13.6 (3.0)
IMA decrease, preoperative to immediate postoperative, °	11	6.1; $p < 0.001$
IMA increase, immediate postoperative to final follow-up, °	8	1.9; $p = 0.250$
IMA decrease, preoperative to final follow-up, °	8	4.2; $p = 0.055$
Overall satisfaction, median, /10	8	8.0
Pain, median, /10	8	4.0
Cosmetic outcome, median, /10	8	9.5
Would undergo the same procedure again, %	8	75%

Note. HVA: hallux valgus angle; IMA: intermetatarsal angle; IQR: interquartile range, P-values were calculated using the Wilcoxon signed-rank test.

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