Preoperative Radiological Factors Correlated to Long-Term Recurrence of Hallux Valgus Following Distal Chevron Osteotomy

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Abstract
Background: The purpose of this article was to analyze the long-term radiologic results after distal chevron osteotomy for hallux valgus treatment and to determine the preoperative radiographic factors correlating with radiological recurrence of the deformity.

Methods: The study included 100 consecutive patients who received distal chevron osteotomy for hallux valgus. The osteotomy included fixation with an absorbable pin in 50 cases, and no fixation in the other 50. For 6 weeks postoperatively, half of each group used a soft cast and half had a traditional elastic bandage. Weight-bearing radiographs were evaluated at 6 weeks, 6 months, 1 year, and a mean of 7.9 (range, 5.8-9.4) years postoperatively.

Results: At the final follow-up, radiological recurrence of hallux valgus deformity (HVA > 15 degrees) was observed in 56 feet (73%). Eleven feet (14%) had mild recurrence (HVA < 20 degrees), 44 (57%) moderate (20 degrees ≥ HVA < 40 degrees), and 1 (1%) severe (HVA ≥ 40 degrees). All recurrences were painless, and thus no revision surgery was required. Long-term hallux valgus recurrence was significantly affected by preoperative congruence, DMAA, sesamoid position, HVA, and I/II IMA.

Conclusions: Radiological recurrence of hallux valgus deformity of 15 degrees or more was very common at long-term follow-up after distal chevron osteotomy. Preoperative congruence, DMAA, sesamoid position, HVA, and I/II IMA significantly affected recurrence.

Level of Evidence: Level III, comparative case series.

Keywords: Hallux valgus, chevron osteotomy, distal metatarsal articular angle, congruence, tibial sesamoid, sesamoid arthritis

TMC Summary
• Study Design:
  o 7.9 year avg follow up of 100 bunion patients undergoing distal chevron osteotomy
• Findings:
  o 73% had radiographic evidence of deformity recurrence at 7.9 years
• Interpretation:
  o Correction of the bunion deformity with metatarsal osteotomy without appreciation of metatarsal frontal-plane rotation resulted in an unacceptably high recurrence rate at 7.9 years