Clinical Comparison of Extensile Lateral Approach and Sinus Tarsi Approach Combined with Medial Distraction Technique for Intra-Articular Calcaneal Fractures

Hai-chao Zhou, Tao Yu, Hao-yang Ren, Bing Li, Kai Chen, You-guang Zhao, Yun-feng Yang

Department of Orthopaedics, Shanghai Tongji Hospital, Tongji University, School of Medicine

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Purpose: To study and compare the clinical outcomes of open reduction and internal fixation via extensile L-shape incision and limited open reduction via the sinus tarsi approach using the medial distraction technique for intraarticular calcaneal fractures.

Methods: We performed a retrospective review of 65 intra-articular calcaneal fractures treated operatively between March 2012 and February 2015. Patients were divided into two groups: 28 were in the sinus tarsi approach group and 37 were in the extensile lateral approach group. All patients were asked to return for a research visit that included radiography and clinical evaluation. The postoperative function was evaluated using the ankle and hindfoot score of the American Orthopaedic Foot and Ankle Society (AOFAS) and the visual analogue scale (VAS).
**Results:** No significant difference was found in demographics between the two groups. The corrected value of the calcaneal varus angle between the two groups is statistically significant ($P < 0.05$). The overall wound complication rate was 3.6% in the minimally invasive group versus 13.5% in the extensile group. Four patients in the extensile lateral approach group had developed hindfoot varus deformity at last follow-up. At the last follow-up, the average AOFAS ankle and the hindfoot score of the minimal group was 88.4 ± 6.6, and the VAS score was 1.9 ± 0.7, while that of the extensile lateral approach group was 83.2 ± 5.6 and 2.3 ± 1.0, respectively.
Fig. 1 A 63-year-old woman fell from height that caused an intra-articular fracture of the left calcaneus. (A, B) Preoperative radiographs of lateral and axial views of the intra-articular calcaneal fracture. (C) Preoperative computed tomography (CT) showing a Sanders type II intra-articular calcaneal fracture. (D, E) Operative photograph showing the sinus tarsi approach combined with the medial distraction technique. (F, G) Half-year follow-up radiographs and (H) half-year follow-up CT scan showing that a good reduction was obtained.
Fig. 2 A 41-year-old man fell from height that caused an intra-articular fracture of the left calcaneus. (A, B) Preoperative radiographs of lateral view and axial view of intra-articular calcaneal fracture. (C) Preoperative computed tomography (CT) scan showing Sanders type II intra-articular calcaneal fracture. (D) Operative photograph showing the location of the extensile lateral approach. (E) Photograph showing open reduction and internal fixation with conventional plate via L-shaped lateral approach. (F) Postoperative CT scan showing that the surface of the subtalar joint was smooth. (G, H) Half-year follow-up radiographs showing that good reduction was obtained.
Conclusion:
Limited open reduction via the sinus tarsi approach for intra-articular calcaneal fractures could reduce the incidence of wound complications effectively, and the medial distraction technique is helpful for correcting the calcaneus varus deformity.
References