Precise reduction and fixation of the posterior malleolus in ankle fractures

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Disclosure

My disclosure is in the Final AOFAS Mobile App. I have no potential conflicts with this presentation.
The presence of postoperative articular incongruity is correlated with inferior clinical outcomes after the surgical treatment of ankle fractures (Berkes et al. JBJS Am. 2013;95:1769-75). This principle is not always followed concerning the posterior malleolus. The precise reduction of the posterior malleolus effectively restores the function of the posterior inferior tibiofibular ligament, which is the most important component of the syndesmotic complex (Miller et al. CORR 2010;468:1129-35).
48 patients with ankle fracture associated with the fracture of the posterior malleolus underwent surgical intervention from 2006 to 2008 in our department. In 18 cases, the size of the fragment of the posterior malleolus was 20% or more of the anteroposterior dimension of the articular surface of the distal tibia. In these patients (14 men and 4 women) with the mean age of 49 years (range, 19 to 66 years), an additional posterior approach was used during the surgery to reduce and fix the posterior fragment with lag screws.
Material and Methods

- An posteromedial approach was chosen (11 cases) if the posterior malleolus was attached to the medial malleolar fragment. An posterolateral approach was used (7 cases) if the fragment was connected with the posterior inferior tibiofibular ligament. Lateral and medial malleoli were reduced and fixed with screws and plates through separated approaches in all cases.
Mean time from injury to surgery was 63.9 hours (range, 3 to 312 hours). Patients wore no splint. Range of motion exercises started 24 hours after the surgery. Transition from non-weight bearing to 30% weight bearing was allowed at 6 weeks and to full weight bearing at 12 weeks. Radiological and clinical results (the Ankle-Hindfoot Scale by Kitaoka et al.) were evaluated at least 5 years postoperatively (range, 5 to 7 years).
No deep infection developed. Wound healing problems occurred in 2 cases at fibular site. Based on the postoperative radiological analysis, all patients had a congruent ankle joint without articular step-off 2 mm or larger. No nonunion was observed. Posttraumatic arthritis was not observed in any case at the last follow-up control. 17 patients (94.4%) achieved 90 points or more and 1 patient (5.6%) ranged between 80 and 90 points of the rating Scale.
Results
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Correct ORIF through the additional dorsal approach of all displaced fractures of the posterior malleolus involving 20% or more of the distal tibial articular surface is necessary to achieve good results. The type of this approach is chosen preoperatively according to the CT scan.
Articular incongruity is correlated with inferior clinical outcomes after the surgical treatment of ankle fractures. The reduction of the posterior malleolus effectively restores the function of the posterior inferior tibiofibular ligament. Correct ORIF through the additional dorsal approach of all displaced fractures of the posterior malleolus involving 20% or more of the distal tibial surface is necessary to achieve good results.
References

- Berkes et al. JBJS Am. 2013;95:1769-75
- Miller et al. CORR 2010;468:1129-35