PAPER SESSION 6: ANKLE ARTHRITIS

Moderators:
Steven K. Neufeld, MD (Falls Church, Virginia)
Mark C. Drakos, MD (Uniondale, New York)

12:22 pm
Novel Double Osteotomy Technique of Distal Tibia for Correction of Asymmetric Varus Osteoarthritic Ankle

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Summary:
This prospective study illustrated that the novel double osteotomy technique provides pain relief and realignment of the hindfoot in patients with painful asymmetric varus ankle osteoarthritis.

Introduction:
Asymmetric varus osteoarthritic typically leads to medial ankle pain and is often combined with varus hindfoot malalignment. Isolated lateral soft tissue reconstruction procedures such as lateral ankle ligament reconstruction and/or restoration of peroneus brevis function may not be sufficient to withstand varus tilting forces of talus due to varus deformity of distal tibia. An additional open wedge osteotomy of distal tibia may fail to re-orientate the talus sufficiently within the mortise because of asymmetric joint wear of distal tibia. Therefore, we started to add an intraarticular correcting osteotomy to restore tibiotalar joint congruency. The purpose of this study was (1) to assess the effect of such double osteotomy on restoration of tibiotalar joint congruency and stability of talus and (2) to assess the clinical outcome.

Methods:
This prospective study including 14 patients (16 ankles) was approved by the ethics committee. There were 8 male and 6 female patients with a mean age of 43.6 years (range, 16 to 59 years. All patients had symptomatic asymmetric varus osteoarthritis of the tibiotalar joint with radiological evidence of tibiotalar joint incongruency on the weightbearing AP radiographs with impaction of tilted talus into medial tibial plafond. Varus tilt of the talus has been measured between 6° and 22°. An intraarticular osteotomy was done with an angle of 45° to the apex of deformity and an additional open wedge osteotomy of distal tibia was done slightly proximally. Once wanted correction at both levels was achieved, allograft wedges were inserted and a solid plate fixation was used. Lateral ligament reconstruction was done in 13 ankles, a peroneus longus to brevis tendon transfer in 9 ankles, a fibular shortening osteotomy in 2 ankles, and a lateral sliding osteotomy of calcaneus in one ankle. Weightbearing radiographs were used to evaluate talar position within the ankle mortise. Postoperatively, tibiotalar joint incongruency was determined as a talar tilt ≤ 2°, a moderate incongruency as a talar tilt of 3 to 6°, and a severe incongruency as a talar tilt of ≥ 7°.

Results:
We did not observe any intra- or perioperative complications. The osteotomies healed in all ankles within 10 weeks after surgery (Fig.). At latest follow-up of 3.2 years (range, 2.0 to 6.4 years), tibiotalar congruency was found in 13 ankles, a moderate tibiotalar incongruency in 3 ankles, and a severe incongruency in no ankle. All but one patient were pain free and thus very satisfied with obtained result.

Conclusion:
The novel double osteotomy is an efficient and successful method to restore tibiotalar joint congruency in patients with painful varus osteoarthritis of the ankle. The intraarticular osteotomy does rotate the medial impacted area of tibial plafond together with the medial malleolus into anatomic position. The additional extraarticular supramalleolar osteotomy normalizes joint load by medial shift of the loading axis of tibia. With obtained encouraging results in this preliminary series of 16 ankles, we continue to consider this double osteotomy technique as the crucial part in addressing the asymmetric varus osteoarthritic ankle.
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