Results of Medial Opening Wedge Supramalleolar Osteotomy (Plafond Plasty) for the Treatment of Intra-Articular Varus Ankle Arthritis and Ankle Instability

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Summary: Results indicate that a medially based plafond-plasty type supramalleolar osteotomy is a good indication for various stages of intra-articular varus ankle osteoarthritis associated with ankle instability. This technique has renewed clinical interest for the treatment of varus ankle arthritis and instability as a strategy to prolong ankle function.

Introduction: Intra-articular varus ankle deformity results from chronic lateral ankle instability, ultimately leading to intractable painful arthritis, deformity of the foot and ankle, as well as persistent ankle instability. Arthrodesis and ankle joint replacement have been performed and recommended for treatment. Although supramalleolar osteotomy with an opening medial wedge or a closing lateral wedge have been described, these are associated with failure due to persistence of the medial intra-articular defect, resulting in recurrent varus deformity. We report the results of a retrospective study assessing the outcome of a new technique for treatment specifically of intra-articular varus ankle deformity associated with osteoarthritis and ankle instability.

Materials and Methods: Nineteen patients underwent 19 medial opening wedge osteotomies (plafond-plasty) for correction of intra-articular varus osteoarthritis of the ankle associated with ankle instability. Patients were only considered for this procedure if they had a manually correctable varus deformity. Fourteen men and five women of a mean age of 45yrs (range 32-63) were followed up for a mean 49 months (range 11–98). The varus deformity was classified as described by Takakura2, and included stage I (4), stage II (1), stage IIIa (10) and stage IIIb (4). The pre and post operative AOFAS, Takakura ankle scale2, AP (TAS) and lateral (TLS) angles, varus tilt and SF12 were reviewed. The osteotomy is directed to the apex of the intra-articular deformity from the medial distal tibia, and gradually wedged open, filled with cancellous bone graft, and fixed with either screws (6) or a plate and screws (13). Associated procedures included ankle ligament reconstruction (18), calcaneus osteotomy (12), ankle debridement and cheilectomy (14), deltoid ligament release (2), and peroneal tendon repair (3) and posterior tibial tendon transfer (1).

Results: The radiographic parameters including the TAS and TAL showed no statistical significant improvement when compared pre and post operatively. The varus tilt improved from 18o pre operatively to 10o post operatively (p

Conclusion: These results indicate that a medially based plafond-plasty type supramalleolar osteotomy is a good indication for various stages of intra-articular varus ankle osteoarthritis associated with ankle instability. This technique has renewed clinical interest for the treatment of varus ankle arthritis and instability as a strategy to prolong ankle function.