Second-Look Arthroscopic Evaluation and Clinical Outcome after the Supramalleolar Osteotomy for the Medial Compartment Ankle Osteoarthritis
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Introduction/Purpose: This study aimed to evaluate the clinical and radiological outcomes of asymmetric ankle osteoarthritis after supramalleolar osteotomy (SMO) without BMSP (bone marrow stimulation procedure) and confirm cartilage recovery by second look arthroscopy. The hypothesis was that SMO without BMSP for medial compartment ankle osteoarthritis would show tibio-talar articular cartilage regeneration in the medial compartment, as well as satisfactory clinical and radiological outcomes.

Methods: We retrospectively reviewed 20 ankles of 18 consecutive patients who were followed up for over 1 year after SMO from August 2007 to February 2013. Visual analog scale (VAS) pain scores and the AOFAS ankle-hindfoot scores were used for the functional evaluations. The tibial anterior surface angles and the tibial lateral surface angles were measured on radiographs, and the ankle osteoarthritis was classified by the Takakura stage. Among the 20 cases, 19 cases had ankle arthroscopy performed prior to SMO, and second-look ankle arthroscopy was performed in 14 cases at postoperative 1 year. Tibio-talar cartilage regeneration was evaluated according to the modified Outerbridge classification for the 12 cases that had undergone SMO without a bone marrow–stimulating procedure (BMSP).

Results: The mean VAS and AOFAS scores significantly improved from 6.7 preoperatively to 1.2 postoperatively and from 60.9 preoperatively to 87.9 postoperatively, respectively (P<0.05). The mean TAS and TLS angles significantly improved from 83.5° and 76.5° preoperatively to 94.4° and 80.3° postoperatively respectively (P<0.05). All preoperative Takakura stage Ila cases and 1 case of preoperative stage IIIb improved to postoperative stage II. At 2nd look arthroscopy, articular cartilage regeneration of the medial compartment of the tibio-talar joint was observed in 10 of 12 cases (83%), whereas cartilage deterioration was not observed in any case. Cartilage grading, however, did not show correlations with clinical outcomes.

Conclusion: SMO without BMSP for medial compartment ankle osteoarthritis demonstrated marked tibio-talar articular cartilage regeneration in the medial compartment (83%) by second look arthroscopy, as well as satisfactory clinical and radiological outcomes.