Comparison of Treatment between Distal Tibial Osteotomy without Fibular Osteotomy and Tibiotalar Arthrodesis for Medial Ankle Arthritis in Older Individuals

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Introduction/Purpose: Advanced to end-stage ankle osteoarthritis in highly active older individuals has traditionally been treated using tibiotalar arthrodesis. Distal tibial osteotomy without fibular osteotomy, a type of joint preservation surgery, has garnered attention in recent years, but patient satisfaction has yet to be compared between the two treatments.

Objective: To compare distal tibial osteotomy and tibiotalar arthrodesis for ankle osteoarthritis (stage IIIb and above under the Takakura classification) in older individuals.

Methods: Subjects and Method: A total of 35 patients aged >60 years old who showed medial ankle arthritis were examined. Patients were either treated with tibiotalar arthrodesis (n=18) or distal tibial osteotomy (n=17). The patients’ mean age was 72.1 years (range, 60–81 years) in the tibiotalar arthrodesis group and 67.2 years (range, 60–80 years) in the distal tibial osteotomy group. For distal tibial osteotomy, a circular external fixator was used in all cases. Osteotomy was performed after performing synovectomy and microfracture surgery using ankle arthroscopy. At the time of fixation with a circular external fixator, foot ring (calcaneal) fixation was also performed. In addition, joint distraction was performed, and distraction arthroplasty was also simultaneously performed.

Results: The mean preoperative VAS score was 8.2 for tibiotalar arthrodesis (TA) and 8.0 for distal tibial osteotomy (DTO). The mean postoperative VAS score was 1.9 for TA and 1.7 for DTO. The mean preoperative AOFAS score was 40.1 for TA and 43.1 for DTO. The mean postoperative AOFAS score was 86.2 for TA and 90.0 for DTO. The mean preoperative SF-36 physical component score was 30.5 for TA and 38.5 for DTO. The mean preoperative SF-36 mental component score was 33.5 for TA and 37.5 for DTO. The mean postoperative SF-36 physical component score was 42.5 for TA and 56.4 for DTO. It was significantly higher with the DTO (p<0.05).

Conclusion: The mean postoperative SF-36 mental component score was 44.0 for TA and 59.7 for DTO. It was significantly higher with the DTO (p<0.05). Superior SF-36 scores were obtained for DTO compared to TA. The fact that the Japanese lifestyle involves tatami mats was thought to have contributed to the superiority of DTO in patient satisfaction.