Distraction Arthroplasty – Ankle Joint Preservation Arthroplasty for Osteoarthritis: Results and Prognostic Indicators

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Purpose: To evaluate the results of ankle joint preservation arthroplasty (ankle joint distraction + ankle joint debridement and/or deformity correction) for ankle osteoarthritis and to determine predictors of treatment success or failure.

Methods: Patients who underwent Ilizarov joint distraction as part of their treatment for painful ankle osteoarthritis between July 1998 and November 2004 were reviewed. Pre-treatment data were obtained by retrospective analysis of patients’ charts and radiographs. Post-treatment, patients completed a patient satisfaction questionnaire and the AAOS Global Foot and Ankle questionnaire and underwent physical examination.

Results: Thirty-three patients were identified as having undergone Ilizarov joint distraction as part of their treatment for painful ankle osteoarthritis. Five patients were lost to follow-up. Average age was 44. Average follow up was 29 months (range 8-82 months). Twelve patients had concomitant periarticular deformity correction procedures. Overall joint retention was 71%. Eight patients (29%) went on to either ankle arthrodesis (7 patients) or total ankle arthroplasty (1 patient). Joint retention was 92% among the patients who underwent deformity correction in addition to joint distraction. Of those who did not have underlying periarticular deformity, 56% have retained their native ankle joint. In the group of patients who did not have an anterior joint pattern of arthritis, 83% had a successful outcome versus 40% in those who did have an anterior joint pattern. Eighteen of 20 patients (90%) who retained their joints were satisfied or very satisfied with their treatment results. At two years postoperatively, two patients were not satisfied with the treatment results but still did not want to undergo ankle joint fusion. 75% of patients reported they would go through the procedure again to avoid ankle fusion. Of 12 patients whose preoperative arthritis patterns were known and whose AAOS scores were < 34, 8 (67%) had anterior joint involvement. Of 12 patients whose preoperative arthritis patterns were known and whose AAOS scores were >= 34, only one (8%) had anterior joint involvement. Preoperative range of motion, DJD score, and change in joint space did not correlate with outcome.

Conclusions: Ankle joint distraction can be an effective joint preservation procedure in the young patient with ankle arthritis. Patients with an underlying correctable periarticular deformity and those who do not have an anterior joint pattern of arthritis are more likely to have good outcomes. To our knowledge, this is the first study to identify clinical indicators of success of ankle joint distraction.