

Conversion of Failed Ankle Arthrodesis to Total Ankle Arthroplasty in Patients with a Deficient Fibula – Intermediate to Long Term Results

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INTRODUCTION:

As ankle arthroplasty has become a reliable treatment for painful ankle arthritis, it has also been employed as a salvage procedure for failed ankle arthrodeses. Published studies of conversion have generally combined patients treated by several surgeons using a variety of different prostheses, with short-term follow up. Early reports showed failure in patients with an absent distal fibula, and more recently that has been considered a contraindication. Some reports have expressed concerns about doing hindfoot arthrodeses at the same setting. This retrospective study examines the mid-term follow up of 22 patients treated by a single surgeon using a standard technique with a single prosthesis, and includes patients with a deficient distal fibula and concomitant hindfoot fusions.

METHODS: Between May 2010 and August 2019, 28 patients underwent conversion of their failed ankle arthrodesis to a total ankle arthroplasty using a prosthesis with an intramedullary tibial component. Twenty-two patients (11 males and 11 females) with an average age of 60.8 (41-81) years at the time of surgery were included in the study. Three modes of ankle arthrodesis failure were identified: 1) solid tibial-talar-calcaneal arthrodesis with a painful malposition (n=3); 2) painful pseudarthrosis of the ankle (n=5); and 3) solid ankle fusion with painful adjacent hindfoot arthritis (n=14). The patients in the first two groups were treated with arthroplasty alone, while those in the third group had an arthroplasty and hindfoot fusion. Five patients had a deficient distal fibula. Outcomes were evaluated postoperatively with a Visual Analog Scale, the AOFAS Ankle and Hindfoot Scale, a satisfaction survey, and radiographic assessment of the arthroplasty and any concomitant hindfoot fusions. Three patients had only radiographic assessment.

RESULTS: Mean follow up was 7.6 (2.6-11.8) years. Complications included fracture with or without subsequent surgery (n=4), subsequent sub-talar fusion (n=1), varus deformity (n=1), and wound dehiscence or infection (n=2). Three patients had revision of their talar components. Postoperative dorsiflexion was 7.8 ± 12.6 degrees and plantarflexion 20.9 ± 13.37 degrees. Two patients developed lucencies about the tibial stem, and two had mild subsidence of the talar components. There were no hindfoot pseudarthroses. The 5 patients with a deficient distal fibula were all able to be salvaged with an intact ankle arthroplasty. Mean (\pm SD) VAS Score was 4.6 ± 3.0 and AOFAS score was 71.2 ± 21.7 . Sixty-seven percent reported that they were satisfied or very satisfied. Forty-four percent had significant limitations in either activity or ADLs in their ankle function.

DISCUSSION AND CONCLUSION: Total ankle arthroplasty should be considered as a salvage procedure for patients with a failed ankle arthrodesis. With the described techniques it can be combined with concomitant hindfoot arthrodesis procedures and can be used successfully in patients who have a deficient distal fibula. While there can be a high prosthetic retention rate in the medium term, prospective patients must be counseled about potential limitations.