

The Agility Total Ankle Arthroplasty: A Mid-Term Follow-up Outcome Study

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Introduction/Purpose: Ankle arthritis is a debilitating condition causing severe functional impairment. In contrast to degenerative arthritis of the knee and hip, ankle arthritis is typically post-traumatic and affects a younger population. While arthrodesis has been the gold standard of surgical treatment for this condition, significant improvements in total ankle arthroplasty have made it a viable alternative for select patients. As the Agility total ankle implant has the longest follow-up in the United States, the purpose of this study is to look at mid-term follow up of patients with this implant.

Methods: Following IRB approval, a retrospective review of prospectively collected data was conducted on 127 consecutive Agility total ankle arthroplasties between 2001-2010 performed by one fellowship-trained orthopaedic surgeon. Patient charts were reviewed to collect demographics including age, gender, BMI, diabetes, inflammatory arthropathy, tobacco, FAAM, SF-12, and VAS pain scores. In addition, a five-view radiographic series was obtained to determine coronal alignment, overall arc of motion, tibiotalar component motion, zones of osteolysis, and subsidence. A Kaplan-Meier survival analysis was performed and a linear regression analysis was used to predict implant failure. A multivariate regression analysis was used to assess whether radiographic measures were predictive of patient satisfaction.

Results: 90 of 115 still had their primary implant. 105 were available to participate (average 9.1 years follow-up). Twenty-five had their implant removed. Average FAAM-ADL score was 82.4, FAAM-sport score 55.3, post-operative VAS pain score 12.7, SF-12 physical score 45.8 and SF-12 Mental 56.1. Average motion across the implant was 22.3° and 6.3° in adjacent joints. Osteolysis occurred on average at 2.3 zones, significant at zones 1 and 6. No differences were found for rate or location of subsidence. Linear regression analysis demonstrated younger patients, inflammatory and atraumatic arthritis lead to higher likelihoods of revision. No correlation was detected between radiographic parameters of implant success and outcome scores. Significant reduction in VAS pain scores was detected at an average of 8 years (mean difference of 67.64).

Conclusion: Our results are consistent with what has been described in the literature. Survivorship approaches 70.9% at an average of 8 years. Patients that have retained their original implant are functioning at a high level of satisfaction based on statistically validated patient-centered outcome scores. Interestingly, this is independent of the radiographic appearance of their implant. Advanced age at the time of surgery was predictive of failure with younger patients having a higher likelihood of requiring secondary surgery and the pre-operative diagnosis was also predictive of failure with both inflammatory arthritis and atraumatic arthritis.

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