

The Other Adjacent Joint: Knee Pain in Ankle Arthroplasty and Ankle Arthrodesis: A COFAS Study

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Introduction/Purpose: Accepted surgical treatment options for end-stage ankle arthritis include total ankle arthroplasty (TAA) and ankle arthrodesis (AA). Although they have comparable clinical outcomes, TAA is growing in popularity and one reason for this is that TAA, compared to AA, better preserves range of motion and function at the ankle, and results in a gait pattern that more closely replicates normal controls. This has the theoretical benefit of protecting adjacent articulations and thereby limiting degenerative changes from occurring in other joints. Although multiple studies have analysed the impact of both TAA and AA on adjacent joint disease in the foot, little data exists on their impact on the knee. This study explored the relationships between knee pain, TAA and AA in patients with end-stage ankle arthritis.

Methods: Prospectively collected data was used from the Canadian Orthopaedic Foot and Ankle Society (COFAS) database of ankle arthritis at a single institution by three fellowship-trained foot and ankle surgeons between January 2003 and July 2012. In total, 342 patients were studied, with patient demographics collected pre-operatively, and post-operative follow up performed at the 5 year mark. All patients were examined for the development or resolution of knee pain, as well as patient-reported outcome measures including the Ankle Osteoarthritis Scale (AOS). Using a linear regression model, a multivariate analysis was performed to examine the relationship between knee pain, TAAs and AAs.

Results: In the 233 patients that presented without knee pain pre-operatively, 22% who underwent TAA developed knee pain at 5 years, compared to 16% of AA patients ($p>0.05$). In this group, patients who underwent TAA had statistically significant better outcomes in terms of AOS Pain ($p<0.02$), AOS Difficulty ($p<0.05$) and AOS Total Scores ($p<0.02$).

In the 109 patients who presented with knee pain, knee pain resolved in 47% of TAA patients vs 38% of AA patients at 5 years ($p<0.05$). There was no statistically significant difference in AOS outcomes ($p>0.05$) between patients who underwent TAA and AA.

Compared with patients who did not have knee pain pre-operatively, the presence of pre-operative knee pain resulted in worse AOS ($p<0.02$), with no difference between TAA and AA.

Conclusion: In those patients presenting without knee pain, TAA did result in more superior functional outcomes, with no significant difference in development of knee pain compared to AA. In patients with pre-operative knee pain, TAA had benefits of improved resolution of knee pain, with no difference in functional outcomes when compared with AA. Regardless of surgical technique, the presence of pre-operative knee pain was an independent adverse predictor of outcome in patients with tibiotalar arthritis.