Total Ankle Arthroplasty Combined with Hind Foot Fusion for the Treatment of Pantalar Arthritis

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Summary:
This study is the first to review the results of combined ankle arthroplasty and subtalar fusion or triple arthrodesis (TAA + F). Seventy-three patients who underwent TAA + F were prospectively compared to 73 patients who underwent isolated TAA. Foot function index, Ankle Osteoarthritis Scale, SF-36 pain and physical function scores were compared at baseline, 6, 12 and 24 months. Complication and reoperative rates were reviewed. There was no significant difference between scores at baseline or latest follow up. We conclude that TAA + F offers the same early functional outcome as TAA.

Abstract:
Patients with arthritis of the ankle and subtalar joints pose a difficult therapeutic challenge. Historically, treatment options have included extended arthrodesis or amputation. Although these procedures are successful as salvage operations, they have a suboptimal functional outcome. Total ankle arthroplasty (TAA) combined with a hind foot fusion procedure offers the advantage of providing pain reduction without sacrificing ankle motion. This study is the first to review the results of combined TAA and subtalar fusion or triple arthrodesis. Using our prospectively gathered foot and ankle database we reviewed the results of 73 patients who underwent TAA and hind foot fusion (TAA + F). We age, sex and disease matched these patients with 73 patients who underwent isolated TAA. We compared Foot Function Index (FFI), Ankle Osteoarthritis Scale (AOS), SF-36 pain and physical function parameters at baseline 6 months 1 and 2 years. We also reviewed complications and reoperation rates. Mean FFI, AOS, SF-36 pain and physical function scores improved from baseline for both groups and this improvement was sustained over the duration of follow up (mean 14 months TAA, 16 months TAA + F). There was no significant difference between outcome scores for the two groups at latest follow up (FFI: 23.1 +/- 14.3 TAA, 27.5 +/- 21.4 TAA + F, p = 0.437; AOS: 26.9 +/- 18.3 TAA, 33.8 +/- 19.8 TAA + F, p = 0.9231; SF-36 pain: 61.1 +/- 18.3 TAA, 62.1 +/- 20.4 TAA + F, p = 0.81; SF-36 physical function: 62.7 +/- 24.5 TAA, 57.9 +/- 26.0 TAA + F, p = 0.43).

There were 31 complications following TAA and hind foot fusion (32%) the majority being problems related to the arthroplasty components (23%), minor wound complications (16%), and painful fusion hardware (12.%). There were 3 non-unions, 1 malunion and 5 deep infections requiring revision. Twenty-two patients (30%) required repeat procedures. The majority were for component revision, 6 for aseptic component failure and 4 for septic component failure. There were 2 tibiotalarcalcaneal fusions one for septic and one for aseptic complications. There was one below knee amputation in a patient with chronic pain. The treatment of combined ankle and subtalar arthritis with TAA and subtalar fusion is technically demanding and has a high early complication rate, yet appears to be no difference in early functional outcome as a matched group of patients with isolated ankle arthritis. As arthroplasty and fusion improves both pain and function this procedure should be considered standard of care for this patient population.