Ankle Arthrodesis with Structural Grafts Can Work for the Salvage of Failed Total Ankle Replacement

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Our disclosures are in the Final AOFAS Mobile App. There are no potential conflicts with this presentation.
Statement of Purpose

• Surgical treatment options after failed Total Ankle Replacement (TAR) are revision arthroplasty, bone block interposition arthrodesis, and in very rare circumstances, below knee amputation.
Statement of Purpose

- This study aims to report short-term and midterm outcomes and radiographic results in a single surgeon group of patients with failed TAR who underwent TTC Fusion with structural femoral head interposition allograft.
Study Methods

Inclusion criteria: Failed TAR treated with TTC nail and structural femoral head allograft

- Longitudinal, IRB approved:
  - Prospectively collected patient outcome scores
  - Prospective scanogram x-rays for limb length
  - Retrospective chart review

- Average midterm follow-up 5.2 years
  - 1 year minimum follow-up
Study Methods

• FFI and AOFAS clinical outcomes measures
• Radiographs were collected and analyzed for fusion mass
• Scanograms used to judge leg length as an indirect measure of graft collapse
Key Technical Points

• Only dynamically locked retrograde IM nails were used to allow for controlled graft collapse
• Grafts were fashioned with flat cuts to mate with tibia and residual talus
• Bone marrow aspirate used to ‘seed’ allograft femoral head
Results

• 5 Patients enrolled
  ○ Age 63.2 (range 56-69) at surgery
  ○ Enrollment visits at 1.68 years post-op
  ○ 3/5 patients returned for midterm follow-up at 5.2 years post-op

• AOFAS scores improved from 66.6 (61-77) at enrollment to 70.33 (54-88) at midterm
Results

- 4 of 5 patients had radiographic union at enrollment as judged by x-rays
- Limb length discrepancy (average):
  - 1.4 cm at enrollment
  - 1.6 cm at midterm
- No amputations at any point
Discussion

• Successful limb salvage can be obtained with interposition femoral head grafts in the setting of large defect from failed TAR
• Leg length discrepancy is less than 2 cm in our case series
• Dynamically locked nail is key so that graft can ‘see’ mechanical load
Conclusions

• Tibiotalocalcaneal (TTC) fusion with femoral head allograft is a salvage technique that can lead to a functional arthrodesis and limb salvage in a situation where options are challenging.

• Our results show continued improvement in patient reported outcomes moving from short to midterm follow-up with no trend towards structural allograft resorption.
References


