

TRIPLE ARTHRODESIS & TOTAL ANKLE REPLACEMENT FOR PROGRESSIVE COLLAPSING FOOT DEFORMITY WITH SECONDARY ANKLE OSTEOARTHRITIS

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Patient History and Background

A 79-year-old male presented with right foot and ankle pain and decreased range of motion for over 15 years and failed conservative modalities. The patient had no medical comorbidities.

Clinical Challenge

Radiographs revealed progressive collapsing foot deformity and valgus positioning of the talus in the ankle mortise with corresponding osteoarthritis. An MRI revealed extensive arthrosis of the joints of the hindfoot and the ankle joint.

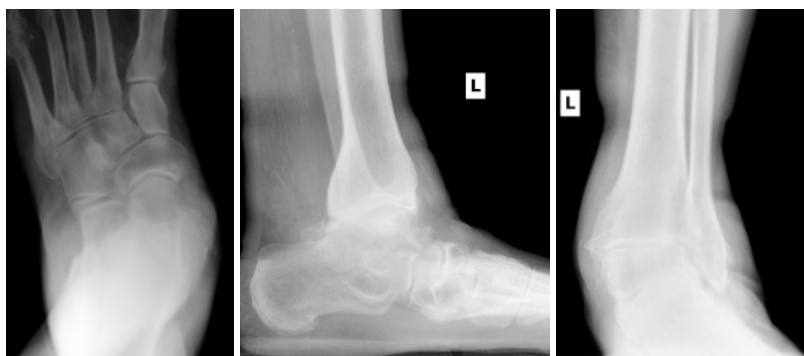
Preoperative Assessment and Treatment Plan

Diagnosis Progressive collapsing foot deformity of the left lower extremity (rigid), secondary osteoarthritis ankle joint

Surgical Plan Double stage surgery:

- Stage 1: Triple arthrodesis
- Stage 2: Tendo Achilles lengthening and total ankle replacement, scheduled three weeks later to allow soft tissue recovery

Grafting Material InduceXT NMP Bioimplant (23cc) placed into the talonavicular, calcaneocuboid, and subtalar joints.



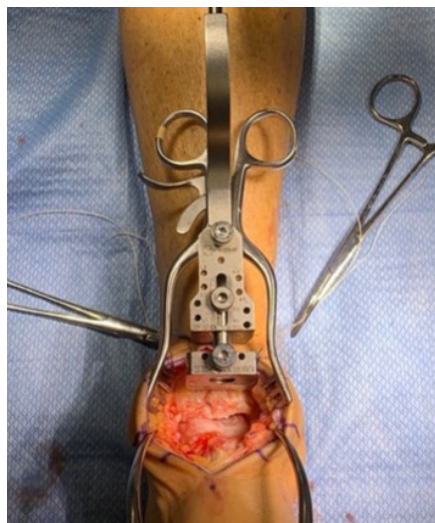
Preoperative weight-bearing images (AP and lateral) showing the extent of hindfoot and ankle arthritis. The talar head was uncovered with medial column collapse and hindfoot in ~15° of valgus.

Intraoperative Technique

InduceXT was hydrated with bone marrow aspirate and molded for precise placement. 20cc was implanted into the talonavicular, calcaneocuboid, and subtalar joints during the triple arthrodesis, which was stabilized with plates, screws, and staples. Additionally, 3cc of InduceXT was applied to the tibial and talar components during ankle replacement to support osseous ingrowth into the metallic implants.



Stage 1: InduceXT was hydrated with BMA to a toothpaste-like consistency to allow manipulation of the graft before placement into the joints.



Stage 2: A standard anterior approach was used, maintaining a wide skin bridge from previous incisions for the triple arthrodesis.



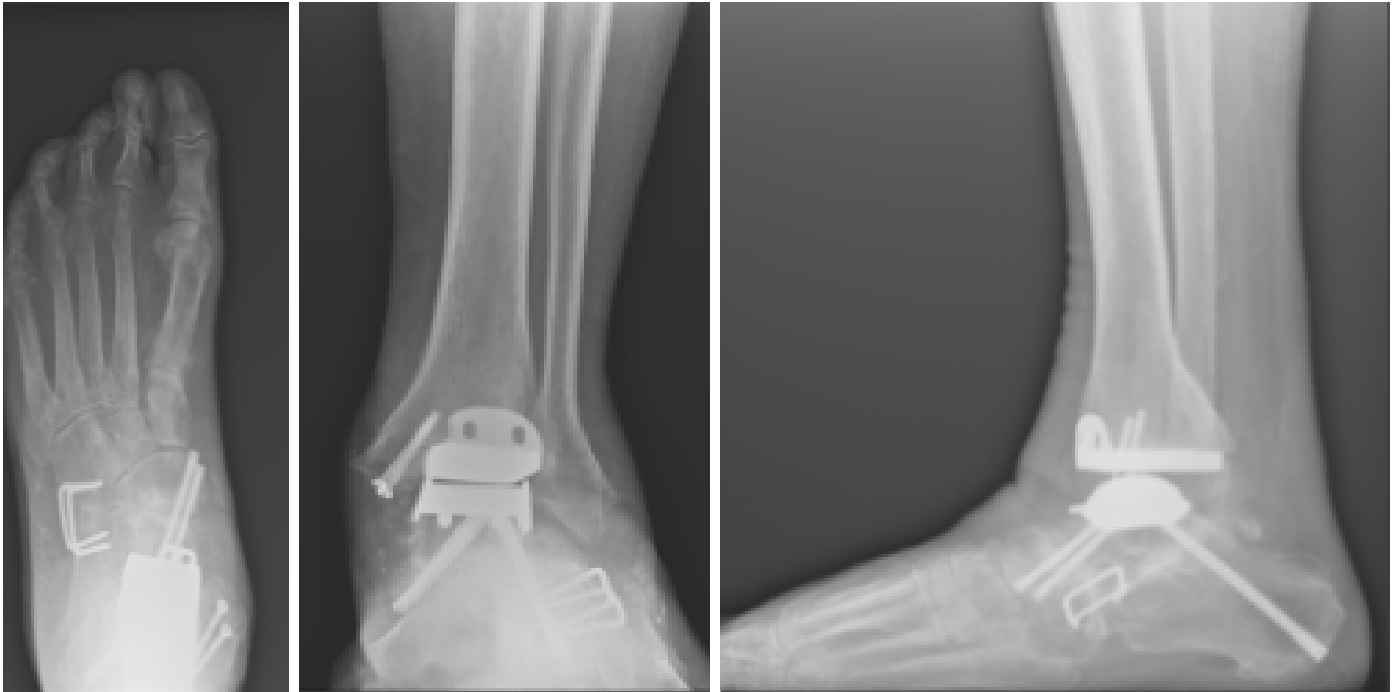
InduceXT (3cc) was placed on the tibial and talar components to help facilitate bone ingrowth.

Post Operative Protocol

- **0-7 Weeks:** Non-weight bearing
- **7-10 Weeks:** Transitioned to cam-walker boot and physical therapy
- **10 Weeks:** In regular shoe

Outcomes at 1 Year Post-Op

Excellent osseous bridging across the arthrodesis site following grafting with InduceXT to provide support and anatomical alignment for the TAR. The patient was able to ambulate pain-free and continue activities as tolerated.



Postoperative weight-bearing images of ankle (AP and lateral at 1 Year) demonstrating a well-aligned hindfoot fusion with the ankle replacement in excellent position.

CONCLUSION

- Successful osseous consolidation across the joints in a triple arthrodesis with well-aligned hindfoot and ankle in a complex case.
- Integration of InduceXT to help facilitate solid osseous fusion and healing, especially with staged procedures.
- No pain during ambulation and patient returned to full activities.

This case highlights the capability of InduceXT NMP Bioimplant to facilitate complex hindfoot fusions as well as osseous ingrowth into metallic implants, which continues to see increased utilization in foot and the ankle procedures.

