20 Degree Post Traumatic Ankle Valgus and Distal Lateral Tibial Osteonecrosis Treated w/ A Staged Deformity Correction and Total Ankle Arthroplasty: A 5 Year Follow Up

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    - Integra
    - Depuy/Synthes
    - Smith & Nephew
    - KCI
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  - No disclosures
The purpose of this review is to present a case of post-traumatic ankle valgus and distal lateral tibial osteonecrosis successfully treated with staged deltoid repair, opening wedge tibial osteotomy, fibular lengthening, syndesmotic fusion and total ankle arthroplasty.
The list of relative and absolute contraindications for total ankle arthroplasty is extensive. Oftentimes the surgeon plays the role of convincing the patient to not undergo replacement. Steck and Anderson offered a well-thought list of indications, relative contraindications, and absolute contraindications.

Their indications included age >55, low physical demand, good bone stock, intact neurovascular status, immunocompetent, ankle allowed to be reduced to neutral, competent deltoid ligament, arthritic generation secondary to: Inflammatory arthritis, OA, trauma, or successfully treated sepsis.

Relative contraindications include AVN of talus, age <55, poor bone stock, immunosuppression, smoking, ankle deformity, history of sepsis with questionable resolution, severe trauma with bone loss, DM, obesity, workmans compensation, osteoporosis.

Absolute contraindications include high physical demand, poor distal vascular supply, significant neuropathy, incompetent deltoid, nonreducible deformity, suspicion of infection, severe soft tissue compromise, NM disease, noncompliance, AVN of entire talar body.
Case Reports

A 56 year old male presented with the complaint of right sided post traumatic ankle pain. He experienced supination-external rotation ankle fracture which was reduced and fixated initially at an outside institution. At follow up the patient was informed that the reduction was not satisfactory, he underwent two subsequent surgeries to reduce his dislocated ankle. When he presented to our institution he was ambulating in a cane with an apropulsive gait.

His radiographs revealed a 20 degree ankle valgus with an apex in the distal tibial metaphysis. The radiograph also displayed a lucency in the distal lateral tibia which was confirmed by CT scan as osteonecrosis. The senior surgeon as well as the patient were interested in a total ankle arthroplasty. The patient’s physical demands as well as age and co-morbidities were amenable to replacement. The only major concerns with this particular patient were the valgus deformity and osteonecrosis.

A staged approach was decided upon which consisted of an ankle joint arthrootomy, deltoid imbrication, a tibial opening wedge osteotomy with autogenous cortical fibular bone graft superior to the area of osteonecrosis to correct the 20 degree ankle valgus. Fibular lengthening osteotomy and fusion of the distal syndesmosis were also performed.

CT scan confirmed bony consolidation at the distal tibiofibular syndesmosis as well as union of the autograft opening wedge tibial osteotomy. The final surgery was total ankle joint replacement with bone grafting of the area of osteonecrosis.
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5 Year Follow Up X-Rays
Results

After 5 years follow up the patient has progressed out of his AFO to full weight-bearing.

He reports no pain, improved function and range of motion and is ambulating independently with no assistive devices.
References

