Tibiotalocalcaneal Intramedullary Fusion Following Chopart Amputation in a Patient with Contralateral Major Limb Loss: A Limb Salvage Case Report

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Statement of Purpose

The purpose of this study was to provide a limb salvage technique that provides a stable weight bearing limb to a patient who already has undergone a contralateral limb loss.

Introduction & Significance

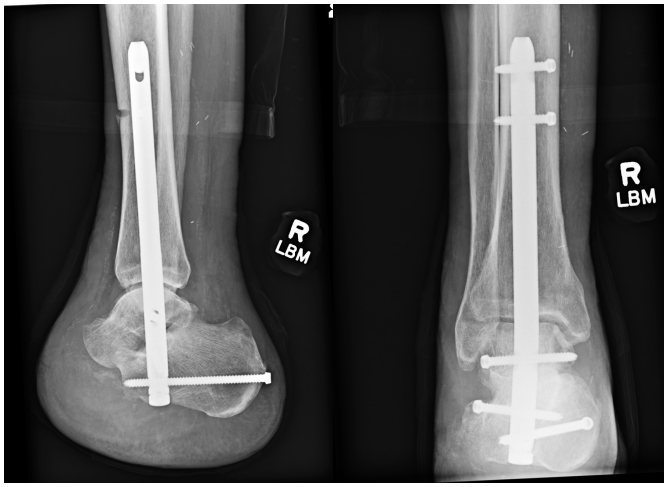
Limb salvage in patients with ipsilateral midfoot pathology and contralateral major limb loss presents a distinct constellation of biomechanical, functional, and rehabilitative challenges. These individuals often depend disproportionately on the remaining limb, which increases mechanical loading, accelerates deformity progression, and elevates the risk of soft tissue breakdown. Tibiotalocalcaneal (TTC) arthrodesis with intramedullary nailing has become a well-established technique for addressing complex hindfoot instability, severe deformity, and end-stage arthritis. Use of a TTC nail can allow for immediate weight bearing in patients due to its load sharing properties[1]. When structural failure or infection extends distally, partial-foot amputations such as the Chopart level may offer an alternative that preserves limb length, maintains a weight-bearing platform, and improves the potential for prosthetic compatibility compared with more proximal amputations[2]. Despite these recognized benefits, there remains a lack of literature describing outcomes in patients who undergo TTC fusion in conjunction with ipsilateral Chopart amputation, particularly in the setting of a contralateral below-knee (BKA) or above-knee amputation (AKA). Because these patients rely heavily on the operated limb for transfers, ambulation, and general mobility, understanding postoperative stability is of critical clinical importance.

Case Background, History, & Diagnostics

This case study describes a 55-year-old male with a complex medical history including peripheral arterial disease, type 2 diabetes mellitus, multifocal osteomyelitis, as well as a prior left below-knee amputation. The patient had previously failed both a transmetatarsal and a Lisfranc amputation of the right foot.

Therapeutic Interventions

Following successful revascularization via femoral–posterior tibial bypass, the patient underwent a right Chopart amputation stabilized with a tibiotalocalcaneal (TTC) intramedullary nail. Postoperatively, the patient was followed in an outpatient wound-care setting with close monitoring of soft-tissue healing and vascular status. The limb was initially immobilized; however, patient was allowed to utilize the limb for weight bearing transfers for five weeks. At the time of suture removal, the incision demonstrated full epithelialization without evidence of drainage, dehiscence, or local infection. Radiographs showed appropriate hardware positioning with no signs of mechanical complication. The patient was subsequently transitioned into a controlled ankle motion (CAM) boot and began a progressive weight-bearing protocol with walker assistance.



Discussion and Conclusion

As fusion progressed, the patient reported improved stance-phase stability, which facilitated safer transfers and enhanced his ability to ambulate short distances. Functionally, the fused TTC construct provided a rigid lever arm that compensated for the reduced foot length associated with the Chopart level amputation. Findings suggest that TTC fusion can provide a stable, plantigrade limb capable of bearing load through a Chopart amputation stump, even in patients who rely heavily on the operated limb due to contralateral BKA/AKA. TTC intramedullary nail arthrodesis combined with Chopart amputation represents a viable limb-salvage strategy in patients with contralateral major limb loss. When appropriately selected and managed, these patients can achieve functional ambulation. Further prospective studies are needed to optimize patient selection, refine fixation strategies, and establish standardized postoperative rehabilitation pathways.

References

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2. Van der Wal, G.E., Dijkstra, P.U., Geertzen, J.H.B (2023) Lisfranc and Chopart amputation: A systematic Review. *Medicine* 102(10):p e33188