

# Arthroscopy Assisted Ankle and Subtalar Arthrodesis

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# INTRODUCTION

- TTC( Tibio talocalcaneal )nailing is indicated for lower limb stability in post traumatic ankle deformities, advanced subtalar arthritis, rheumatoid arthritis, talar avascular necrosis , non unions, failed ankle arthroplasty.
- Arthroscopic assisted ankle arthrodesis is a minimally invasive technique for managing complex hind foot pathologies, especially in patients with soft tissue injuries or poor skin conditions after trauma.

# CASE REPORT

- 44/M farmer by occupation
- C/o pain and instability while walking
- Sustained compound Grade 3B injury of left lower limb 3months back
- Managed with debridement + anterolateral flap to ankle 3 months ago



# Examination

- Mediolateral instability
- Healed anterolateral flap
- X-ray: loss of lower end of fibula with reduced ankle joint space
- AOFAS (American Orthopaedic Foot and Ankle Society Score): 18/100
- FADI (Foot and Ankle Disability Index Score): 26/104



# AIM

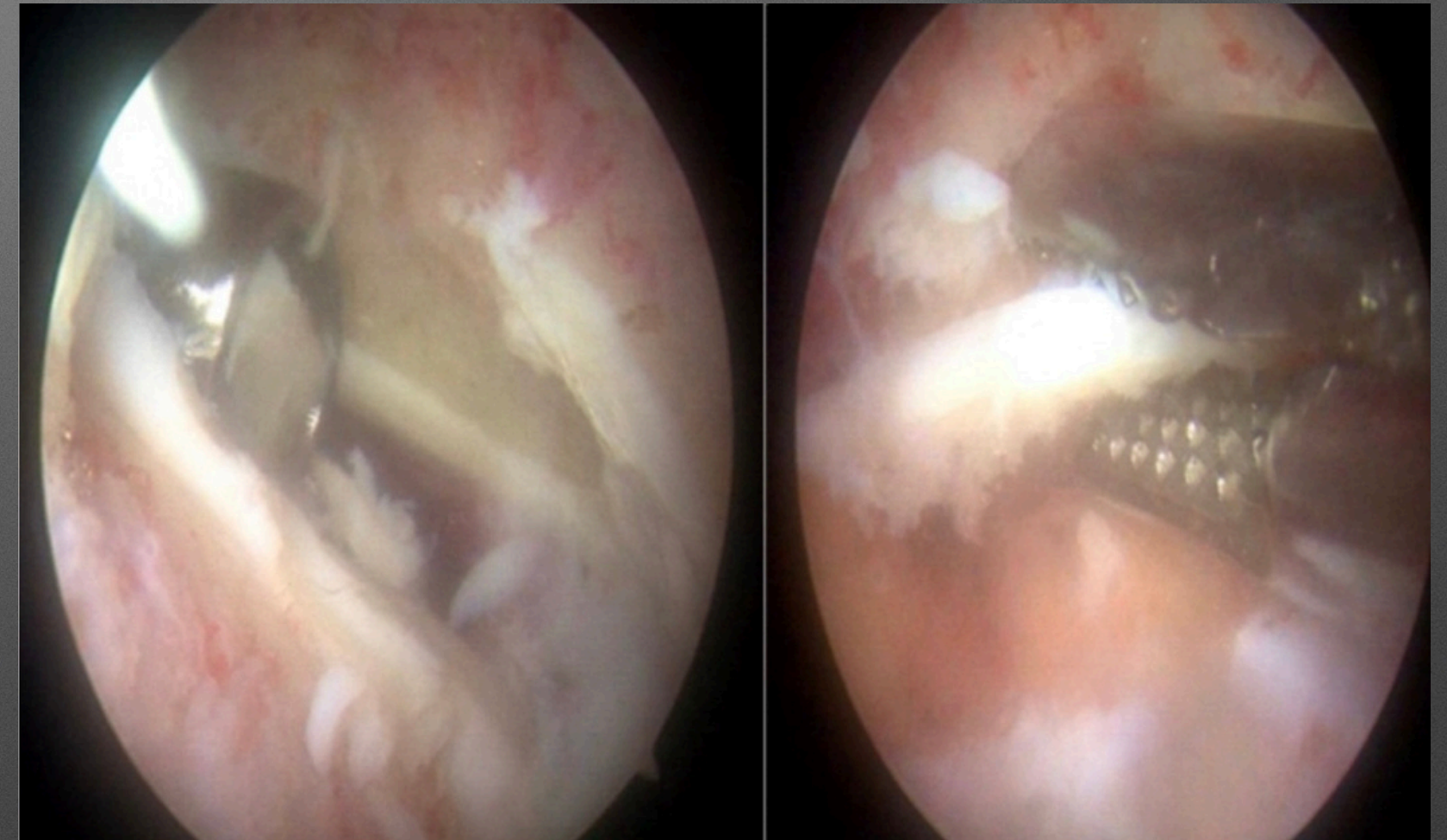
- stable, plantar-grade and pain-free limb
- TTC nailing planned
- Types: Open and Arthroscopic/minimally invasive

# Procedure

- An arthroscopically assisted TTC fusion using a retrograde intramedullary nail was performed.
- Under spinal anaesthesia
- Patient in prone position with foot hanging on edge of bed
- Entry portals: Postero-medial (red); Postero-lateral (blue); Accessory portal (green)



- Diagnostic arthroscopy done - ankle and subtalar opening of joint confirmed
- Ankle and subtalar cartilage removed arthroscopically

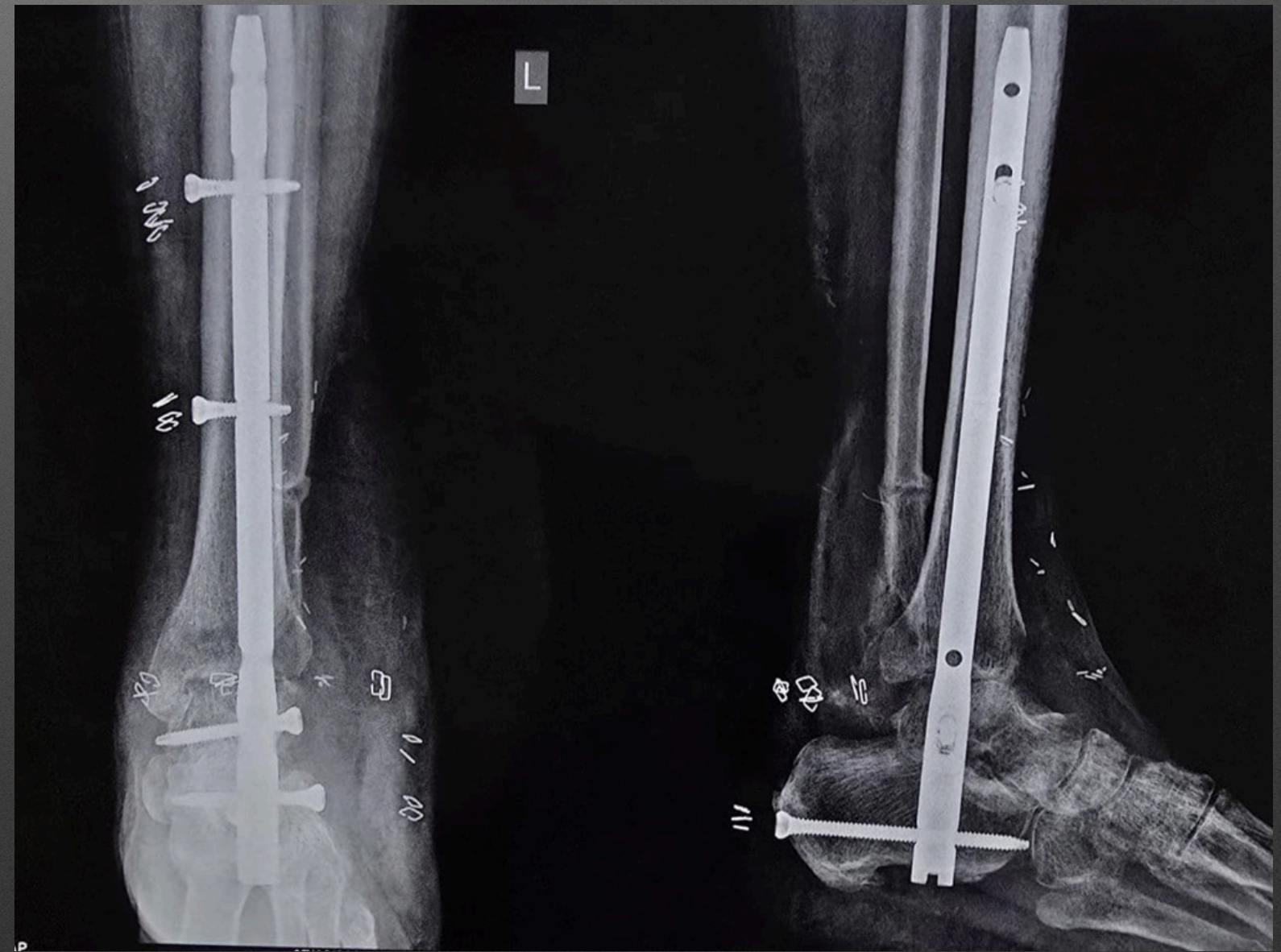


- Hind foot positioned at 0degree dorsiflexion, 5degree heel valgus and 5-10degree external rotation
- Tibia , talus and calcaneum aligned
- Guidewire was inserted via subtalar and tibiotalar joints under arthroscopic guidance
- Retrograde TTC nail inserted



# Post - op Rehabilitation

- Gradual weight bearing started at **4weeks**
- Full weight bearing at **6weeks**



# RESULTS

- At 1 year follow up:
- A stable, plantigrade, and pain-free foot with early mobilisation and improved functional outcomes achieved
- AOFAS - 98/100
- FADI - 100/104
- X-ray: Arthrodesis of ankle and subtalar joint



# Advantages

- quicker wound healing
- done for Peripheral Vascular Diseases , Diabetes, Chronic smokers
- reduced risk of post-operative infections
- earlier rehabilitation
- Improved limb alignment

# CONCLUSION

- Arthroscopic TTC arthrodesis using IM nail fixation is a reliable, minimally invasive technique for complex hind foot conditions, particularly in patients with compromised soft tissues, pre existing comorbidities or previous trauma.
- It ensures adequate joint stability, allows early movement, and yields excellent functional outcomes.

# Review of Literature

- Sekiya et al., (2011) did 8 of 9 successful ankle fusions using IM Nail through arthroscopic approach with minimal complications.
- Vila y Rico et al. and Bitz et al., (2013) support the use of retrograde nails citing early fusion and low complication rates.
- Lamiere et al., (2023) noted an 86% fusion rate and low infection risk using this approach.
- Baumbach SF et al., (2018) reported that SSI's occurred in 50% cases treated with open TTC fusion, whereas none of the arthroscopic procedures resulted in major infections.

**Thank You!**