



FAILED TRIMALLEOLAR FIXATION TREATED WITH ANKLE ARTHRODESIS

Orthopaedics

Dr. M. Rajavel Post Graduate Department Of Orthopaedics Sree Balaji Medical College And Hospital

Dr. Ganesh* Assistant Professor Department Of Orthopaedics Sree Balaji Medical College And Hospital *Corresponding Author

Dr. Thiyagarajan Professor Department Of Orthopaedics Sree Balaji Medical College And Hospital

ABSTRACT

Background: Trimalleolar ankle fractures are complex injuries that often require surgical fixation to restore anatomical alignment and function. Despite appropriate treatment, some cases may result in persistent pain, instability, and functional impairment. This report presents a case of failed trimalleolar fracture fixation leading to ankle arthrodesis as salvage treatment. **Case Presentation:** A 54-year-old male presented with a trimalleolar ankle fracture following a fall. Initial surgical fixation was performed using k wire and screws. Despite adequate initial recovery, the patient developed chronic pain and instability, with radiographic evidence of hardware loosening and malalignment. Subsequent surgical intervention involved removal of previous hardware and ankle arthrodesis using an nail and bone grafting. Postoperative course was complicated by prolonged immobilization and gradual resolution of pain. **Objectives:** To provide comprehensive review of ankle arthrodesis, particularly as a treatment of failed trimalleolar fixation which includes: Understanding the indications Exploring surgical techniques Evaluating outcomes Identifying complications Reviewing Rehabilitation **Conclusion:** Trimalleolar ankle fractures can lead to significant long-term sequelae despite appropriate initial management. In cases of failed fixation with persistent pain and instability, ankle arthrodesis represents a viable salvage option to alleviate symptoms and restore functionality. This case underscores the importance of thorough assessment, appropriate surgical planning, and patient counseling in managing complex ankle fractures.

KEYWORDS

Trimalleolar fracture, failed implant fixation, ankle arthrodesis

INTRODUCTION:

Trimalleolar fractures, involving the lateral malleolus, medial malleolus and posterior malleolus collectively a severe form of ankle injury. These kind of fractures usually need to be managed surgically through open reduction and internal fixation to restore anatomical alignment and stability of the joint.

In some cases, ORIF can fail due to various factors like; Bone osteoporosis, Infection, Non union, Malunion which can lead to chronic joint pain, deformity or instability.

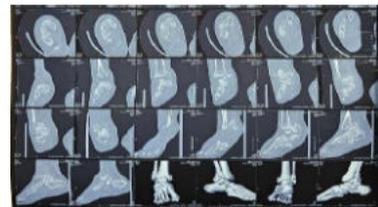
Ankle arthrodesis which is also called as ankle fusion, is a salvage surgical procedure which can be considered in patients with previous failed trimalleolar fixation who still experiencing pain, impairment despite initial surgical intervention.

Ankle arthrodesis involves the removal of damaged joint surfaces and fusion of tibia, fibula and talus into a single structure which eliminates the motion at the ankle joint by which we can provide pain free joint and stability, allowing patients to continue weight bearing activities without pain.

In the context of trimalleolar fractures, ankle arthrodesis is considered when traditional fixation methods fails or when there is a risk of complications. This approach aims to achieve pain free joint and weight bearing despite permanent loss of ankle range of motion.



Pre op xray:



CT:

Procedure done: ORIF with Cannulated cancellous screw fixation and k wire fixation of medial malleolus with k wire fixation of lateral malleolus of right ankle



Post op Xray:



Post op wound pictures:**Procedure Done: Implant exit with Ankle Arthrodesis****Post op Xray:****Post op wound pictures:****DISCUSSION:**

Ankle arthrodesis is a surgical procedure primarily used to treat severe ankle arthritis, deformities or complications following failed fracture fixation. The aim is to relieve pain, restore stability and improve function by permanently fusing tibia, fibula, talus into a single solid bone.

Indications:

1. Severe Osteoarthritis
2. Post traumatic arthritis
3. Failed fixation
4. Infection
5. Deformity

Surgical Techniques:

1. **Open surgery:** It involves a larger incision to access the joint
2. **Arthroscopic surgery:** A minimally invasive approach where small incision are made. This method typically results in less soft tissue damage and faster recovery.
3. **Fixation methods:** Various fixation devices including, Screws, Plates, Intramedullary nails and external fixators

Rehabilitation:

1. **Immobilization:** By cast or boot for initial weeks
2. **Weight bearing:** Gradual progression from non weight bearing to partial weight bearing and then full weight bearing as healing progresses
3. **Physical Therapy:** To strengthen surrounding muscles and improve mobility in adjacent joints.

CONCLUSION:

Ankle arthrodesis remains a reliable and effective treatment for severe ankle pathology, particularly in cases where other surgical interventions failed. While it results in loss of ankle motion, the procedure can improve quality of life by providing a stable, pain free joint.

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