

Functional and Radiological Outcome of a Case of Intra Articular Calcaneum Fracture Treated with Open Reduction and Internal Fixation with Plating

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Abstract: *Calcaneus is one of the most commonly fractured tarsal bones. The use of computed tomography (CT) has enabled more accurate fracture configuration and classification of fractures. The outcomes of operative versus nonoperative treatment of these fractures have been extensively debated with variable results. Significant complications following intra - articular fractures have been reported in the literature despite management by experienced surgeons. This article will discuss the treatment of calcaneus fractures by open reduction and internal fixation in a prone position with a calcaneal traction pin, and assess the outcomes following this novel technique.*

Keywords: calcaneus fractures, tarsal bone fracture, CT scan, operative treatment, open reduction fixation

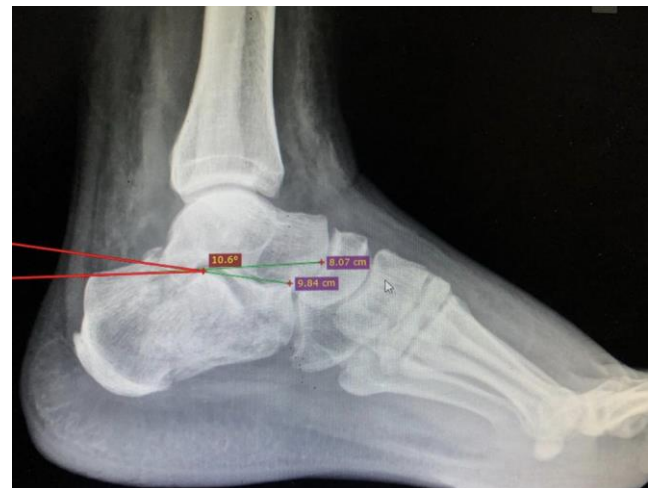
1. Introduction

Calcaneal fractures are the most common foot fracture Accounts for 2% of all fracture, 75% of foot fractures, out of them 10% are bilateral, 10% have associated injuries and 75% are intra - articular. . Calcaneal fractures are mostly seen after fall from height.

Management of calcaneal fractures is challenging for treating doctors as it has irregular bony anatomy, delicate soft tissue envelope and complicated joint biomechanics. If managed conservatively, patient have high chance to develop subtalar arthritis in displaced calcaneal fracture. Open reduction and fixation for displaced intra - articular calcaneal fractures has become the gold standard technique.

2. Case Report

A 35 year old male came to the casualty with alleged history of fall from height (Ladder) 6 days back and complaints of inability to weight bear and swelling over the left heel since the injury. Gross restriction of movements were present. No open injuries. Distal pulse intact. Active toe movements present.



Preop Bohlers Angle



Computed Tomography of Left Calcaneum

Routine blood tests were conducted and preoperative planning was done.

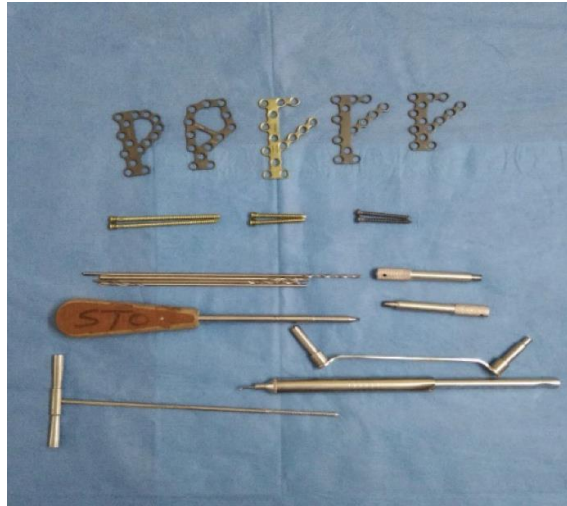
Surgery was planned open reduction and internal fixation of calcaneum.

Surgical Technique:

The surgery was performed under tourniquet, with the patient placed in lateral decubitus position, under intraoperative C arm guidance. The standard extended lateral approach with L-shaped incision was used.



Intra operative image of lateral approach to the calcaneum



The above shown instruments were used and plate was fixed. Fracture reduction satisfactory. Bone grafting done. Wound closed in layers. Sterile dressing done. Below knee slab applied.

Post OP X Rays

Post Operative Xray Showing the Angles of Gissane And Bohler



Immediate Post OP Xray After Fixation

Post Operative Management and Assessment:



One Month Post OP Xray - Lateral and Axial Views



Functional Outcome after 6 Months Showing Adequate Range of Movements

3. Discussion

In the last decade, open reduction and internal fixation of dislocated intra-articular calcaneal fractures has become a standard surgical method with low complication rate and better quality of life after the surgery. The method has been improved by implanting locking compression plates, the osteosynthesis is more stable, enables earlier weight-bearing, and bone grafting is rarely necessary. In our analysis, we confirmed correlation between the Böhler's angle size and patients post operative recovery. Knowledge in anatomy especially anatomy of the lateral hindfoot vascularity with its standard architecture is important in preventing wound healing complications.

4. Conclusion

The management of intra-articular fractures of calcaneum will pose problems to the surgeon due to poor soft tissue envelope and complexity in the fracture pattern. Even though wound complications and subtalar arthritis are common in open reduction and internal fixation of calcaneal fractures it still remains the gold standard for management of intra-articular calcaneum fractures and gives better results than conservative management.

Acknowledgement

We express our gratitude to our institute Sree Balaji Medical College and Hospital management. We send our sincere gratitude to our guides, teachers and material support. Special words of thanks to the research supervisors for their assistance in providing help and guidance throughout the study. Finally, we thank our family members and friends for their inspiration, affection and support.

Authors' Contribution:

Conceptualization, Supervision, Methodology, Resources, Data Collection, Writing and Formal analysis: Dr. Madhukar Writing, Investigation, Resources, Analysis, Data Collection, Review and Supervision: Dr. Karthikeyan. M Writing, Investigation, Resources, Analysis, Draft preparation, Review and Editing: Dr S. Surya
All authors have read and agreed to submit the manuscript

Financial Support:

This study has not received any external funding.

Conflict Of Interest:

The author declares that there are no conflict of interests

Informed Consent

Not applicable.

Data Materials Availability:

Data that support the findings of this study are embedded within the manuscript.

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