



# Short and Long-Term Patient Outcomes Using Minimally Invasive Approach for Calcaneal Fractures

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## Statement of Purpose

The most widely considered surgical procedure for displaced intraarticular calcaneal fractures has been the lateral extensile technique. (1,2,3,4) Although this approach provides good visibility, wide dissection can lead to both soft tissue and osseous complications. (1) In order to decrease patient complications and improve functional recovery, the minimally invasive (MI) sinus tarsi approach has become a popular alternative for calcaneal fracture treatment. MI techniques have resulted in acceptable correction for calcaneal fractures while protecting vascular supply and providing direct visibility of the subtalar joint.(1) This case series demonstrates the post-operative outcomes of the MI approach for displaced intraarticular calcaneal fractures over a five-year period. To our knowledge, research continues to be reported regarding outcomes of these MI techniques.

## Case Series

A case series is presented of thirty patients who underwent a MI sinus tarsi approach after sustaining hindfoot trauma. All patients were subsequently diagnosed with a displaced intraarticular calcaneal fracture through radiographs and computed tomography. All thirty patients underwent open reduction internal fixation using a MI approach by three different surgeons over a sixty month period. Each patient was brought into the operating room and placed on the operating table in a supine position. A well padded thigh tourniquet was then applied. A preoperative local field block was administered and the correct lower extremity was prepped and draped in the usual sterile manner.

## Case Series Cont.

A lateral incision was utilized from tip of the lateral malleolus to 3-4cm proximal to the cuboid. (Figure 1) The peroneal tendons were identified and retracted in dorsal and/or plantar fashion. The lateral wall was then examined and exposure of the subtalar joint with reduction performed. (Figure 2) Any varus deformity, shortening, and restoration of Bohler angle were then achieved with internal fixation applied. (4,5,6) Any osseous void was filled and corrected with bone substitute. Final correction was checked using intraoperative fluoroscopy with adequate reduction present in all cases. Layered closure was achieved in the appropriate manner with immobilization in a posterior splint following each procedure. Patients were seen approximately one week post-operatively with sutures removed at two week interval. Patient was instructed to remain non-weight bearing for eight weeks.

## Results

The American Orthopedic Foot and Ankle Society Hindfoot score (AOFAS) was used to assess the patients who had sustained traumatic hindfoot injury. The assessment method allows for a clinician and patient portion. The average score was 86.7. The range was 72-90.

Figure 1

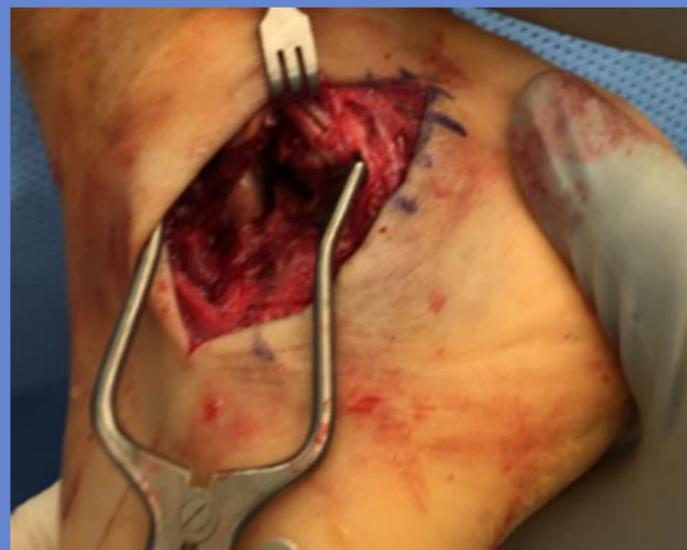
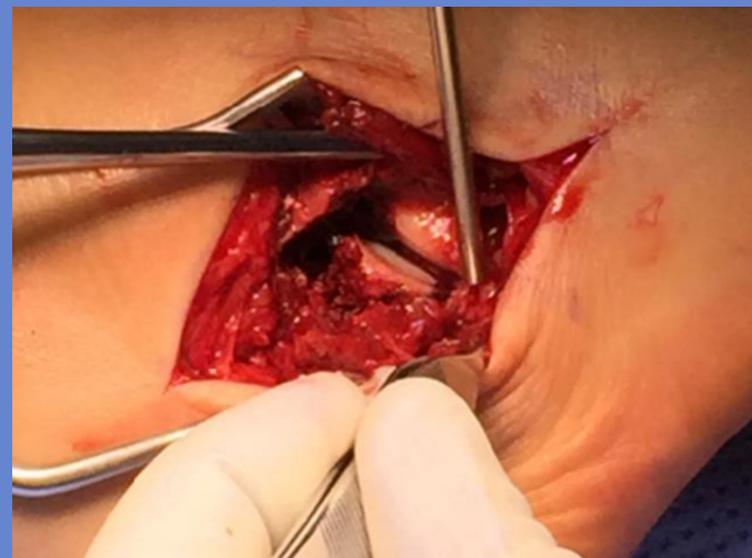


Figure 2



## Discussion

Correction of the fracture was achieved in each case. All patients gradually returned to their pre-injury activity level with minimal compromise. To date there have been only mild and/or infrequent long term sequelae evident. This case series details the benefit of the sinus tarsi approach for calcaneal fractures which has innate advantages over the lateral extensile approach. The goal of our study is to assess patient function and healing with short and long-term follow up.

## References

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