



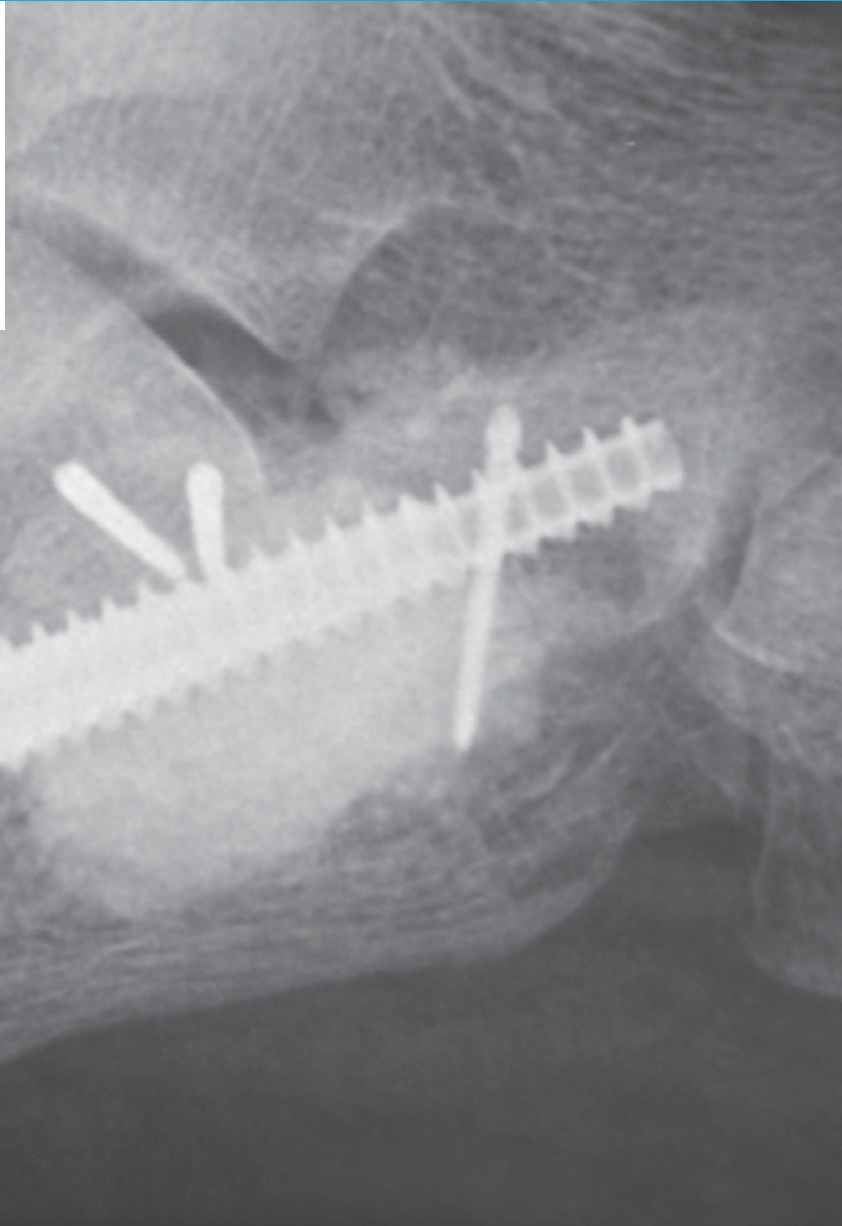
Acutrak® Headless Compression Screws and Callos® Bone Void Filler

Left Calcaneus Fracture Open Reduction and Internal Fixation (ORIF)

Case Study

Nicholas A. Abidi, MD

A 56-year-old male who sustained injuries to his left heel and left radial head was treated with Acumed Acutrak screws and a bone void filler.

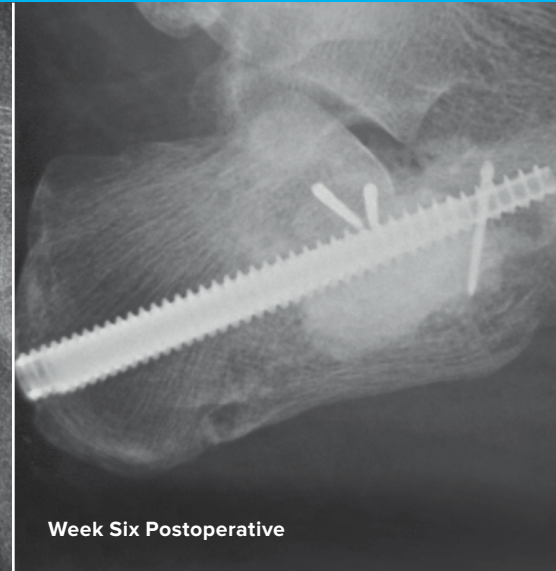
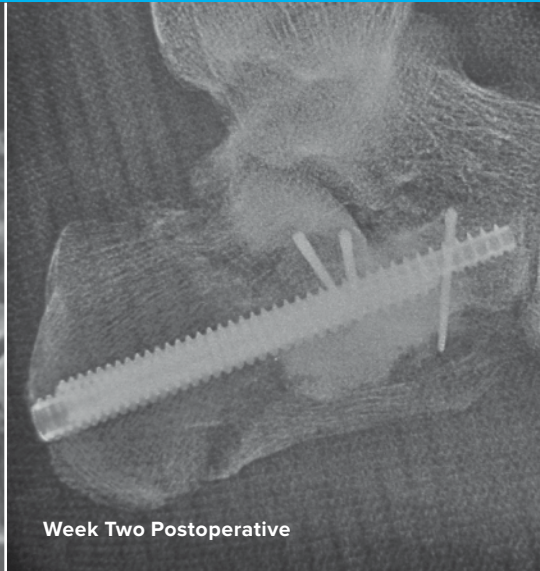
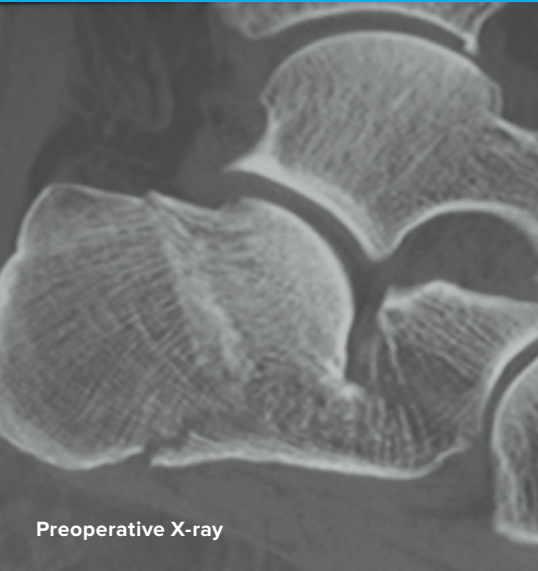


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We are dedicated to developing products, service methods, and approaches that improve patient care.

Case Study | Nicholas A. Abidi, MD



Left Calcaneus Fracture Open Reduction and Internal Fixation (ORIF) Treatment

Patient History

A 56-year-old male patient fell six feet from a diesel truck onto his left heel and left elbow. Radiographic evaluation showed that the patient sustained closed ipsilateral fractures of the left heel and left radial head.

Treatment

The patient received nonoperative management for the radial head type I fracture. Open reduction and internal fixation (ORIF) of the calcaneus was performed within five days, as soon as swelling resolved. A lateral sinus tarsi incision was made followed by reduction of the sustentaculum and posterior facet to match the undersurface of the talus. Fragments were pinned with K-wires and Acutwist® screws were used to compress the posterior facet fragments against the sustentaculum.

The posterior facet was elevated from plantar to dorsal and held in an elevated position with a lamina spreader through a lateral incision. The fracture void was then filled with Callos® Impact Calcium Phosphate Cement. The length, width and valgus alignment of the calcaneal body was maintained with axial 6/7 guidepins. The first pin was placed medially from the plantar medial heel into the constant fragment beneath the sustentaculum. The second pin was placed plantar and lateral into the anterior lateral calcaneum process.

Placement of both guidepins was confirmed by mini-fluoroscopy with lateral and axial views. Two Acutrak® Plus 6/7 screws were predrilled and placed through small stab incisions. This approach permits a Minimally Invasive Surgical (MIS) incision technique that limits wound healing complications noted with the traditional lateral extensile incision. In addition, minimal manipulation of the peroneal tendons permits early range of motion with less deep tissue scarring. This minimalist approach permits ease of subtalar arthrodesis, if necessary, in the future through the same incision.

Postoperative Care

Figure 2 shows films taken at six week follow-up. The patient was free of swelling normally noted with the traditional ORIF approach and was able to advance to full weight bearing and start aggressive physical therapy.

Discussion

Clinical and biomechanical studies support using Calcium Phosphate Cement augmentation in patients with these type of injuries.¹ The technique of intramedullary headless screw fixation for calcaneal fractures has also been demonstrated as being superior to nonlocking plate fixation in a cadaver study.²

Patients undergoing this technique may have less swelling and wound healing complications than with the traditional approach. We have witnessed solid fracture consolidation in the majority of patients by six weeks post-op. In addition, patients have less stiffness and pain at the twelve week follow-up.

Standard principles of joint reduction, re-establishment of Bohler's angle and solid fixation associated with the traditional approach to calcaneal fracture reduction and fixation must be adhered. Sanders type IV fractures should still be considered for primary subtalar arthrodesis in addition to fracture fixation. The MIS approach should be attempted by surgeons skilled in calcaneal fracture management and arthritic reconstruction of the hindfoot. Arthroscopy and fluoroscopy can be utilized to confirm intra-operative reduction of the fracture and placement of hardware.

1. Thordarson DB, Bollinger M. SRS cancellous bone cement augmentation of calcaneal fracture fixation. *Foot Ankle Int.* 2005;26:347-352.

2. Nelson JD, McIff TE, Moodie PG, Iverson JL, Horton GA. Biomechanical stability of intramedullary technique for fixation of joint depressed calcaneus fracture. 2010; *Foot Ankle Int.* 31:229-235.

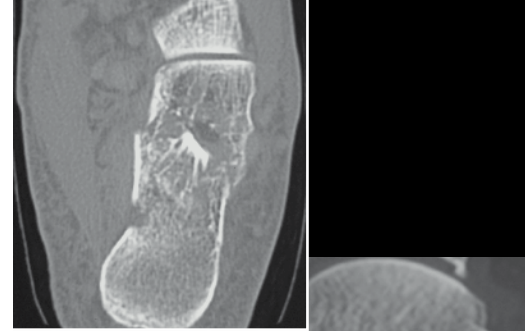


Figure 1
Preoperative X-ray

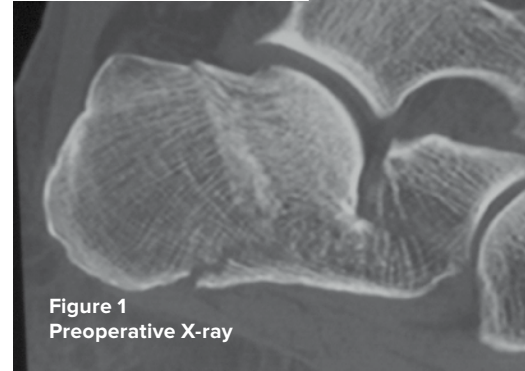


Figure 2
Postoperative Week Two

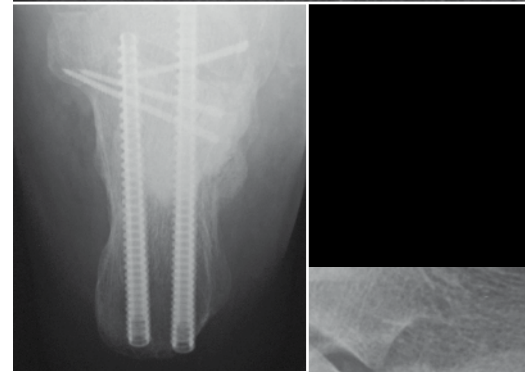


Figure 3
Postoperative Week Six





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