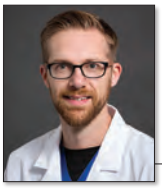

Bilateral ORIF of Calcaneal Fracture with Comprehensive Calcaneal Fixation System

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INTRODUCTION

The patient is an active 46-year-old male who presented with bilateral displaced calcaneal fractures following an approximately eight-foot fall from a roof, landing on his feet. (**Figures 1 & 2**).

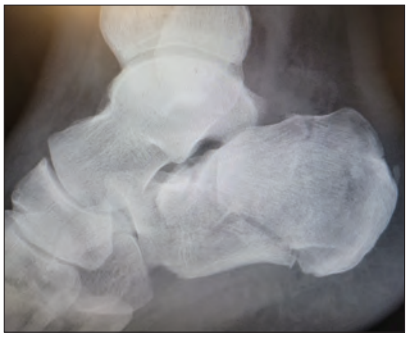

Figure 1. Pre-op left lateral X-ray

Figure 2. Pre-op right lateral X-ray

Based on physical and radiological examination, the decision was made to move forward with open reduction internal fixation of bilateral calcaneal fractures. Immediate post-injury complications such as compartment syndrome were ruled out, the patient was immobilized, and treatment with the In2Bones CoLink® Cfx Calcaneal Fixation System was scheduled.

Due to the comminuted nature and multiple fractures, a lateral extensile approach with the usage of a perimeter plate was planned for the left foot. Although similarly displaced and depressed, the right foot appeared to have less comminution and a fracture pattern amenable to a sinus tarsi approach and MIS plate utilization.

The patient underwent two weeks follow-up as an outpatient prior to surgery to allow for soft-tissue inflammation subsidence and skin wrinkles to be visualized to minimize post-op incision healing complications.

PROCEDURE

The patient was placed in the supine position. An incision was made in a "hockey-stick" fashion on the left lateral hindfoot, originating from the Achilles tendon's lateral aspect, extending to the heel, and then coursing distally on the lateral aspect of the heel.

K-wires were driven into the fibula, talus, and cuboid and bent to act as atraumatic retractors. Once the lateral wall was encountered, significant blowout was observed.

The lateral wall was then carefully dissected and placed in sterile saline to be replaced later.

The depressed posterior facet fragment was identified and carefully mobilized with an osteotome. Significant comminution and a bony void were observed surrounding this.

After obtaining more visualization, an additional large piece of the subtalar joint facet was identified and depressed medially. The lateral posterior facet fragment was carefully removed and placed in sterile saline with the lateral wall fragment.

Both subtalar joint facet fragments were then reduced with restored height and temporarily fixated with K-wires. Proper positioning and angulation were obtained and verified with intraoperative fluoroscopy.

A 4.0mm CoLag® screw was then inserted across these fracture fragments while holding reduction, anchoring them to the sustentaculum tali. Excellent osseous apposition, as well as screw purchase, was noted.

An axial view was obtained, and a Schanz Pin was then drilled into the calcaneus to reduce the varus deformity. Once reduced, this was also temporarily fixated with K-wires. The lateral wall was reintroduced and placed in its anatomic position.

The CoLink Cfx Perimeter Plate was trialed and then temporarily fixated in the appropriate position. Bone voids were observed due to the fractures' comminuted nature and depression and filled with AlloAid® DBM Putty.

Locking and non-locking CoLink® Screws were inserted in a stepwise fashion, with final intraoperative fluoroscopy verifying fracture reduction and hardware placement (**Figures 3 & 4**).

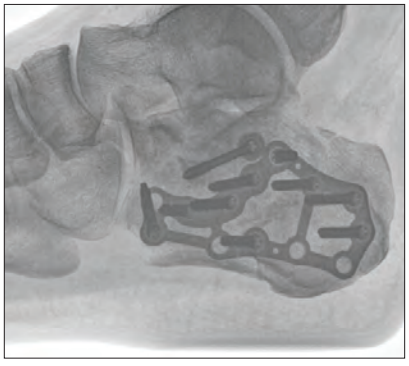

Figure 3. Final intra-op left lateral X-ray

Figure 4. Final intra-op left AP X-ray

The incision site was flushed, and a Jackson-Pratt drain was inserted. Carefully layered closure was performed.

Attention was shifted to the right calcaneal fracture, utilizing a standard

sinus tarsi approach incision.

The sural nerve and peroneal tendons were identified and carefully retracted, and protected.

The subtalar joint was visualized, and an osteotome was used to free the depressed posterior facet fragment. It was then rotated, elevated into place, and secured with a K-wire.

A 4.0mm CoLag Screw was inserted to secure the fragment, with posterior facet screw purchase noted.

Similarly, a Schanz Pin was inserted into the posterior calcaneal tubercle. The varus deformity was corrected under fluoroscopy and temporarily fixated with K-wires.

The lateral soft tissue was elevated using a Cobb Elevator, and the appropriately sized CoLink Cfx MIS Extended Plate was identified and inserted.

CoLink Locking Screws were inserted into the anterior screw holes under fluoroscopy.

A small stab incision was made to access the plate's posterior screw holes, followed by the insertion of locking screws.

Final intraoperative fluoroscopy revealed fracture reduction and appropriate hardware placement (**Figures 5 & 6**).

The incision site was flushed, and layered closure was executed.

Bilateral below-knee Jones compression dressings with posterior splints were applied.

POSTOPERATIVE COURSE

The patient will remain non-weight-bearing with wheelchair utilization for eight weeks due to bilateral fractures, followed by a slow transition to protected weight-bearing in CAM walkers with physical therapy assistance.

At twelve weeks, upon complete fracture consolidation, the patient may return to regular activities with no restrictions.

DISCUSSION

The In2Bones CoLink Cfx Calcaneal Fixation System comprises four plate families to address traumatic fractures and osteotomies of the calcaneus. The Perimeter and MIS Plate families are side specific, with the MIS Plates coming in standard and extended varieties to accommodate variations in patient anatomy and fracture patterns.

The CoLink Cfx plates allow for strong and robust fixation while remaining malleable, minimizing wound healing problems and long-term irritation.

I have also found the design and footprints of the plates to work very well in different scenarios and approaches, ranging from more simple fracture pattern fixation to severe depressed and comminuted fracture patterns.

Figure 5. Final intra-op right lateral X-ray

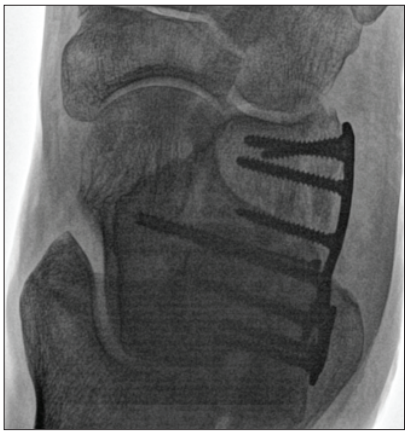

Figure 6. Final intra-op right AP X-ray