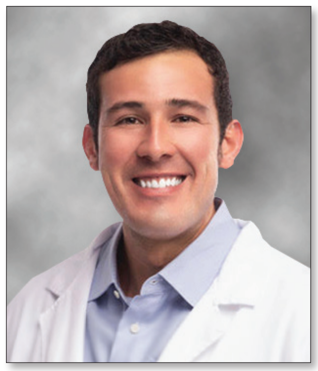
CASE STUDY

Tibial Plafond Fracture Repair with CoLink® Afx



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In2Bones
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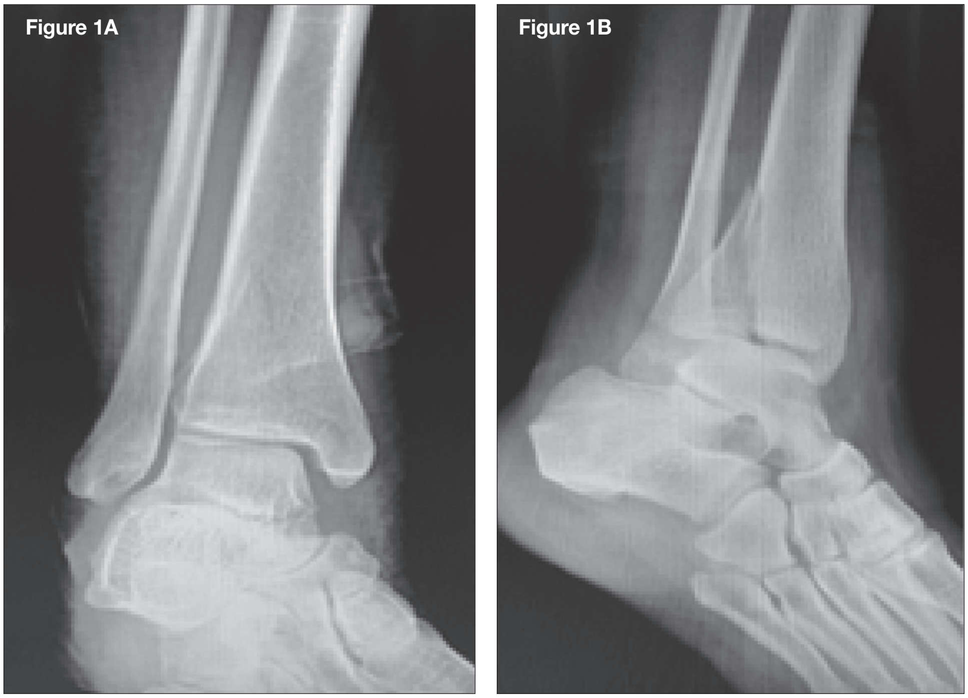

Figure 1. Initial non-weight-bearing X-rays. (**A**) AP. (**B**) Lateral.

PRESENTATION

A 35-year-old female sustained a displaced tibial plafond fracture after a workplace incident during unprecedented inclement weather in Texas in February 2021. She was seen in the emergency room and was subsequently referred to Dallas Orthopedic & Shoulder Institute. She was pre-hypertensive with a body mass index of >30 kg/m2; there were no other comorbidities or previous medical history.

EXAMINATION

Physical examination revealed swelling to the right ankle with ecchymosis along the plantar-lateral glabrous junction of the heel. Palpation of the posterior tibia elicited tenderness.

Concurrent injury to the lateral or medial malleolus, talar processes, calcaneus, navicular, Lisfranc tarsometatarsal complex, and 5th metatarsal was excluded.

Her neurovascular status was intact and no subepidermal fracture blisters were observed.

Conventional non-weight-bearing radiographs obtained from the hospital revealed a displaced tibial plafond fracture with possible involvement of the distal tibiofibular syndesmosis or deltoid ligament (**Figure 1A-B**).

An edema reduction protocol was initiated and the patient was instructed to remain non-weight-bearing. Preoperative CT imaging was obtained to assess the tibial plafond fracture morphology and determine the proper course for fracture reduction (**Figure 2A-B)**.

SURGICAL TECHNIQUE

The patient was placed in the prone position.

A posterolateral incisional approach midway between the posterior border of the fibula and lateral border of the Achilles tendon was used to expose the tibial plafond. The sural nerve and lesser saphenous vein were identified and retracted. A deeper dissection was continued.

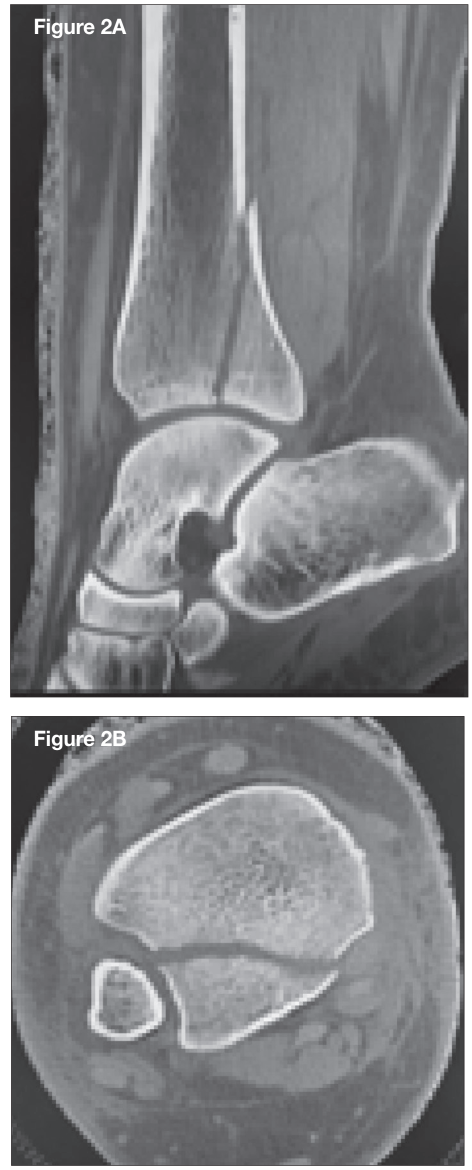

Figure 2. Preoperative CT scan. (**A**) Lateral. (**B**) Dorsal.

The posterior ankle capsule was incised. The ankle joint was flushed with saline to evacuate post-traumatic hematoma and pro-inflammatory cytokines.

The plafond fracture was elevated to remove residual debris and reduction was performed manually using a clamp. Provisional K-wires were placed and reduction assessment was completed using orthogonal images from a C-arm fluoroscopy unit.

CoLag™ Screws

After reduction confirmation, a single axial 4.0mm CoLag® screw was inserted. Following the complete seating of the CoLag screw, a 5-Hole CoLink® Afx Posterior Lateral Plate was placed and provisionally fixed in place (**Figure 3**). The plate features a low-profile, highly contoured, anatomic geometry.

Figure 3. Application of 5-Hole CoLink Afx Posterior Lateral Plate after inserting an axial 4.0mm lag screw.

The design of the CoLink Afx Posterior Plate obviates the need for additional intraoperative contouring and helps mitigate irritation to the flexor hallucis longus tendon while preserving extrinsic muscle function at the first MTPJ.

The plate was secured using a combination of locking and non-locking CoLink screws. Fluoroscopic stress examination assessed the syndesmosis, anterior talofibular ligament, calcaneofibular ligament, and deltoid ligament with satisfactory results noted.

The posterolateral incision was then closed in layers using 2-0 undyed absorbable suture and staples.
Ankle arthroscopy was performed to inspect cartilage, evacuate any remaining hematoma and pro-inflammatory cytokines, and assess the syndesmosis and deltoid ligaments.

A 4.0mm probe did not fit proximally into the tibial incisura and the posterior tibial tendon was not visualized arthroscopically. No medial laxity was observed, confirming the integrity of both structures.

POSTOPERATIVE COURSE

Toe touch weight-bearing was permitted immediately.

At two weeks, skin staples were removed, radiographs were obtained, and a CAM walker boot was applied for protected weight-bearing and active range of motion exercises. No pain medication refills were required, and postoperative prophylactic antibiotics were not prescribed.

At six weeks, the patient was transitioned into a lace-up ankle brace with supportive shoe-wear; a referral for formal physical therapy was declined.

The postoperative course was uncomplicated and during the latest follow-up, the patient reported no residual pain, functional disability, or subjective complaints.

CoLink® Afx Posterior Plate

DISCUSSION

In this case, the CoLink Afx Posterior Lateral Plate and CoLag Screw were utilized to reduce a tibial plafond fracture which resulted in full resolution of pain and a return to function for the patient (**Figure 4A-B**).

Figure 4. 12-week postoperative radiographs. (**A**) AP. (**B**) Lateral.

The CoLink Afx Ankle Fracture Plating System features an array of plate geometries designed to address specific traumatic fractures and osteotomies of the ankle. Each plate in the CoLink Afx system incorporates a low-profile anatomic geometry that is intrinsic to the CoLink family of plates.

When combined with the appropriate combination of locking, non-locking, and variable angle locking screws, the CoLink Afx system provides a comprehensive platform for ankle fracture and osteotomy reduction.

CoLag Compression Screws feature a headed design while incorporating differential pitches between the distal and proximal threads. This provides compressive stability across the fusion site. When fully engaged, the head creates a lag effect to reinforce the compression created by the threads.

CoLink® Afx

ANKLE FRACTURE PLATING SYSTEM

- Ultra Low Profile
- Anatomic Design
- Type II Anodized
- Plates & Screws, OR Ready, Delivered Sterile

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