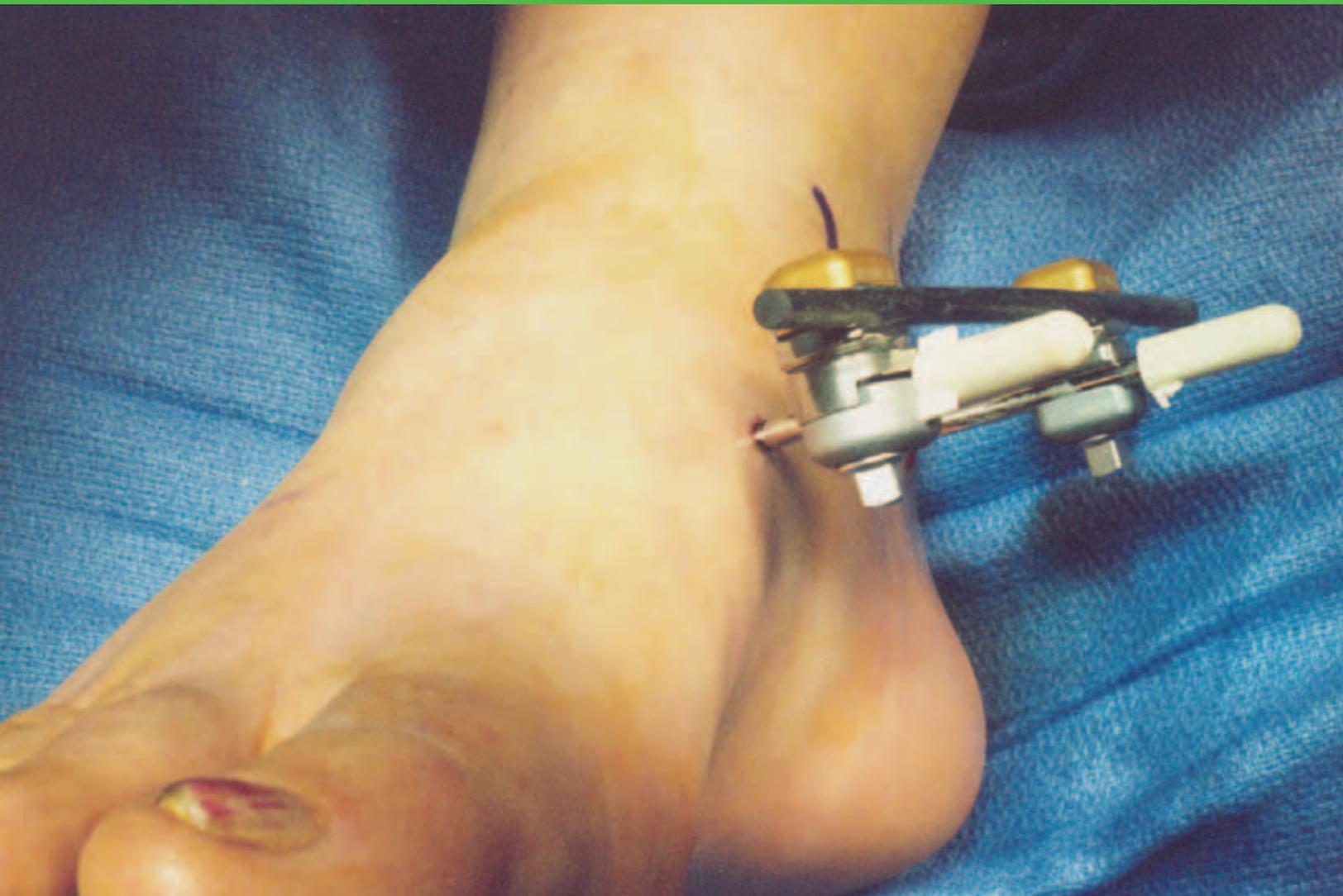


**The information contained in this document  
is intended for healthcare professionals only.**

# Case Study #18

## **Hoffmann® II Compact™**

Medial Subtalar Joint Dislocation



# Case Study #18

## Hoffmann® II Compact™

**Equipment:**

**Hoffmann® II Compact™**

**Application:**

Helped surgeon achieve and maintain reduction

**Patient Statistics:**

Middle-aged woman with medial subtalar joint dislocation



From: **Jay Lieberman, DPM, FACFAS**

Director of Residency Training  
Northwest Medical Center



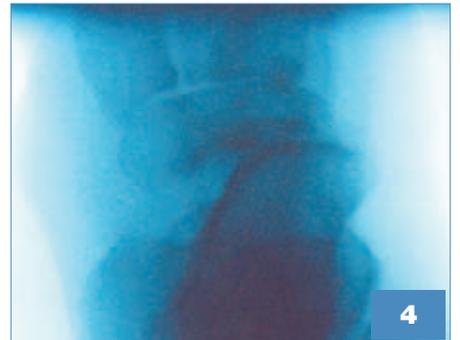
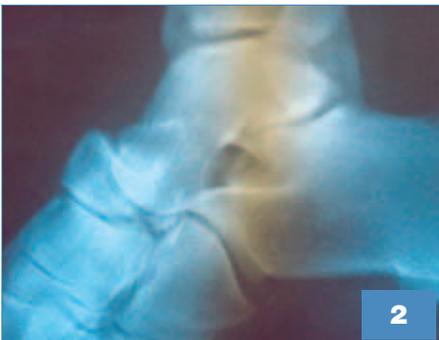
**Background Information:**

A middle-aged female was seen in our emergency room with pain and swelling in her right foot, two hours after falling from her bicycle while riding at a high speed. The patient was thrown forward causing her foot to fold under the weight of her body. She described the mechanism of injury as though the pulp of her hallux was reaching toward the heel of her foot. When compared to the contralateral side, the injured foot appeared to take on a new contour (**Figure 1**).

A bit of a dorsal prominence was seen along the dorsal lateral aspect of the foot. The first ray was in equinus and the medial column appeared shortened.

The patient's neurovascular status was intact. Movement was limited, and pain was a 10/10. X-rays demonstrated a plantar lateral dislocation of the talar head. (**Figures 2, 3, 4**)

**Pre-operative X rays**



## CT Scans

CT scan confirmed the dislocation, (Figure 6) and also revealed an impaction of the fractured navicular bone upon the dorsal aspect of the anterior talar process. Comminution was seen as well, (Figure 7).

The calcaneus, and navicular, along with the rest of the foot was medially displaced with respect to the leg.

Reduction of dislocations of this type should proceed as quickly as possible to relieve pressure on vital structures.<sup>1</sup> The incidence of a subtalar joint dislocation is estimated to be approximately 1% of all dislocations.<sup>2</sup> The medial dislocation represents 84% of subtalar joint dislocations. 68% of patients are found to have associated osteocartilagenous joint damage, and injuries to adjacent tendons, arteries or nerves are commonly seen.<sup>3</sup> On occasion, a tendon can become entrapped within the affected joint, causing loss of function and potentially preventing closed reduction of the dislocation.

As in most dislocations, reduction maneuvers involve an exaggeration of the original injury followed by reversal of the process.

### Closed Reduction

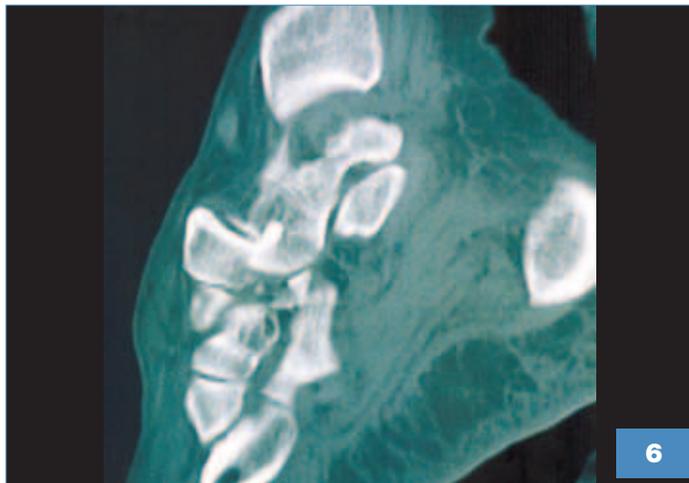
The thigh was suspended from a padded knee holder and the knee was flexed 90° to relax the gastrocnemius.

We applied Mastisol to the foot so that it might be grasped firmly. The surgeon grasped the heel with one hand and the forefoot with the other hand. The foot was first strongly plantar flexed, then everted and abducted to reduce the dislocation.

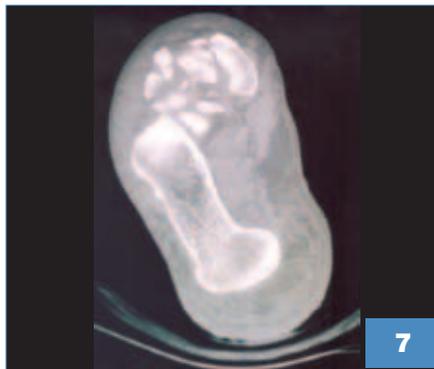
(Figures 8, 9, 10)<sup>4</sup>



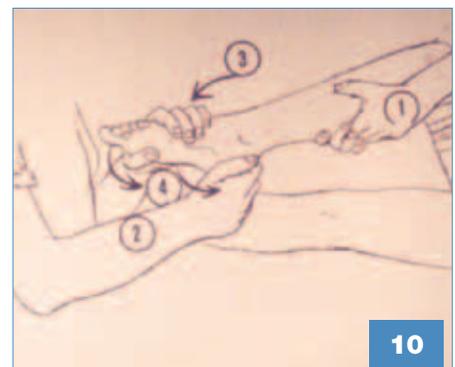
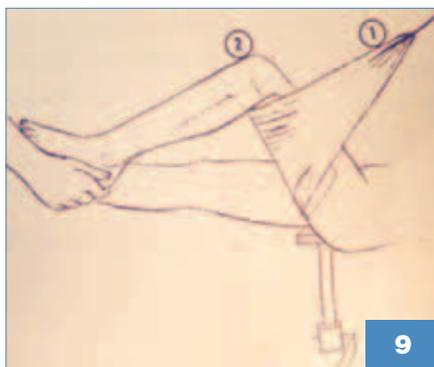
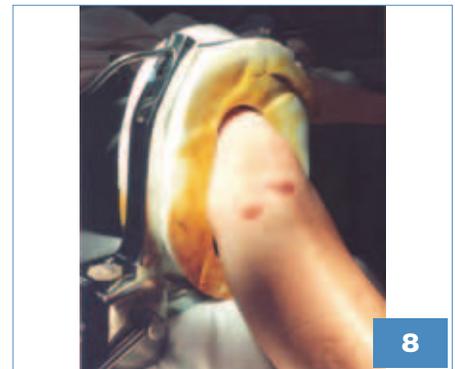
Unaffected Limb



Affected Limb



Comminution



Our initial attempts to manipulatively reduce the dislocation were futile. With the use of guided fluoroscopy, a Steinman pin was driven into the central superior aspect of the calcaneus from lateral to medial with care taken to avoid the neurovascular structures. The pin was held for counterforce. The forefoot was grasped and the deforming forces from the injury were reproduced primarily with supination at the forefoot. Distraction was applied at this site for several seconds and then a reversal of the mechanism was performed by pronation of the forefoot. (Figure 11)



Once reduced, the position was maintained with the Stryker Hoffmann® II Compact™ system. (Figures 12, 13)

The patient was restricted to non-weight bearing and instructed to use a splint.

Because of the osteocartilagenous injury, this patient may ultimately require a fusion of the talonavicular joint.



**References:**

- 1) Textbook of Foot and Ankle Surgery, Vol 2, Third Edition. Lippincott, Williams, Wilkins, 2001. Chapter 53 - Dislocations pp 1726-1728, Smith T.F., Aguilar R.G., Kurichh S.
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- 3) Ruiz Valdivieso T., de Miguel Bielba J.A., Hernandez Garcia C., et al. Subtalar dislocation. A study of nineteen cases. Int Orthop 1996; 20:83
- 4) DePalma's The Management of Fractures and Dislocations—An Atlas. Edited by John F. Connolly, MD., FACS. WB Saunders Company, 1981. The pictures were copied from page 1981. This book may be out of print.

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