stryker

Foot & Ankle

Case study: Use of Hofmann II Compact External fixator, VariAx 2 Cuboid plate and Anchorage Lisfranc plate in foot trauma surgery

A review by Adam Schiff, MD

Patient history:

This patient is a 29 year-old gentleman who was involved in a motor vehicle collision when the truck he was driving rolled into a ditch. He was treated in the emergency department for left foot pain and placed in a splint. He was referred to our office for further evaluation and treatment.

Assessment:

Evaluation in the office demonstrated a hemorrhagic fracture blister on the dorsum of his foot. He had tenderness on the lateral aspect of his foot, over his cuboid. His radiographs demonstrated a comminuted cuboid fracture. (See figure 1)

A CT scan was obtained which allowed for better visualization of his cuboid fracture and demonstrated subluxation of the second and third tarso-metatarsal joints. (See figure 2a, 2b)

With the comminution of the cuboid, there was concern of lateral column shortening. This was a fracture that was best treated surgically. The soft tissue swellling and dorsal fracture blister did not permit immediate open reduction.

Procedure/treatment:

We elected to place a laterally based external fixator (Hoffman II Compact external fixator), with pins in the calcaneus and fifth metatarsal to restore the lateral column length. (See figure 3)

Three weeks after his injury, his soft tissue condition improved enough to perform a formal open reduction and internal fixation of both his cuboid and 2nd and 3rd tarso-metatarsal joints. The cuboid was fixed with the VariAx 2 Cuboid plate. The lisfranc injury was fixed with an Anchorage Lisfranc "U" plate.

During the surgery, the lateral external fixator was used to provide distraction to better visualize the articular surface of the cuboid.

Figure 1

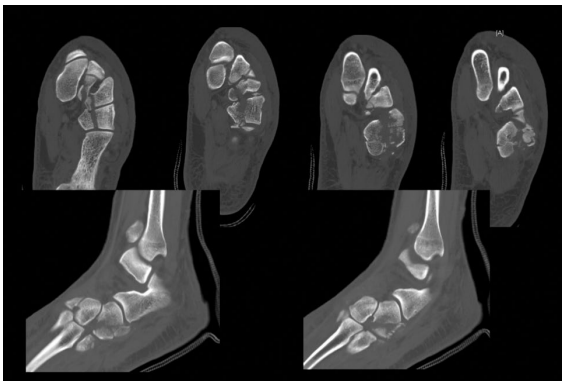

Figure 2a

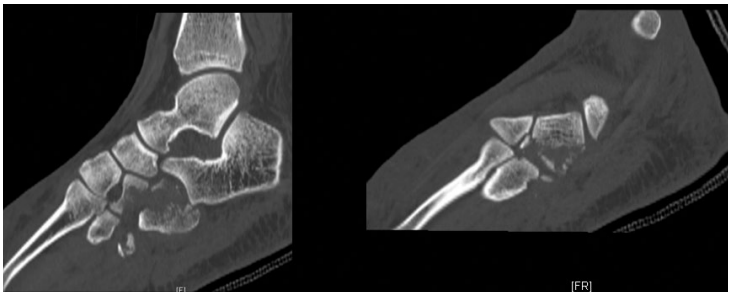

Figure 2b

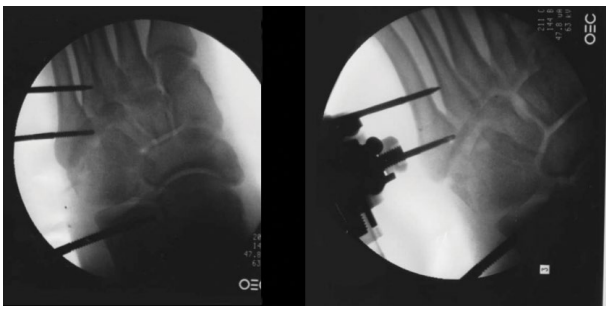

Figure 3

Figure 4

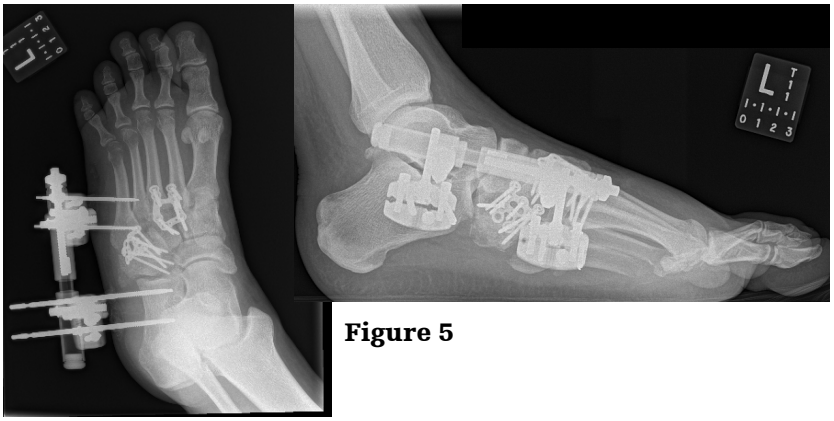

Figure 5

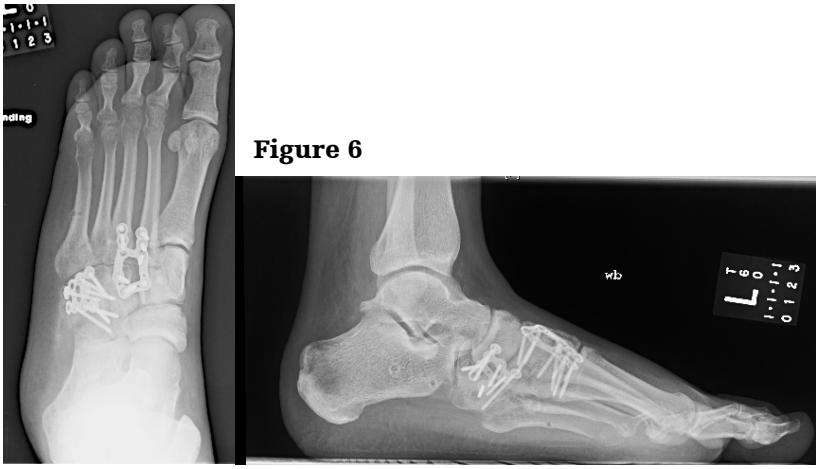

Figure 6

The external fixator was left in place for two months after the definitive surgery to help support the lateral column length and minimize the risk of collapse of the cuboid. (See figure 4)

Discussion and conclusion:

Comminuted cuboid fractures, known as the "nutcracker cuboid," are high energy and rare injuries. These are commonly associated with lisfranc injuries, which need to be carefully examined. It is important to delay definitive treatment until the soft tissues have adequately healed. Performing surgery in a staged fashion, using a lateral external fixator to maintain the length of the lateral column may be effective to allow additional time for the soft tissue condition to improve. The added benefit of the external fixator is that it can be used at the time of surgery to provide additional distraction to better visualize the articular surface of the cuboid to allow anatomic fixation. (See figure 5)

This patient has demonstrated healing of both his lisfranc injury and cuboid fracture. (See figure 6)

VAX-CS-11_Rev-1, 09-2020