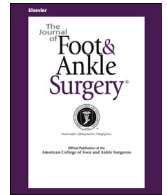


Contents lists available at [ScienceDirect](#)

The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

Case Reports and Series

Unstable Open Posterior Subtalar Dislocation Treated With a Ring External Fixator: A Case Report and Review of the Literature

Alex Quok An Teo, MBBChir (Cantab), MRCS (Eng)¹, Fucai Han, MBBS, MRCS (Ed)²,
 Yu Han Chee, MBChB, FRCS (Tr&Orth)³, Gavin Kane O'Neill, MBChB, FRCS (Tr&Orth)³

¹ Resident, University Orthopaedics, Hand and Reconstructive Microsurgery Cluster, National University Health System, Singapore

² Senior Resident, University Orthopaedics, Hand and Reconstructive Microsurgery Cluster, National University Health System, Singapore

³ Consultant, University Orthopaedics, Hand and Reconstructive Microsurgery Cluster, National University Health System, Singapore

ARTICLE INFO

Level of Clinical Evidence: 4

Keywords:
 ankle
 external fixation
 foot dislocation
 open fracture
 trauma

ABSTRACT

Traumatic dislocation of the subtalar joint is an infrequently occurring injury, with open true posterior dislocation an even rarer injury. We describe our treatment of a young motorcyclist who was brought into hospital after a road traffic accident, having sustained an open posterior subtalar dislocation. After initial reduction and resuscitation in the emergency department, he was taken to the operating theater for emergent wound debridement and external fixation of his ankle using a unilateral external fixator device. After 2 subsequent repeat debridements, this was changed to a ring external fixator device, followed by split-thickness skin grafting of his wound. He was allowed full weightbearing and was discharged from hospital 10 days after his last operation. He continued to improve clinically at his outpatient appointments to the 1-year follow-up point, with his external fixator removed at 6 weeks postoperatively. At the last follow-up appointment, he had successfully returned to his previous employment. To the best of our knowledge, only 1 other description of an open posterior dislocation has been reported, which was managed nonoperatively after wound debridement. Ours is the first reported case of an open posterior dislocation managed surgically using a ring external fixator. We believe the ability to allow immediate weightbearing resulting from the additional stability provided by this type of fixation is advantageous, with a theoretical reduction in the risk of periarticular osteoporosis and calf muscle atrophy. The early mobilization afforded by this treatment is hoped to improve the typically poor long-term outcomes for these patients.

© 2017 by the American College of Foot and Ankle Surgeons. All rights reserved.

Subtalar dislocations are rare injuries, typically occurring after high-energy trauma. They are generally subclassified according to the direction of dislocation, with medial dislocations the most common by far (71.5% to 85%) and lateral dislocations accounting for most of the remainder (1–5). Despite the high-energy etiology of these injuries, only 10% to 40% will be open (3,6,7). Anterior and posterior dislocations have been described but are rare entities, accounting for only 0.8% and 1.6%, respectively, in a review of 492 cases of subtalar dislocations from 1988 to 2012 (3).

The complex and infrequent nature of this injury makes treatment challenging. The current standard of treatment includes closed reduction and external immobilization of the ankle joint for ≤ 6 weeks, with open reduction performed if closed reduction cannot be

achieved. With open fractures, operative wound debridement and exploration is typically followed by external fixation with soft tissue procedures performed as required to achieve wound closure. We present a case of a Gustilo IIIa open posterior subtalar dislocation in a 38-year-old male who was injured in a road traffic accident and treated with a ring external fixator. The patient provided written informed consent for publication, and institutional review board approval was not required for this case report.

Case Report

A 38-year-old male motorcyclist was brought into hospital via ambulance after having been hit by a car from his right side. He had no medical history, took no regular medication, and had no allergies. He was hemodynamically stable throughout his transfer to hospital and his treatment in hospital. In the emergency department, the findings from the primary survey were unremarkable, and his main complaint was of right-sided thigh and foot pain. A secondary survey revealed a 6 × 3-cm wound over the anterolateral aspect of his right ankle (Fig. 1) extending down to a visibly dislocated subtalar (talocalcaneal and

Financial Disclosure: None reported.

Conflict of Interest: None reported.

Address correspondence to: Alex Quok An Teo, MBBChir (Cantab), MRCS (Eng), University Orthopaedics, Hand and Reconstructive Microsurgery Cluster, National University Health System, 1E Kent Ridge Road, Singapore 119228.

E-mail address: alex_teo@nuhs.edu.sg (A.Q.A. Teo).



Fig. 1. Preoperative photographs of the open wound over the anterolateral aspect of the patient's right ankle.

talonavicular) joint (Fig. 2), a 2 × 2-cm full-thickness defect wound over his posterolateral right heel, and a 3 × 4-cm right thigh wound extending deep to the fascia. No underlying femur fracture was present. Apart from some minor right upper limb abrasions, no other injuries were found.

Closed reduction of the subtalar joint was performed under sedation in the emergency department (Fig. 3). The subtalar joint was extremely unstable and was temporarily immobilized in a back slab cast. A computed tomography scan of his right foot and ankle was obtained that same day to fully assess the extent of his injuries. The scan revealed mildly displaced fractures of his posterolateral calcaneal tuberosity and navicular (Fig. 4). The patient received intramuscular anti-tetanus immunoglobulin and a third-generation cephalosporin in the emergency department.

Debridement of his wounds with external fixation of his right ankle was performed in the operating theater with the patient under general anesthesia later that same day. The patient was positioned supine with no tourniquet used. The markedly unstable subtalar joint was dislocated to allow copious irrigation. Intraoperatively, his peroneus tertius, extensor digitorum longus, and part of his Achilles tendon were exposed but were otherwise in continuity. All his neurovascular structures remained intact. No intraarticular soft tissue or tendon interposition was present, and no osteochondral flakes were



Fig. 2. Preoperative anteroposterior and lateral radiographs showing posterior subtalar dislocation with no medial or lateral displacement.



Fig. 3. Preoperative anteroposterior and lateral radiographs after reduction.

seen. Because the subtalar joint was extremely unstable, an ankle-spanning AO ASIF (Arbeitsgemeinschaft Osteosynthesefragen Association for the Study of Internal Fixation) tube external fixator (AO Foundation, Davos, Switzerland) was applied with two 6-mm pins in his distal tibia and one 6-mm transcalcaneal pin and one 5-mm pin at the base of his first metatarsal bone. A vacuum-assisted closure dressing was applied to both his ankle and heel wounds after debridement. Postoperatively, he was kept non-weightbearing with a plan for additional debridements before wound closure.

After 2 subsequent debridements at 3-day intervals with no further skin loss noted, a definitive 3-level ankle-spanning ring external fixator (Orthofix, Lewisville, TX; Figs. 5 and 6) was applied on day 10 of his admission, followed by split-thickness skin grafting of his ankle and heel wounds 3 days later; the graft was taken from his ipsilateral posterolateral calf. Subsequently, inpatient rehabilitation was started. He was discharged from hospital 10 days after his last surgery. At the point of discharge, his skin graft had taken well and he was allowed full weightbearing, as tolerated. His overall hospital length of stay was 24 days from September to October 2015. He was followed up in the outpatient clinic at 2 and 6 weeks postoperatively. His external fixator was removed approximately 2 months after his injury with good subsequent healing of all pin sites and wounds. Radiographs of his ankle joint showed normal alignment of the talonavicular and talocalcaneal joints without signs of avascular osteonecrosis.

He continued to improve clinically in terms of pain, mobility, and ankle range of motion at each subsequent follow-up visit (Table). His American Orthopaedic Foot and Ankle Society Ankle-Hindfoot scale

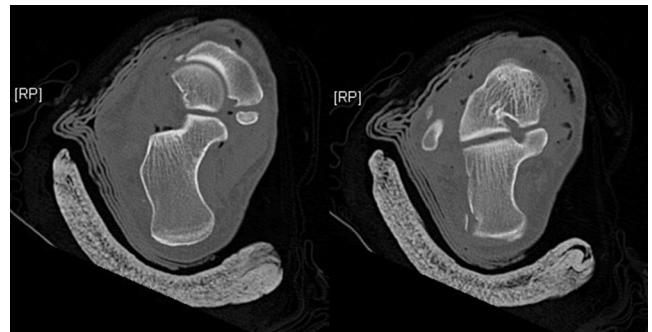


Fig. 4. Preoperative computed tomography scans showing minimally displaced calcaneal and navicular fractures.

Download English Version:

<https://daneshyari.com/en/article/8603553>

Download Persian Version:

<https://daneshyari.com/article/8603553>

[Daneshyari.com](https://daneshyari.com)