

SUBTLAR JOINT DISLOCATION: CASE PRESENTATION

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The incidence of subtalar joint dislocation is estimated to be approximately 1% of all dislocations. Subtalar joint dislocations can be categorized according to the direction the foot takes in relation to the talus after the injury. The first case involving subtalar joint dislocation was reported in the literature in 1811. The description of subtalar joint dislocation has varied in the literature. Talocalcaneonavicular joint dislocation is probably the most anatomic descriptive term; however other terms include *Luxatio pedis subtalo*, *subastragalar dislocation*, and *peritalar dislocation*.

The purpose of this presentation is to review the classification of subtalar joint dislocations with emphasis on the medial subtalar dislocation as the most common type. The case presentation demonstrates the importance of careful and detailed history and physical, appropriate diagnosis, early reduction and stabilization, and postoperative rehabilitation.

GENERAL PRINCIPLES

The history and physical is important in the evaluation and treatment of traumatic injuries especially dislocations of the foot. An understanding of the anatomic considerations and the mechanism of injury are essential in reducing the recovery time and decreasing morbidity and impairment from these potentially severe injuries. Tremendous forces during dislocation injuries may affect not only neurovascular structures but also the tendons in the involved areas of injury. It is important to evaluate the neurovascular status of the foot to ensure viability of the tissues to promote healing. An open joint dislocation as presented in this case requires immediate attention and alters the treatment plan post injury.

CLASSIFICATION

The most common type of subtalar dislocation is the medial subtalar dislocation due to the greater degree of instability of the subtalar joint to inversion forces at the time of injury. More common names for this injury include the "basketball foot" and "acquired

clubfoot" injury, due to the appearance of the foot at the time of injury. The mechanism of injury for medial subtalar dislocations is a forceful inversion of the foot. In medial subtalar dislocation, the calcaneus is medial to the talus.

In a lateral subtalar dislocation, the foot is displaced lateral to the leg. The lateral aspect of the foot appears shortened and the medial aspect appears lengthened. The talar head is prominent medially with the lateral malleolus obscured laterally. In a lateral subtalar dislocation the foot and calcaneus are lateral to the talus.

Posterior subtalar dislocations are extremely rare accounting for approximately 1% of subtalar joint dislocations. Clinically in these injuries the longitudinal axis of the foot appears normal. The forefoot appears shortened, with the heel protruding posterior. These plantarflexory injuries are usually the result from a fall from a high height. In posterior subtalar dislocations the foot is posterior to the talus.

Anterior subtalar dislocations are also very rare injuries resulting from a fall from a high height with axial loading onto a dorsiflexed foot. Clinically the foot appears lengthened longitudinally with a flattened heel. In anterior subtalar dislocation the foot is anterior to the talus.

CASE PRESENTATION

A 39-year old Hispanic male was brought to the emergency room with an open dislocation of the left subtalar joint and multiple abrasions and lacerations to the chin, as well as pelvic pain. The patient had a 300 pound cable spool roll over on top of his left ankle pinning him to the ground. The patient's general health was good and there were no contraindications to surgery. Following debridement and irrigation with primary closure of the left wound over the subtalar joint, the patient was admitted to the hospital for observation of multiple injuries. Radiographs of the pelvis were taken that demonstrated a pubic diastasis. A computed tomography scan was also taken revealing the same and the patient was later taken to the operating room for

open reduction internal fixation of the pelvis by an orthopedic surgeon. A whole body scan revealed a mandibular fracture and multiple orbital fractures, later confirmed by radiographs to be in satisfactory alignment. The patient was placed on Lovenox as well as TED intermittent compression pressure for deep vein thrombosis prophylaxis. Cast change was performed on the third postoperative day, and no signs of infection were noted. The closed suction drain was removed, and a new cast was applied. The patient was referred to rehabilitation for follow up of the multiple injuries. The patient was followed in the office and was ambulating without assistance or pain except for mild joint stiffness and occasional pelvic pain at 8 weeks postoperative.

TREATMENT

Successful reduction of subtalar dislocations requires an understanding of the mechanism of the injury. Usually the procedure is performed under general, spinal anesthesia, or IV sedation with use of muscle

relaxants to avoid muscle spasms and splitting. The reduction is started by first exaggerating the deformity and then reversing the forces that produced the dislocation. Open reduction may be indicated in more resistant cases to release the talar head, which may be entrapped in soft tissue or osseous structures. As devastating as these injuries appear, the long-term disabilities and complications have not usually been reported to be severe. Long-term complications reported include ankle instability, avascular necrosis of the talus, arthritis, postural deformities, and pain. The recommended postoperative treatment includes 2-3 weeks of non-weightbearing immobilization followed by an additional 4 weeks of partial weightbearing in a cast. Physical therapy with range of motion exercises and gait training is encouraged for 3 months to avoid persistent joint stiffness, which is a common postoperative complaint.

SURGICAL TECHNIQUE



Figure 1A. Clinical appearance of open medial subtalar dislocation. Note the medial direction of the foot in relationship to the talus at the time of injury.



Figure 1B. Clinical appearance of initial injury.



Figure 2A. Radiograph of the foot at time of injury.



Figure 2B. Initial radiograph.

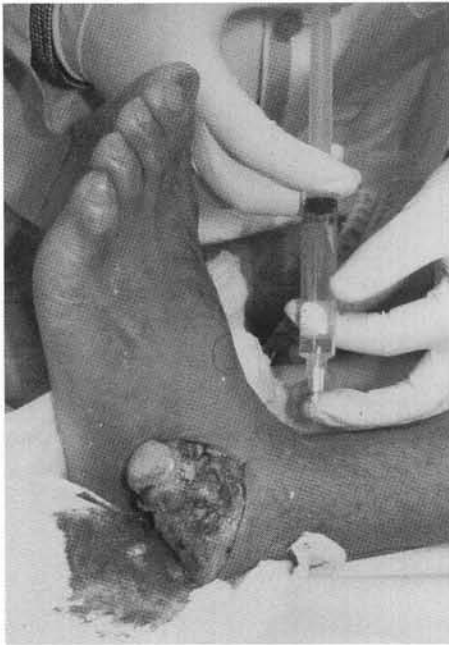


Figure 3. Ankle nerve block under IV sedation prior to reduction.



Figure 4. Closed reduction prior to surgical debridement and wound closure in OR



Figure 5A. Post reduction radiographs showing excellent alignment without evidence of fracture.



Figure 5B. Post reduction radiograph.



Figure 6. Post reduction preoperative view of open subtalar joint dislocation



Figure 7. Surgical debridement of wound prior to closure.



Figure 8. Irrigation of wound

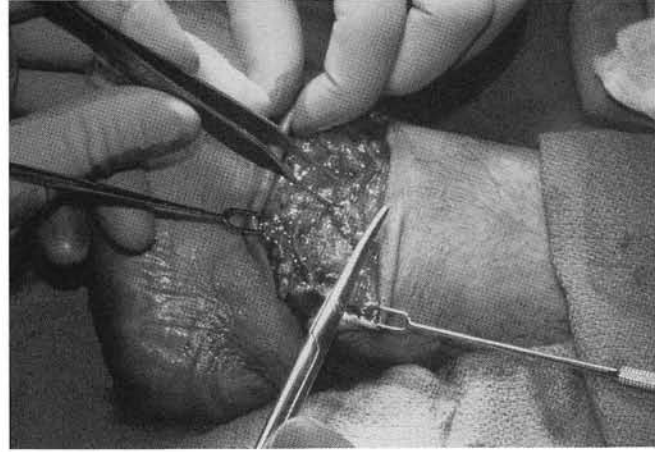


Figure 9. Final wound closure with use of closed suction drain.

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