

CLOSED MEDIAL TOTAL SUBTALAR JOINT DISLOCATION: A CASE REPORT

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ABSTRACT

A subtalar dislocation is a total loss of contact between the talocalcaneal and talonavicular joints, in which the calcaneus and navicular bones are displaced, while the talus retains its normal position within the ankle mortise. They are considered rare orthopedic injuries, affecting roughly 1% of all traumatic foot injuries. They are classified into four types: medial, lateral, anterior and posterior. Medial dislocation is the most frequent type, typically caused by inversion injury, they can be associated with other fractures. Clinical examination, the medial type, there is usually a 'clubfoot' appearance with the hindfoot in varus, and the forefoot adducted and supinated, and the talar head may be palpable laterally. Treatment typically involves immediate closed reduction under anesthesia, postreduction CT scan to provide secondary assessment for associated injuries, and cast immobilization for 4 weeks. We report the case of a 43-year-old man who presented with a closed medial subtalar dislocation treated orthopedically with a good functional result.

KEYWORDS: Subtalar Dislocation, Closed, reduction, immobilization.

INTRODUCTION

A subtalar dislocation is considered rare orthopedic injury, occurring in only about 1-2% of all dislocation cases and affecting roughly 1% of all traumatic foot injuries. It is characterized by a simultaneous dislocation of the talocalcaneal and talonavicular joint. They are classified into four types based on the direction in which the foot moves relative to the talus: medial, lateral, anterior and posterior. Approximately 55% of medial and 72% of lateral dislocations are associated with fractures. Medial dislocations, which result from a variety of contexts and are considered an inversion/ rotation injury, are the most common type, accounting for up to 80% of presentations.^[1]

The diagnosis and management of subtalar dislocations begins with a clinical assessment followed by radiographic evaluation to confirm the diagnosis and look for associated fractures of the foot or ankle.^[2]

Immediate anatomic reduction and stabilization of the subtalar joint and optimal management of any associated foot lesions are the key to good results but do not necessarily prevent osteoarthritis. However, open reduction is necessary when subtalar dislocation is irreducible by closed means.^[3]

The present case shows a medial subtalar dislocation occurred as a result of a low-energy mechanism, which also demonstrates that such injuries can be treated conservatively.

CASE PRESENTATION

This is a 43-year-old-male admitted to the emergency department with right ankle injury. He is complained of severe pain with total functional disability and he described that his left foot plantar was flexed and inverted after a stumble. He was not a smoker and his past medical history was unremarkable.

Clinical examination revealed a grossly deformed right ankle joint without any skin lesion (figure 1), an intense pain on palpation and at the slightest mobilization, the dorsal pedis and the posterior tibial pulses were present, capillary refill time was normal and there was no neurological deficit in the foot.

Radiographs of anteroposterior and lateral left foot showed that the talocalcaneal joint and talonavicular joint were dislocated, the calcaneus dislocated medially (figure 2). A CT-scan of the ankle revealed detached fragments opposite the medial aspect of the talus (figure 3). Thus, the final diagnosis was medial subtalar joint dislocation.

Reduction was achieved easily under general anaesthesia, using the following maneuvers: traction, eversion, plantar midfoot flexion and finally dorsiflexion; a good stability was found after that. Control radiograph showed good joint congruence (figure 4), a short leg cast was applied (figure 5). Post-reduction CT scan (figure 6) was performed to determine whether there were occult fractures.

After four weeks, the cast was removed, active assisted range of motion exercises for the ankle and foot were initiated. By week six, the patient began partial weight-bearing, progressing gradually to full weight-bearing as tolerated. Three months post-injury, the patient regained normal passive and active range of motion, returning to full activity without pain, swelling, or instability.

FIGURES



Fig. 1: Clinical aspect of the foot trauma.



Fig. 2: Radiographs of the right ankle demonstrated a medial subtalar dislocation with small fractures fragments.

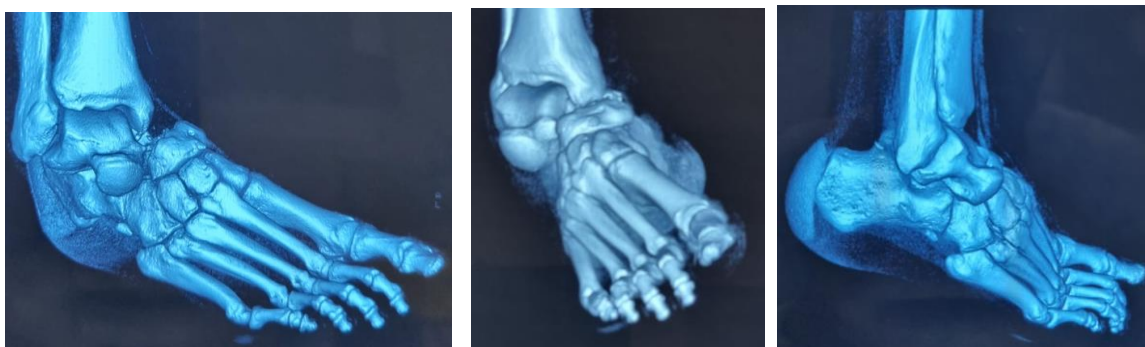


Fig. 3: Computed tomography reconstruction demonstrates medial subtalar dislocation with non-displaced small fracture fragments of the talar bone.



Fig. 4: Control x-rays of the ankle showing a satisfactory reduction of the dislocation.



Fig. 5: immobilization with short leg cast after reduction.

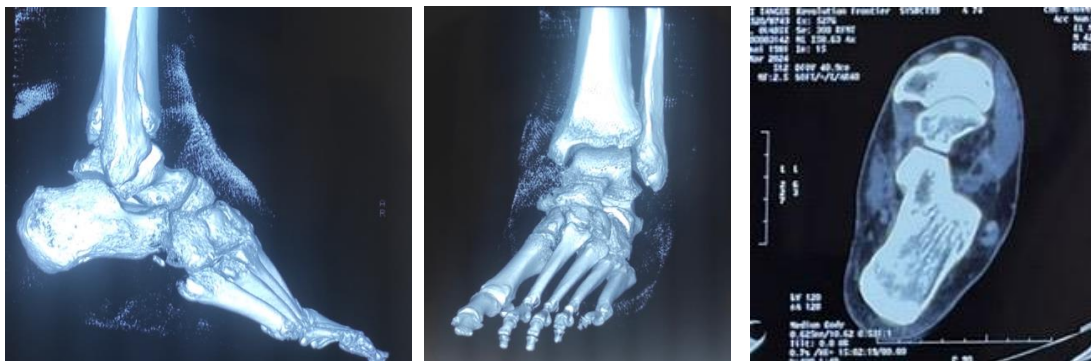


Fig. 6: CT scan with reconstruction demonstrates non-displaced small fracture fragments of the talar bone with congruent ankle and subtalar joints.

DISCUSSION

Subtalar dislocations are extremely uncommon, with only a few tens of cases reported in the literature over several decades. They constitute a special entity, defined by the frontal displacement of the calcaneo-pedious block around the talus, the body of which remains in place in the tibio-fibular mortise. The line of displacement therefore involves the talonavicular and subtalar joints, and respects the cuboid-calcaneal joint. The dislocation may be medial or lateral. The two forms differ in many points. Medial forms are the most frequent; on average, they are twice as common as lateral forms. Clinically, they present as a post-traumatic hollow foot with an overall pseudo-inversion of the foot. They

frequently occur following sustained but relatively low-energy trauma (sports or road accidents). As a result, they are usually pure and rarely open. Their long-term prognosis is generally good.^[4]

The X-ray examination must be carried out without delay. As always, it includes a frontal view of the ankle and two radiographs of the whole foot, in strict profile and dorsoplantar view. The dorsoplantar view is particularly important, as it is diagnostic in all cases, showing the constant vacuity of the talonavicular joint.^[4]

A CT scan should be performed for all subtalar dislocations, as associated lesions may be present in up

to 60% of cases. The first step is a closed reduction. A post-reduction CT scan is used to assess the congruency of the subtalar and talonavicular joints and to identify any associated lesions that may require surgical intervention. In the case of irreducible lesions, the CT scan may reveal an interposed osteochondral fragment or impaction of the navicular against the talar head.^[3]

In the absence of a skin opening, orthopedic reduction should always be attempted under general anaesthesia by performing the reverse displacement maneuver. This is usually easy. However, the dislocation may prove irreducible or the reduction incoercible. In such cases, we must not insist, consider the possibility of an interposition and immediately perform an open reduction. The approach must allow identification and removal of the interposition. Reduction is usually stable. However, there is no agreement on the type of immobilization (short or long leg cast) or duration.^[4] Norman recommends percutaneous pinning (mandatory in the case of instability on testing under general anaesthesia after reduction) in the form of a 16- or 18-diameter cuneo-naviculo-talar pin (stabilizing the medial arch) and a second sagittal talo-calcaneal pin inserted through the neck of the talus medial to the tibialis anterior tendon. These pins are buried and easy to locate, facilitating their removal. This stabilization allows simple immobilization with a short leg cast. The pins are removed in week 4, with immobilization using a short leg cast for a further 15 days.^[4]

There seems to be a general consensus that the longer the period of immobilization, the more likely patients are to develop some form of subtalar or ankle joint stiffness, highlighting the importance of early resumption of range of motion. The majority of authors have reported progressive weight-bearing and physiotherapy after six weeks, through to full weight-bearing after ten weeks.^[5]

Early complications specific to subtalar joint dislocations include soft tissue ischaemia, foot compartment syndrome, neurovascular involvement and infection in open lesions.^[1, 3] The subtalar joint is particularly prone to long-term osteoarthritis because, high-energy trauma resulting from compressive forces between the calcaneus and the talus can lead to cartilage damage. Intra-articular fractures involving the talocalcaneal joint have been reported to cause significant subtalar osteoarthritis.^[6]

Long-term complications can vary depending on the severity of the dislocation. The risk of avascular necrosis of the talus ranges from 0% in close isolated subtalar joint dislocation^[6] to as high as 50% in open dislocations.^[3] Additionally, patients should be informed about the potential for complex regional pain syndrome and ligamentous instability.^[1]

CONCLUSION

Subtalar dislocations can result from both minor and severe injuries. Up to 60% of these injuries involve

fractures as well. To prevent complications from missed fractures, a CT scan is recommended. Low-energy, isolated medial subtalar dislocations that can be repositioned without surgery have the best chance of recovery and have the best prognosis. The most common long-term complication is subtalar arthritis.

The case report follows scare guidelines.^[7]

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