wjpmr, 2022,8(3), 7 – 10.

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

SJIF Impact Factor: 5.922

Case Report

ISSN 2455-3301

WJPMR

ISOLATED TRAUMATIC MEDIAL SUBTALAR DISLOCATION (ABOUT A CASE)

***A. Laraichi, O. Krimech, A. Neqrachi, T. Ahuary, Y. Benbouzid, R. A. Bassir, M. Boufettal, M. Khermaz, M. O. Lamrani and A. M. S. Berrada**

Trauma and Orthopedics Department, Ibn Sina University Hospital, Rabat.

***Corresponding Author: A. Laraichi**
Trauma and Orthopedics Department, Ibn Sina University Hospital, Rabat.

Article Received on 06/01/2022 **Article Revised on 26/01/2022** **Article Accepted on 16/02/2022**

INTRODUCTION

Pure acute medial subtalar dislocation (STD) without associated injury is rare. It most often follows a high-energy equine varus trauma, a fall from a height, a road accident or a sports accident. More generally, STD can occur in any direction, conditioning associated injuries, the most frequent of which are skin suffering and the occurrence of fractures (malleolar, talus or fifth metatarsal).

We report the case of a young woman, victim of a pure medial post-traumatic STD managed in our center.

Interest

- STD is a rare pathology
- High risk of complications (skin damage, arthrosis, necrosis of the talus)

CLINICAL CASE

A 32-year-old female patient with no previous history was admitted to the emergency department of the Ibn Sina University Hospital in Rabat for a closed trauma of the left ankle and foot following a fall on the stairs.

The patient was admitted to the outpatient department (VAS 8). She was monitored and given painkillers to enable rapid management.

Clinical examination (difficult because of residual pain) found a varus equinus deformity of the foot (Figure 1), with no opening or signs of skin damage opposite the deformity. The pedal and posterior tibial pulses were present, the examination did not find any sensory-motor deficit, and palpation of the bony landmarks did not find signs suggestive of a fracture.

Figure 1: Equinovarus deformity of the foot suggesting subtalar dislocation.

A radiological complement (radiography of the ankle in front and in profile) was requested, showing a medial displacement of the calcaneo-pedal block in relation to the talus, without any visible osteoarticular lesion (Figure 2).

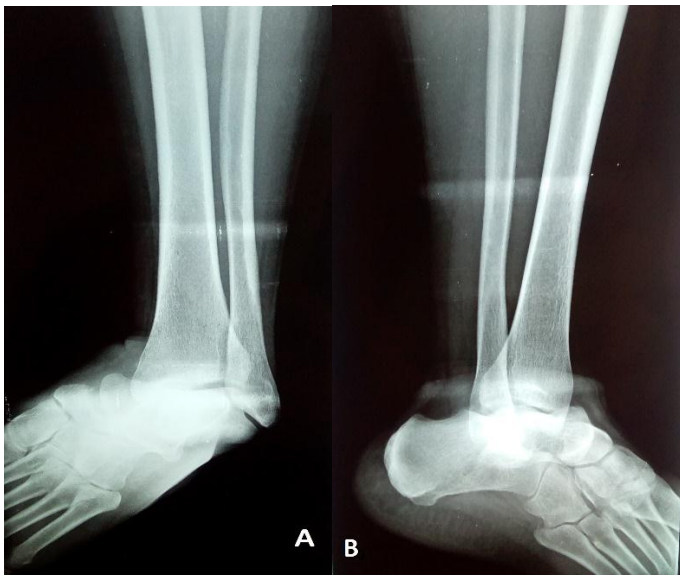

Figure 2: Radiograph of the ankle, front (A) and side (B), showing a pure subtalar dislocation.

On return to the discharge room, emergency orthopedic treatment was decided upon, with reduction of the dislocation using DIPRIVAN (propofol) by traction and reattachment of the calcaneopedic block under the talus, thus correcting the deformity and allowing rapid protection of the skin (Figure 3).

Figure 3: Image showing the appearance of the foot after reduction of the dislocation.

Ligament testing confirmed the stability of the subtalar joint, and the rest of the examination confirmed the absence of vasculonervous disorders. A posterior plaster cast and radiological control were performed after reduction (Figure 4).

Figure 4: Front (A) and side (B) radiograph of the ankle showing reduction of the subtalar dislocation.

A circular cast was made at the orthopedic consultation at 72 hours of the trauma (kept for 06 weeks without support) with verification of the skin condition and prescription of a control scan.

After the 6th week, the patient underwent functional rehabilitation.

The functional result was excellent after one year, the kaikkonen score was above 85 (which corresponds to an excellent result).

DISCUSSION

STD is a simultaneous dislocation of the talonavicular and talocalcaneal joints without fracture of the talus, Thus, the talus remains in place in the tibiofibular mortise, and the calcaneocuboid joint is intact. It is a rare condition, few cases have been described in the literature, often as isolated cases, the medial variety is the most frequent and it is the fact that inversion is the main position of instability of the foot that explains this high frequency. Moreover, it seems that the lateral passive stabilizers (talocalcaneal and calcaneofibular) are weaker than the medial ones (deltoid and medial talocalcaneal ligaments). Acute STD accounts for 1-2% of all joint dislocations and approximately 15% of perital injuries. They account for approximately 1% of all traumatic foot injuries. Men are three to four times more affected than women. The current classification system uses well-known definitions. With 80% of STD cases, a medial dislocation occurs when an inversion force is applied to the foot in forced dorsal flexion. The sustentaculum tali then acts as a fulcrum around which the neck of the talus pivots, causing dislocation of the talonavicular joint (rupture of the dorsal talonavicular ligament) followed by dislocation of the talocalcaneal joint (injury to the talocalcaneal interosseous and calcaneofibular ligament). The navicular bone then slides medial to the talus. Medial STD is usually the result of a high-energy trauma (fall from a high place, road accident, sports accident). In some athletes, this forced inversion mechanism on an already inverted foot is called "basketball foot" . More rarely, cases of STD have been described in accidents with low kinetics.

The clinical deformity is obvious and the diagnosis is confirmed on analysis of standard radiographs of the foot and ankle, especially the frontal view, which shows the talus in place in the tibiofibular mortise, while the foot is displaced medially.

These dislocations are frequently associated with various lesions such as skin openings, fractures (talus: head, neck, posterior process of the talus; medial or lateral malleolus; base of the fifth metatarsal), and vascular and nerve damage. Ankle and foot radiographs from the front, side, and three-quarter views assess the integrity of the tibiotalar joint, the presence of associated malleolar and tarsal bone fractures, which may alter the definitive treatment approach. According to Lancaster , pure type I dislocations should be reduced urgently, with appropriate analgesia, to minimize the risk of skin necrosis for the best possible functional outcome. Several methods of reduction by external maneuvers have been described. The most commonly used technique (boot puller) requires analgesia or anesthesia in order to obtain maximum muscle relaxation and thus reduce damage to the articular surfaces during manipulation. The homolateral knee is flexed to obtain relaxation of the gastrocnemius muscles. A firm longitudinal traction of the foot is applied with a counter traction on the leg initially combined with accentuation of the deformity. This is followed by a reversal of the deformity (eversion for medial dislocation and inversion for lateral dislocation). Direct pressure on the head of the talus helps to reduce the deformity, which is accompanied by an audible noise. Irreducibility may be due to interposition of the tendons of the fibular muscles, the frondiform ligament, the extensor pollicis brevis muscle, or a bone fragment for medial dislocation.

Abrupt maneuvers, excessive force, and multiple closed reduction attempts should be avoided in order not to generate additional soft tissue damage. Once reduction has been achieved, the neurovascular status and stability of the rear and midfoot should be assessed.

Initial immobilization is in a posterior plaster cast that stops below the knee and can be circularized secondarily. Radiological confirmation of adequate reduction of the dislocation is sought. The period of immobilization frequently found in the literature is four weeks, but there is some controversy as to the post-reduction immobilization time. In all cases, it seems that beyond six weeks of immobilization, the reduction in mobility of the subtalar joint is excessive according to Heppenstall et al. The collagen synthesis required for ligament reconstruction is six weeks. Protection that takes this time into account seems essential, but not beyond, which also avoids fibrosis of the subtalar joint and the environment. It can be concluded that pure traumatic subtalar dislocations, rapidly reduced and immobilized for four weeks, have a favorable long-term evolution. A walking boot can be used for the next two weeks, allowing rehabilitation to begin.

A post-reduction ankle CT scan is recommended to identify occult fractures or other osteochondral lesions that may have gone unnoticed. These occult lesions are present in 39 to 88% of cases. In a second phase, the assessment of the ligament and soft tissues can be performed with magnetic resonance imaging, which is of no interest in an emergency. The outcome of these STDs is marked by four major complications: stiffness is the most frequent complication, osteoarthritis, avascular necrosis of the talus and instability of the subtalar joint. The functional results of these dislocations are mostly referred to the specific American Orthopaedic Foot and Ankle Society (AOFAS) hindfoot score from 0 to 100.

CONCLUSIONS

Isolated acute traumatic STDs are injuries that often occur in the aftermath of high-energy trauma. Emergency management is necessary after a clinical, cutaneous, neurovascular and radiological assessment in order to perform an emergency reduction by external maneuvers. Isolated pure forms rapidly reduced under good conditions have a better clinical and functional result.

Conflicts of interest: the authors declare that they have no ties of interest.

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