



Surgical Management of a Pure Lateral Subtalar Dislocation

Mohamed Sidibé^{1*}; Mohamed Lamine Bah²; Fodé Mahamoud Sylla²; Amadou Tanou Bah²; Alhassane Soumah²; Serge Ntungnawayo¹

¹Orthopedic-Traumatology Department of the Tambacounda Regional Hospital.

²Orthopedic-Traumatology Department of the Ignace Deen National Hospital in Republic of Guinea.

*Corresponding Author(s): Dr. Sidibé Mohamed

Orthopedic-Traumatology Department of the
Tambacounda Regional Hospital, BP 52: Tambacounda
Regional Hospital, Republic of Senegal.
Tel: 00221784442785; Email: besidi42@gmail.com.

Abstract

Subtalar dislocations are rare lesions and represent less than 1% of all dislocations. The lateral variety is rare and accounts for only 17% of all subtalar dislocations. This observation concerned a 60-year-old man with hearing loss who, following a work accident, presented with a purely lateral open subtalar dislocation. He underwent surgical treatment by trimming, reduction and double talocalcaneal and talonavicular pinning. An infection of the surgical wound marked the immediate postoperative course. The infection dried up with local care and antibiotic therapy. At 16 months of follow-up, the functional result was satisfactory, while the X-ray showed subtalar osteoarthritis that the patient would tolerate.

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Introduction

Subtalar dislocations are rare and represent less than 1% of all dislocations [1]. They defined it as a permanent and simultaneous loss of contact of the talocalcaneal (subtalar) joints and the talonavicular joint with the integrity of the tibiotalar joint [2]. The lateral variety is rare and accounts for only 17% of all subtalar dislocations [3]. This observation concerned a 60-year-old man with hearing loss who, following a work accident, presented with a purely lateral open subtalar dislocation. He underwent surgical treatment by trimming, reduction and double talocalcaneal and talonavicular pinning.

Case report

It was a 60-year-old patient who was hard of hearing, a security guard in a road construction company, tired of a heavy machine. The accident during which he presented an open trauma to the right ankle.

Clinically, there was an ankle deformity with a 6cm wound with contused edges located in the medial malleolar region going from the medial retro-malleolar groove to the medial border of the instep (**Figure 1**).

The ankle X-ray revealed a subtalar dislocation in its external variety with a calcaneal-pedal block offset outside (**Figure 2**).



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Figure 1: Clinical aspect of the ankle after reduction of the dislocation.



Figure 2: Lateral translation of the calcaneo-pedal block.



Figure 3: Double pinning after reduction of the dislocation and plaster boot splint.

Under spinal anaesthesia, we proceeded to debride the wound, reduce the dislocation and stabilize it by double talonavicular and talocalcaneal pinning, supplemented by a plaster boot splint. The immediate postoperative follow-up X-ray showed a reduction in the dislocation and good positioning of the pins (Figure 3). Wound infection has marred the post-operative course. Local care and antibiotic therapy helped to

dry up the infection. The pins and the boot splint were carried removed on D45. The ten physiotherapy sessions that we prescribed were carried out. The patient was seen again 14 months after the operation. He thrives on ankle pain and oedema triggered by long-distance walking. Plantar and dorsal flexion are complete and painless (Figures 4 and 5). The ankle X-ray revealed subtalar osteoarthritis (Figure 6).



Figure 4: Complete dorsal flexion on edema of the ankle.



Figure 5: Full plantar of the ankle.



Figure 6: Talonavicular and talocalcaneal osteoarthritis.

Discussion

Subtalar dislocations are rare. The rarity of these lesions can have attributed to the presence of solid ligaments connecting the talus to the calcaneus, the strong biomechanical properties of the ankle and the tight joint capsule [4]. They occur most often after high-energy trauma [2,4]. The trauma of our patients can be illustrated. A tire from a heavy machine reportedly hit him.

The most reported circumstances in subtalar dislocations are road traffic accidents, falls from high places and sports accidents, especially basketball, which is why Americans name specific injuries related to the practice of basketball, including "Basketball foot" subtalar dislocations [4,5].

Classically, the lateral variety has produced by a forced eversion mechanism with the foot in dorsiflexion [1]. At first, the deltoid ligament breaks back and forth under the pressure of the head of the talus. Then, the hedge ligament tears by stretching with talocalcaneal dislocation. Eventually, the constraint continues, and the internal rotation of the tibial skeleton causes the rupture of the dorsal talonavicular ligament, allowing the total escape of the foot under the talus towards the outside. Our patient could not clearly explain the mechanism given his disability.

However, one could understand that if the tire of this heavy machine had passed over his ankle, we would instead have witnessed a crushing or jamming injury. It could be that the patient injured himself in the attempt to remove the foot on a road construction site which is generally rough terrain.

In 20% to 25% of cases, subtalar dislocations are open, and the lateral variety is the most affected by the openings [6].

The classification of subtalar dislocations depends on the direction of the dislocated foot relative to the talus.

The medial variety is the most common and accounts for approximately 79.5% of all subtalar dislocations, while lateral dislocations occur in 17% of cases. Posterior (2.5%) and anterior (1%) subtalar dislocations are exceptional [3].

The diagnosis is clinical by presenting a characteristic deformity, and the radiography confirms the diagnosis. Imaging is of paramount importance, and it allows an exhaustive assessment of the lesion. Computed tomography allows, on the one hand, to confirm the diagnosis, especially highlighting the osteochondral lesions. Magnetic resonance imaging can highlight capsuloligamentous lesions.

However, pure subtalar dislocations are rare. They are frequently associated with fractures. Delee and Curtis have classified them into intra-articular and extra-articular fractures, which concern the head and the body of the talus, the scaphoid, the malleolus, and the cuboid, among others [7].

The goal of the treatment would be to obtain a painless, stable and functional ankle. We can use either orthopedic or surgical treatment.

The traditional orthopedic treatment uses the boot puller maneuver and immobilization with a plaster cast for six weeks. Surgical treatment had reserved for open dislocations, irreducible or associated with fractures.

In the case of an open dislocation, the treatment will consist of debridement plus immobilization with a plaster cast, either a

pin completed by a boot splint or straightaway exotification [8].

For irreducible dislocations, the treatment will identify and treat the irreducible factors [9]. Irreducibility is due either to bone jamming or tendinous-ligament interposition. It is frequent in external forms, 15% arch 8% in internal forms [10].

For our part, we chose double pinning to reinforce the stability of the subtalar joint, which seemed to us insufficient after the talonavicular pinning.

Rehabilitation occupies an important place in the treatment. It is undertaken as soon as the plaster is removed and will consist of proprioception but above all of the gains in the amplitude of the joints around the ankle.

The evolution can be favorable or marked by certain complications (talus necrosis, subtalar osteoarthritis, tarsal sinus syndrome, subtalar instability, recurrence of dislocation, vicious calluses, pseudarthrosis and trophic disorders) are to be feared [11,12]. In our case, the subtalar osteoarthritis could have been explained by the advanced age of the patient, the skin opening, the delay in treatment, the superficial infection of the soft tissues and the lesion itself.

Conclusion

Subtalar dislocations are rare lesions affecting the hindfoot. They occur in the context of high-energy trauma. Diagnosis can be clinical, and confirmation has done by imaging. It is a therapeutic emergency, so management must be early and efficient to minimize the occurrence of stiffness and subtalar osteoarthritis, which are the complications to be feared.

Informed Consent

The informed consent was obtained from the patient to publish the information, including his photograph.

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