

Pure Open Internal Subtalar Dislocation: About A Case

Traoré OB^{1*}, Djerma M¹, Abdou I³, Berthe M³, Soumare B¹, Keita I¹, Diallo H², Fofana K¹, Sissoko A¹, Sanogo souleymane³, Diallo A³, Toure Layes³, Abdoul Kadri Moussa³, Coulibaly K³, Sanogo CO³, Traore MB³, Dembélé E¹, Traoré MB², Diarra D²

¹Orthopedics and Traumatology Department of the F DAOU Hospital in Kayes, Mali

²Orthopedics and Traumatology Department of the Gabriel TOURE University Hospital in Bamako, Mali

³Orthopedics and Traumatology Department of Kati University Hospital, Mali

DOI: <https://doi.org/10.36347/sasjs.2025.v11i01.013>

| Received: 13.12.2024 | Accepted: 17.01.2025 | Published: 20.01.2025

*Corresponding author: Traoré OB

Orthopedics and Traumatology Department of the F DAOU Hospital in Kayes, Mali

Abstract

Case Report

Subtalar dislocation is a rare traumatic injury to the foot in which the calcaneus and the navicular bone are displaced relative to the talus which maintains its normal relationship within the tibiotalar mortise. It must be considered a therapeutic emergency, and no treatment is specific to this lesion. We report a case of pure open internal subtalar dislocation stage 2 of Gustillo and Anderson following a domestic accident falling from the height of a Baobab tree of approximately 3 m: The patient benefited from an urgent reduction followed by a stabilization with arthrosis by two calcaneo-talo-tibial pins, and cast immobilization for six weeks. After a 12-month follow-up, the functional results were satisfactory.

Keywords: Internal subtalar dislocation, domestic accident.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

According to Broca [1] subtalar dislocation is a dislocation in which the talus retains its relationship with the bones of the leg, while the calcaneus and the navicular bone move under it. It is a rare lesion which represents only 1 to 2% of all dislocations [2], and which occurs exceptionally after a sports accident, because their mechanism requires high energy trauma. We report the case of an internal subtalar dislocation following a domestic accident.

PATIENT AND OBSERVATION

Mrs. FD, aged 35, was the victim of a domestic accident, falling from the height of a tree of approximately 3 m with poor landing on the left foot being in inversion and equineism. This trauma caused the patient severe pain and total functional impotence of the left lower limb. The initial clinical examination revealed

an anterolateral skin opening of approximately 4 cm on the left ankle with externalization of the talus. The posterior tibial pulse was not felt; the pedal pulse was present, without disturbance of the sensitivity of the foot. A standard anteroposterior and lateral x-ray of the ankle showed a pure internal subtalar dislocation (Figure 1). The patient benefited urgently, under locoregional spinal anesthesia, from a reduction of the dislocation using the boot puller maneuver, followed by debridement of the wound with regularization of the skin edges. Check the tibial pulses which were present. The ankle was unstable during testing, which prompted arthrosis using two calcaneo-talo-tibial pins (Figure 2). Then, the ankle was immobilized in a plaster boot in a posterior splint for 6 weeks without support, followed by removal of the pins after 6 weeks, and rehabilitation which lasted six months. At 12 months' follow-up, the patient maintained good range of motion, however, there was slight ankle pain after walking a long distance and at the end of the day, with no sign of osteoarthritis on the control x-rays.



Figure 1: Clinical image Inspection front and profile view of open dislocation



Figure 2: Standard x-ray of the ankle lateral and medial showing an internal subtalar dislocation without associated fracture



Figure 3: Ankle image after reduction tested unstable



Figure 4: Radiological control after reduction and calcaneo-talotibial arthrosis



Figure 5: F/P left ankle radiograph post pin removal. Well centered according to Skinner. Normal Boehler angle



Figure 6: Ankle amplitudes at 18 months

DISCUSSION

Subtalar dislocation is a rare entity which represents 1 to 2% of dislocations [2], and 20% of talar trauma [3]. It mainly occurs following high-energy

trauma such as road accidents and falls from a high place. We can distinguish 4 varieties of subtalar dislocation: internal, external, anterior and posterior. According to Allieu [4], when a foot in a weakened position, that is to

say in inversion and equinus, undergoes trauma, two degrees of internal subtalar dislocations can result: the first degree corresponds to a taloscaphoid dislocation with rupture of the dorsal taloscaphoid ligament, the second degree corresponds to subtalar dislocation with rupture of the fubilocalcaneal bundle of the external lateral ligament. The deformations are considerable and immediately guide the diagnosis: An external projection of the talar head and the rest of the calcaneopedal block are thrown medially. The radiological assessment makes it possible to confirm the diagnosis and includes a frontal or dorso-plantar x-ray of the ankle, and a side x-ray which is less telling due to the superposition of the bones.

Computed tomography allows a better description of lesions, particularly cartilaginous ones, and possible incarcerations [5, 6]. Skin opening can be initial following high-energy trauma or secondary following skin necrosis. The search for vascular-nervous complications is systematic. Lateral dislocations particularly threaten the posteromedial structures (posterior tibial pedicle, posterior tibial tendon and flexor longus), medial dislocations, and the deep fibular pedicle [7]. The imperative for rapid diagnosis arises with urgent reduction under general anesthesia, and the reduction is often stable. However, there is no agreement on the type of immobilization (boot or cruropedal) nor on the duration (3 to 6 weeks) [7]. In the event of instability during testing, the implementation of a percutaneous stabilization pin is mandatory. The prognosis is often considered favorable by the authors [8-10], except for open dislocations or those associated with a fracture where the prognosis is less good.

CONCLUSION

Subtalar dislocations create a particular entity and are defined by the mass displacement, in the frontal plane, of the calcaneopedal block, around the talus, the body of which remains in place in the tibiofibular mortise. The internal variant is the most common. Clinically, the deformations are considerable and guide the diagnosis which will be confirmed by radiology. This

is a therapeutic emergency, and the prognosis is often favorable if the treatment is correct.

Conflicts of Interest: The authors declare no conflict of interest.

Author Contributions: All authors contributed to patient care and writing of the manuscript. All authors read and approved the final version of the manuscript.

REFERENCES

1. Broca, P. (1853). Memory on subtalar dislocations. *Mem Soc Chir*, 3, 566-656.
2. Leitner, B. (1945). Recent internal subtalar dislocation of the foot with tibiotarsal subluxation of the talus. *Rev chir orthop*, 40(2), 232-235.
3. Mindell, E. R., Cisek, E. E., Kartalian, G., & Dziob, J. M. (1963). Late results of injuries to the talus: analysis of forty cases. *J Bone Joint Surg*, 45(2), 221-245.
4. Allieu, Y. (1967). Internal astragalo-scapho-calcaneal dislocation experimental study of the mechanism; about 10 cases. Montpellier medical thesis. 1967.
5. Jarde, O., Trinquier-Lautard, J. L., Mertl, P., Van F, T., & Vives, P. (1996). Subtalar dislocations. Apropos of 35 cases. *Revue de Chirurgie Orthopedique et Reparatrice de L'appareil Moteur*, 82(1), 42-48.
6. Meyer, J. M., Hoffmeyer, P. (1985). Subtalar dislocation. *Med and Hyg*, 43, 1520-1522.
7. Norman, B. (2020). Foot and knee trauma surgery ankle. Elsevier Masson.
8. Butel, J., & Witwoet J. (1967). Fractures and dislocations of the talus; Report of the XIIth meeting of SOFCOT. *Rev Chir Orthop*, 53, 493-624.
9. Haliburton, R. A., Barber, J. R., & Fraser, R. L. (1967). Further experience with peritalar dislocation. *Canadian journal of surgery. Journal canadien de chirurgie*, 10(3), 322-324.
10. Kenwright, J., & Taylor, R. G. (1970). Major injuries of the talus. *The Journal of Bone & Joint Surgery British Volume*, 52(1), 36-48.