

## Internal Subtalar Dislocation without Broken Bone about One Case

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### Abstract

### Case Report

It was a 20-year-old patient. He suffered a fall at home. The clinical examination revealed a deformity of the foot with loss of the anatomical guide. Neurovascular and skin examination were normal. The standard X-ray confirmed the internal subtalar dislocation without fractures. The reduction of the dislocation was carried out under general anesthesia within the time limits, followed by immobilization by cast iron boot for 6 weeks the suites were simple.

**Keywords:** Talus dislocation, talus necrosis.

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## INTRODUCTION

Subtalar dislocation or dislocation is a rare lesion representing 1% of all dislocations observed in traumatology [1].

It is defined by a loss of anatomical relationships between the astragalus, the calcaneus and the tarsal scaphoid.

The internal variant is the most frequent, representing 80%, while the external variant represents only 17% [2].

We report the case of a purely traumatic complete internal subtalar dislocation with management at the Ibnou-Sina University Hospital Center in Rabat.

## CASE REPORT

A 22-year-old patient, with no particular pathological history, was admitted to the emergency department of Rabat University Hospital for trauma to the ankle and left foot following a fall from the stairs with landing on the foot in hyper extension.

The initial examination found a patient who was hemodynamically and respiratory stable, presenting pain and total functional impotence of the lower limb with deformation of the mid-tarsal region (Figure 1).



Figure 1

The rest of the clinical examination was unremarkable with no skin lesions and no vascular-nervous deficit.

An AP and lateral x-ray of the ankle was performed, showing pure medial subtalar dislocation with no associated fracture (Figure 2).



Figure 2

The reduction was carried out at H2 in the operating room under general anesthesia by the external maneuver with impulse on the head of the astragalus.

A control X-ray confirmed the reduction of the dislocation with good joint congruence and an intact syndesmosis (figure 3).



Figure 3

An immobilization by plaster boot was carried out for 6 weeks without support then the reduction was undertaken.

subtalar and heel joints without a fracture of the neck of the talus.

At the last follow-up, the functional result was satisfactory.

Decoulx and Razemon then mindel evaluated the frequency of these dislocations successively at 39% and 20% of traumatism of the astragalus at 20% [5, 6].

**DISCUSSION**

Subtalar dislocation is a rare entity. It is defined as a simultaneous dislocation of - the avicular

While Leitner [7] estimated these dislocations at approximately 1% of all dislocations, the first publications were made by hey in 1803 [3] while Broca developed a classification of the foot to differentiate

between total enucleations of the astragalus and subtalar dislocations [4].

The high frequency of internal dislocations is secondary and is explained by the instability of the subtalar joint in inversion [8, 9].

The mechanism of medial subtalar dislocation is forced inversion with the foot locked to the ground leading to ligament rupture in a precise chronological order: it is first the dorsal navicular heel ligament which is injured, then the two bundles of the interosseous ligament or hedge ligament and finally the peroneal-calcaneal ligament. This dislocation usually occurs following a high-energy trauma, rarely a banal inversion following a sports accident Jard *et al.*, [8, 10].

The diagnosis is easy: first evoke an obvious deformation of the foot then confirm by an X-ray of the ankle from the front and in profile showing the astragalus in place in the tibiofibular mortise while the foot is thrown inwards [10].

The treatment is based on an emergency reduction under general anesthesia by maneuvering the boot puller with the knee flexed at 90 degrees to release the triceps surae. Malgaigne [11] recommends exerting an impulse on the head of the astragalus to guide it towards the articular sphere.

Additional compression with a plaster boot for 6 weeks without support is carried out after ensuring that the dislocation has been reduced and that the joint is in good congruence.

Faced with an irreducible dislocation, interposition must be suspected and this requires an open reduction.

The prognosis for this dislocation is relatively good for most authors if the reduction is performed within hours of the accident [12].

In the long term, patients may complain of pain and static disorders, Astragalus necrosis is a formidable but exceptional complication. Its percentage, by adding the cases found in the literature, would be 5% according to Foults [13], while the risk of subtalar osteoarthritis is evaluated at 31% [14].

## CONCLUSION

Subtalar dislocations are rare and serious lesions of the posterior tarsus.

Diagnosis is based on clinical and then radiological examination to assess the type of dislocation and the associated osteocartilaginous lesions.

Emergency orthopedic treatment consists of a reduction followed by a plaster cast for 6 weeks. The treatment is surgical in case of irreducibility or displaced intra-articular fractures.

The long-term prognosis is better if these principles are respected.

## REFERENCES

- Leitner, B. (1954). Luxation sous astragalienne récente du pied avec subluxation tibiotarsienne de l'astragale. *Rev Chir Orthop*, 40, 232–5.
- Zeroual, (2022). Luxation sous talienne externe pure : à propos d'un cas Lateral subtalar dislocation : a case report." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(01), 61-64.
- Hey, P. Bulletin de la faculté de Médecine de Paris, 1803.
- Broca, P. (1853). Mémoire sur les luxations sous-astragaliennes. *Mem Soc Chir*, 3, 566–656.
- Decoulx, P., & Razemon, J. P. (1960). La nécrose aseptique post-traumatique de l'astragale. *Ann Chir*, 14, 771-775.
- Mindell, E. R., Cisek, E., Kartalian, G., & Dziob, J. M. (1963). Late results of injuries of the talus. *J bone joint surg(A)*, 45,221-245.
- Leitner, B. (1954). Luxation sous astragalienne interne récente du pied avec subluxation tibiotarsienne de l'astragale. *Rev chir orthop*, 40(2), 232-235.
- Jarde, O., Trinquier-Lautard, J. L., Mertl, P., Tran, F., & Vives, P. (1996). Les luxations sousastragaliennes. À propos de 35 cas. *Rev Chir Orthop*, 82, 42–8.
- Jerome, J. T., Varghese, M., & Sankaran, B. (2007). Anteromedial subtalar dislocation. *J Foot Ankle Surg*, 46, 52–4.
- Amar, M. F., Chbani, B., Loudyi, D., Marzouki, A., & Boutayeb, F. (2009). Luxation sous-talienne pure chez un footballeur (à propos d'un cas). *Journal de Traumatologie Du Sport*, 26(4), 250–252. doi:10.1016/j.jts.2009.10.004
- Malgaigne, J. F. (1855). Traité des fractures et des luxations Baillière édit, Paris, 1030-1070.
- Amhaji, L., Berrada, M. S., El Yazidi, A., Lamrani, O., Wahbi, S., El Yaacoubi, M., & El Ouazzani, E. M. M. (1998). Les luxations sous astragaliennes (A propos de 15 cas). *Revue marocaine de chirurgie orthopedique et traumatologique n7 Avril*.
- Foults, H., BRICOUT, J., FAVARD, L., & BURDIN, P. (1992). Les luxations sous-astragaliennes: revue de 10 cas avec un recul de 2 à 14 ans. In *Annales orthopédiques de l'Ouest* (No. 24, pp. 87-90).
- Schwind, F., Andrienne, Y., Burny, F., Donkerwolcke, M., & Saric, O. (1983). Fractures et luxations de l'astragale. Revue de 359 cas. *Acta Orthop Belg*, 49, 652–89.