

**PURE CLOSED TIBIOTALAR DISLOCATION IN A YOUNG ATHLETE: ABOUT A
CASE WITH REVIEW OF THE LITERATURE**

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ABSTRACT

Pure tibial-talar dislocation without associated lesions is a rare trauma due to the anatomy of the area. The internal and posterior varieties are the most frequent. Standard radiology is sufficient to make the diagnosis. The authors report the observation of an isolated tibio-talar dislocation without skin opening in a 29-year-old patient, following a sport's accident (running) with internal displacement. The vasculo-nervous examination was normal after reduction by external maneuver, under general anesthesia. Intraoperative testing found a stable ankle; immobilization was provided by a cast boot for eight weeks. After an 18-month follow-up, the functional results were excellent, without signs of instability or osteoarthritis, with a stable and painless ankle and satisfactory mobility with a loss of dorsiflexion of 5°.

KEYWORDS: Ankle, Dislocation, Pure, Tibio-talar joint, Sport's accident.

INTRODUCTION

Although ankle trauma is frequent, pure tibio-talar dislocation remains an extremely rare traumatic injury due to the stability of this joint, which is provided by the capsule and its strong ligament complex. It occurs after trauma with high energy, in particular during accidents on the public road or in sport. Its diagnosis is most often obvious, associating a total functional impotence with an obvious deformity of the ankle. These dislocations constitute a functional and therapeutic emergency which requires a reduction procedure in order to avoid cutaneous and vasculo-nervous complications. However, emergency tendon repair remains a subject of controversy. We report a case of pure tibio-talar dislocation treated orthopedically. Through this observation and a review of the literature, we will try to identify the main characteristics of this affection.

CASE REPORT

We report the case of a 29-year-old patient, a sport's instructor, admitted to the emergency department 2 hours after a trauma to the left ankle during a race.

The initial clinical examination found a patient in good general condition, hemodynamically stable with deformity of the left ankle (Figure 1) and severe pain on slightest mobilization, the skin condition and the vasculo-nervous examination were normal. After immobilization by a splint, radiographs of the left ankle,

face and profile, revealed a tibio-talar dislocation in internal variety, without associated fracture (Figure 2 and 3).

The treatment consisted of an emergency reduction under general anesthesia. The reduction maneuver involved pulling the foot in line with the leg with the knee flexed to relax the triceps muscle. Intraoperative testing found a stable ankle (Figure 4). The fluoroscopic examination showed accurately relocated ankle (Figure 5). No residual subluxation persisted and a control X-ray (Figure 6 and 7) had shown good joint congruence. Our patient was immobilized with a cast boot which was held on for eight weeks. Postoperative radiological control showed good astragalar centering and intact syndesmosis. After the plaster was removed, an ankle rehabilitation protocol was followed for 8 weeks: ankle mobilization and proprioceptive work.

18 months after the trauma, there is a very good functional result with a stable and painless ankle and satisfactory mobility with a loss of dorsiflexion of 5°.



Figure 1: Clinical picture of the deformity of the left ankle



Figure 2: Anteroposterior view of the tibio-talar dislocation of the left ankle.



Figure 3: Lateral view of the tibio-talar dislocation of the left ankle.



Figure 4: Clinical picture of the ankle after reduction.

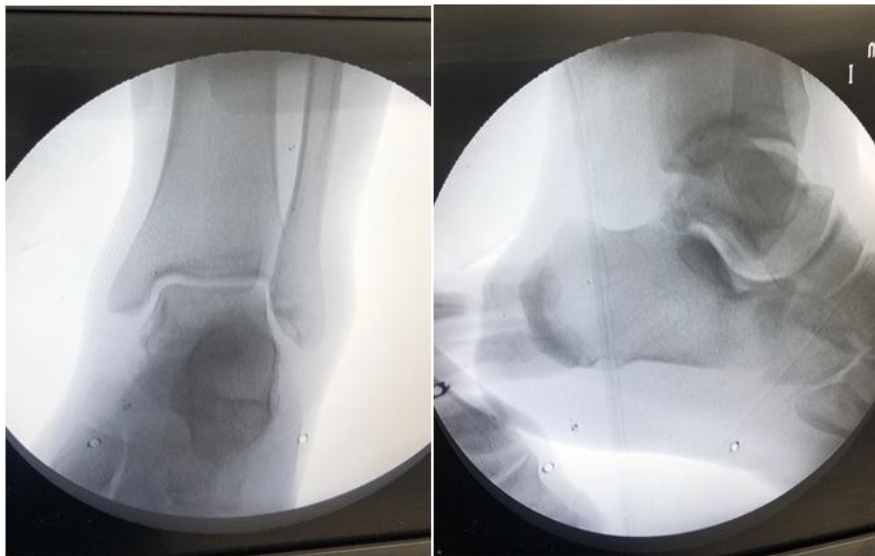


Figure 5: Fluoroscopic pictures showing relocated ankle.



Figure 6: Anteroposterior view after closed reduction of the tibio-talar dislocation.



Figure 7: Lateral view after closed reduction of the tibio-talar dislocation.

DISCUSSION

Pure tibio-talar dislocation is a very rare lesion. The first case documented by radiological imaging was reported by Peraire in 1913.^[1]

This rarity is explained by the resistance of the ligaments compared to the malleoli and therefore during ankle trauma, a fracture occurs rather than a dislocation.^[2]

The largest series was described by Worsing in 1989 with 19 cases.^[3]

This trauma occurs following a violent high-energy trauma, often secondary to road accidents followed by sport's accidents.^[4,5,6] Also in our case, the reported mechanism was violent, causing a closed dislocation. The mechanism of this dislocation would be a forced plantar flexion with inversion or eversion of the ankle.^[4] Many classifications have been described in the literature. Based on the direction of the dislocation, Fahey and Murphy cited 5 types of this injury : anterior, posterior, lateral, medial and superior or any combination of these.^[7]

The internal and posterior varieties are the most frequent. The earlier variety is extremely rare. Thus, only five cases have been documented in the literature, two of which are anterolateral variety.^[5,8,9]

Standard radiology is sufficient to make the diagnosis, however a CT scan may be necessary after reduction for a better analysis of the osteocartilaginous lesions. MRI, on the other hand, finds its place especially in closed

dislocations for the analysis of musculo-ligamentous lesions, which are most often underestimated.^[4]

Regarding treatment, emergency reduction, under general anesthesia followed by immobilization in plaster for 8 weeks, is essential for all the authors.^[10] The dislocation reduction maneuver depends on the type of displacement. In the case of tibiofibular diastasis, screwing of the syndesmosis may be necessary.^[4]

It should be noted, however, that emergency tendon repair remains a subject of controversy. However, some authors recommend exploration with ligament repair during dislocations with skin opening.^[4,11,12]

The long-term functional results of pure tibio-talar dislocations are favorable.^[8,13,14]

Some elements have a poor prognosis: Age, late reduction, open dislocations, skin necrosis, infection and vascular complications thus constitute elements of a poor prognosis.^[11,13,15]

The most common complications are skin necrosis and loss of post-reduction dorsiflexion. In addition, in 25% of cases, the evolution is towards tibio-talar osteoarthritis, mainly during dislocations with skin opening.^[8,15]

CONCLUSION

Pure tibio-talar dislocation without associated fracture is rare. The trauma responsible is always violent ; the medial and posteromedial varieties are the most frequent.

The diagnosis is easy and it will be confirmed by a standard X-ray. Other examinations will be requested for a better lesion assessment. It requires urgent care in a specialized environment emergency and tendon repair finds its place in open trauma. For closed dislocations, adequate management followed by rehabilitation often gives good results.

Consent

The patient has given their informed consent for the case to be published.

Conflict of interests: None.

REFERENCES

1. Peraire A. Luxation tibo-astragaliennne avec issue à l'extérieur du péroné non fracturé à travers une boutonnière cutanée. Présentation de malade. Paris Chir, 1913; 5: 959.
2. Hammouda A, El Rayes M, El Kordy S. Posteromedial dislocation of the ankle without fracture. J Foot Ankle Surg, 2006; 12(3): 169–71.
3. Wilson M, Michele A, Jacobson E. Ankle dislocation without fracture. J Bone Joint Surg Am, 1939; 21: 198–204.
4. Ngai WK, Chan YF, Lui TH. Pure ankle dislocation. Hong Kong J Orthop Surg, 2004; 8(1): 72–7.
5. Georgilas I, Mouzopoulos G. Anterior ankle dislocation without associated fracture: a case with an 11-year follow-up. Acta Orthop Belg, 2008; 74: 266–9.
6. Agoumi O, et al. Luxation tibio-talienne pure. À propos d'un cas avec revue de la littérature. Med Chir Pied, 2006; 22(1): 30–1.
7. Fahey JJ, Murphy JL. Dislocations and fractures of the talus. Surg Clin North Am, 1965; 45(1):79–102.
8. Elisé S, Maynou C, Mestdagh H, Forgeois P, Labourdette P. Tibiotalar dislocations without associated fracture: report on 16 cases. Acta Orthop Belg, 1998; 64:25–34.
9. Segal L, Lynch C, Stauffer S. Anterior ankle dislocation with associated trigonal process fracture. A case report and literature review. Clin Orthop, 1992; 278: 171–6.
10. Tondeur G, Dufaz JP, Nemry CH Les luxations pures de la cheville. A propos de deux observations. Acta Orthop Belg, 1964; 30: 410-41.
11. Atemkeng Tsatedem F, et al. Décision d'amputation dans la prise en charge initiale d'une luxation ouverte grave de la cheville : à propos d'un cas observé à l'hôpital Laquintinie de Douala suite à un accident par moto- taxi. Pan Afr Med J, 2012; 13: 73.
12. Colville MR, Colville JM, Manoli A. Dislocation postero of the ankle without fracture. J Bone Joint Surg, 1987; 69(A): 706–10.
13. Toohey J, Worsing R. A long-term of follow-up study of tibiotalar dislocations without associated fractures. Clin Orthop 1989; 239: 207–10.
14. Zizah S,etal. Un cas rare de luxation tibio-talienne pure.JTraumatolSport, 2012; 29(4): 212–4.
15. Garbuio P, Gérard F, Gagneux E. Pure dislocations of the tibiotalar joint of 9 cases. Rev Chir Orthop, 1995; 81: 601–8.