Total Dislocation of the Talus During a Football Match: a Case Study

Traore M1*, Gogoua R1, Kouame M1, Yeo S2, Yao Bi1 and Anoumou M1

1Department of Orthopedic and Traumatology Surgery, C.H.U. of Treichville, Abidjan
2Department of Plastic Surgery Reconstructive and Reparative, C.H.U. of Treichville, Abidjan

Abstract

Introduction

Enucleation or total dislocation of the talus is a rare injury occurring during complex trauma of the ankle. Its occurrence during a football match is exceptional.

The Observation

The authors report the case of a 35-year-old subject who presented a lateral enucleation of the left talus during a football match. He consulted 10 days later with local early skin necrosis. A surgical reduction by direct lateral approach is performed with conservation of the talus. The development was marked by superficial sepsis requiring local care and directed skin scarring was obtained after 6 weeks. The prognosis one year later is fairly good with a Gay and Evrard score evaluated at 11/15 (a painless, stable ankle with fairly satisfactory mobility) and a lack of radiological sign of necrosis of the talus.

Conclusion

After one year of follow-up the evolution after this conservative treatment is good. In the absence of signs of osteonecrosis of the talus. However, the evolution will have to be appreciated after a longer follow-up of several years.

Keywords: Enucleation; Talus; Conservative Treatment.

Introduction

The enucleation or triple dislocation of the talus is a rare pathology which accounts for 2 to 10% of all the trauma of the talus [1,2]. It occurs during a complex trauma of the ankle. Its occurrence during a football match is exceptional. It is a serious pathology because of the poor prognosis that is marked by infections and vascular necrosis of the talus. It is indeed responsible for a devascularization of the talus and three-quarters are open [3,4]. Treatment that has long been radical (resection of the talus), is currently dominated by conservative treatment. We report a case of closed enucleation of the talus during a football match.

The Observation

Mr. B. E., 35 years old, presented during a football game a trauma of the left ankle. He received a shock on the medial region of his left ankle while the foot was blocked on the ground. He felt immediate pain in the left ankle, presented a distortion and an absolute functional impotence of the left ankle forcing him to immediately stop the sport. Mr BE undertook a self-medication. Ten days later, the persistence of pain and the swelling of the ankle lead him to consult in surgery emergencies. Initial clinical assessment noted lateral swelling of the left ankle with lateral retromalleolar cutaneous early necrosis (Figure 1). There was also a painful functional impotence of the ankle.

Figure 1: Clinical aspect at admission: swelling of the left ankle, retromalleolar skin necrosis, self-medication stigma.
The standard radiographic assessment showed a triple (total) lateral dislocation of the left talus (talo-crural, talo-calcaneal, talo-navicular) without associated fractures. It was therefore a pure lateral enucleation of the left talus (Figure 2). The indication for surgical reduction was made and carried out on the same day. Under loco regional anesthesia, the talus was approached laterally (Figure 3). After a more or less laborious reduction, a repair of the lateral capsuloligamentary plane was carried out without osteosynthesis (pin, screw other). The testing noted a stable ankle which was then maintained in a posterior plastered splint.

Radiological control was satisfactory with good talus reduction (Figure 4). The evolution was towards a superficial infection requiring local care (Figure 5). The directed healing was finally obtained after approximately 8 weeks (Figure 6).

After 1 year, the patient was evaluated functionally on the score of Gay and Evrard at the ankle [5]. This score is based on 5 criteria: pain, walking, stability, mobility and occupational or sports activity. Each criterion is assigned to a rating ranging from 0 for the most pejorative result to 3 for the best result (Table I). The overall result is obtained by summing the scores obtained for each criterion. 0 to 4 = bad result; 5 to 8: passable result; 9 to 12: fairly good result; 13 to 15: good result. This score was evaluated at 12 in the patient. He had no pain at the ankle (3 points), he had a gene on climbing the stairs or running (2 points). Ankle mobility noted minimal stiffness (2 points). At the level of stability the patient had no instability of the ankle (2 points) while he performed the same activity with restriction (3 points). He had a fairly good result (score 12).

Radiographic assessment at one year noted diffuse osteoporosis of the foot bones with no signs of talus necrosis (Figure 6).

**Discussion**

Enucleation of the talus or triple dislocation of the talus is a rare condition. Pure enucleation without associated fracture is still exceptional [1,6]. About 80 cases have been described in the literature and in ¾ of the cases they are open. In our patient, enucleation was closed. In the absence of immediate reduction (10 days after trauma), skin suffering resulted in early skin necrosis.
when the patient was seen in the emergency room. A few cases of closed enucleation have been described in the literature [3,7,8].

The mechanism of occurrence of Talus enucleation has been well described by Leitner [9]. The first step is a dislocation under the talus when the foot is pronated or in forced supination. Then the talo-scaphoid dislocation occurs when the pressure continues and ultimately the talo-crural dislocation. The different capsulo-ligamentary elements and the vascular pedicles are then torn off. The anterolateral variety as found in our case, is the most frequent. It has been reported by several authors [7,8,9,10,11]. The postero-medial variety is more rare [3].

The étiologies commonly found and described are the accidents of the public road with the impacts on the brake pedal and the accidents of work with the falls of the high places. The Talus enucleations described in the course of sports trauma are rare and especially football, are exceptional [12,13]. Treatment of Talus enucleation is an emergency because of the risk of necrosis of vascular origin [14]. Early treatment is essential, because the rapid regression of the stretched vessels must be attempted. The risk of necrosis may be reduced. The authors seem unanimous in the case of closed enucleation on the principle of conservative treatment. A non-surgical (orthopedic) reduction should always be attempted by external maneuver, immobilized the ankle on average 6 to 8 weeks and follow the evolution. This orthopedic reduction is sometimes difficult to obtain or impossible, requiring surgical reduction. Our patient was received ten days after the trauma with an early skin necrosis. Non-surgical reduction was impossible. We therefore immediately opted for anterolateral surgical treatment with excision of areas of cutaneous necrosis. In the case of open enucleation, there is no consensus as to whether or not the talus should be maintained after surgical trimming. Attitudes seem to have evolved over time.

Early authors, such as Fabricius et al. [15], had an early tallectomy, followed immediately or shortly afterwards by a triple arthrodesis. Some centuries later, Detenbeck et al [1] in 1967-1974, on a series advocated triple arthrodesis from the outset, conserving the talus as a graft. In 1989, Asselineau et al. [4] recommended systematically attempting conservative treatment of arthrodesis in the treatment of secondary septic and arthritic complications. Post-operative infectious complications and cutaneous necrosis are frequently described complications, particularly in the case of open enucleation. Secondary skin necrosis may follow a closed enucleation with taut skin (our case) or following a failure of conservative treatment. It exposes to infection. Osteonecrosis of the talus is the most frequent and the most redoubtable of the complications of the talus enucleations. This frequency varies from 50 to 100% in the literature [3]. After 1 year of evolution our patient does not show signs of talus necrosis on standard radiography.

Conclusion

The enucleation of the talus during the sport is very rare. The orthopedic reduction is sometimes difficult to obtain requiring surgical approach. After one year of follow-up the evolution seems good in our patient. He had no sign of osteonecrosis of the talus. However, this evolution will have to be appreciated after a longer follow-up of several years.

Author’s Contributions

The local ethics committee approved this study and all the authors contributed to the writing of this.

Patient Consent

The patient had given his consent for the case reports to be published.

References

1. Detenbeck IC, Kelly RJ (1969) Total dislocation of the talus. J Bone Joint Surg (Am) 51(2): 283-288.
2. Kenwright j, Taylor RG (1970) Major injuries of the talus. J Bone Joint Surg (Br) 52: 8-10.
3. Weston JT, Liu X, Wandlike ME, Liu J, Ebrahim NE (2015) A systematic review of total dislocation of the talus. Orthop Surg 7(2): 97-101.
4. Asselineau A, Augereau B, Bombart M, A poil A, Feuihad P (1989) The partial or total enucleations of the astragalus. Rev Chir Orthop 75: 34-39.
5. Edwards GS, Delee JC (1984) Ankle diastasis without fracture. Foot Ankle Surg 4(6): 305-312.
6. Taymaz A, Gunal I (2005) Complete dislocation of the talus -Unaccompanied by fracture. J Foot Ankle Surg 44: 156-158.
7. Kumar YC, Reddy S, Golla DK, Ganesh N (2014) Closed Talar Dislocation without Associated Fracture a Very Rare Injury, a Case Report. Journal of Orthopaedic Case Reports 4(2): 10-12.
8. El Alaoui A, Kassou N (2016) énucléation of the talus. Pan African Medical Journal 25: 92-93.

9. Leitner B (1955) The mechanism of total dislocation of the talus. J Bone Joint Surg Am 37-A(1): 89–95.

10. Hadji M, Golli M, Moalla R, Kmantar L, Hamdi A (2012) Conservative treatment of talus enucleation in a case. Journal de Traumatologie du Sport 29(2): 95–98.

11. Garcia Juarez JD, Tohen Bienvenu A, Lozano Reyers S, Jimenez Cabuto C (2010) Anterior énucléation of a talus with triple loss of relation: a case report and literature review. Acta Orthop Mex 24(6): 420-423.

12. Kelly G, Reid F, Kealey D (2013) Closed talar dislocation after low energy trauma. Ulster Medical Journal 82(2): 121-123.

13. McKeag P, Lyske J, Reaney J, Thompson N (2015) Subtalar dislocation secondary to a low energy injury. BMJ Case Reports doi:10.1136/bcr-2014-208828.

14. Piscitelli L, Bisaccia M, Meccariello L, Falzarano G, Medici A, et al (2016) the emergency and delay management in total extrusion: case report and review of literature after 24 months of follow up. Journal of Acute Disease 5(4): 350-354.

15. Fabricius De Hilden G (1608) Observation LXVII. Observatio num et Curationum chirurgium centuriae 140.