



Place of Orthopedic Treatment in the Talus Fractures: About Two Cases

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Abstract

Fractures of the talus are rare and serious injuries. Their prognosis is bad since they are complicated in most cases of osteonecrosis of the talus; they require adequate treatment either surgical or orthopedic whose aim is to minimize the risk of osteonecrosis and osteoarthritis; the authors report two cases of fracture of the talus treated conservatively with good clinical and radiological outcome two years of decline.

Keywords: *Talus fracture; orthopedic treatment; good functional result.*

Introduction

Talus fractures are rare lesions. They can be fraught with dreadful complications such as osteonecrosis and post-traumatic osteoarthritis that can jeopardize the functional prognosis of the ankle. The treatment is most often surgical.

On this topic, we report two cases of orthopedically treated talus fractures with a favorable evolution.

Case 1

A 43-years-young women, with no particular pathological history, suffered a trauma to the right ankle following a fall from the stairs with a blocked foot in inversion and dorsal hyperflexion. Initial clinical examination found localized pain in the ankle with edema and ecchymosis without any distal vascular or nerve injury. The conventional radiological assessment revealed a MARTI type III fracture-luxation of the body of the talus (1) with a non-displaced fracture of the medial malleolus (Fig. 1).



Figure 1: X-ray of the ankle in profile showing a displaced fracture of the body of the talus type 3 of Marti

A reduction by external maneuver was made followed by radiological control. After verifying the good reduction of the

fracture, immobilization by posterior splint was recommended (Fig.2).



Figure 2: Control x-ray: good orthopedic reduction of the talus

After resolution of the edema, immobilization by crural-foot plaster was carried out for six weeks and then reduced to a plastered boot for another six weeks in the absence of secondary displacement. The patient then benefited from functional reeducation of the ankle. Our attitude was explained by the fact that the surgical treatment was initially indicated but the patient refused the surgical intervention. At a follow-up of two years, the clinical examination

found an ankle with little pain, with recovery of the articular amplitudes. The clinical result was evaluated according to the functional score of the American Orthopedic Foot and Ankle Society (AOFAS). The score obtained was of 80, judged as a good result. X-rays showed bone consolidation with no osteonecrosis or osteoarthritis of the talus (Fig. 3, 4).

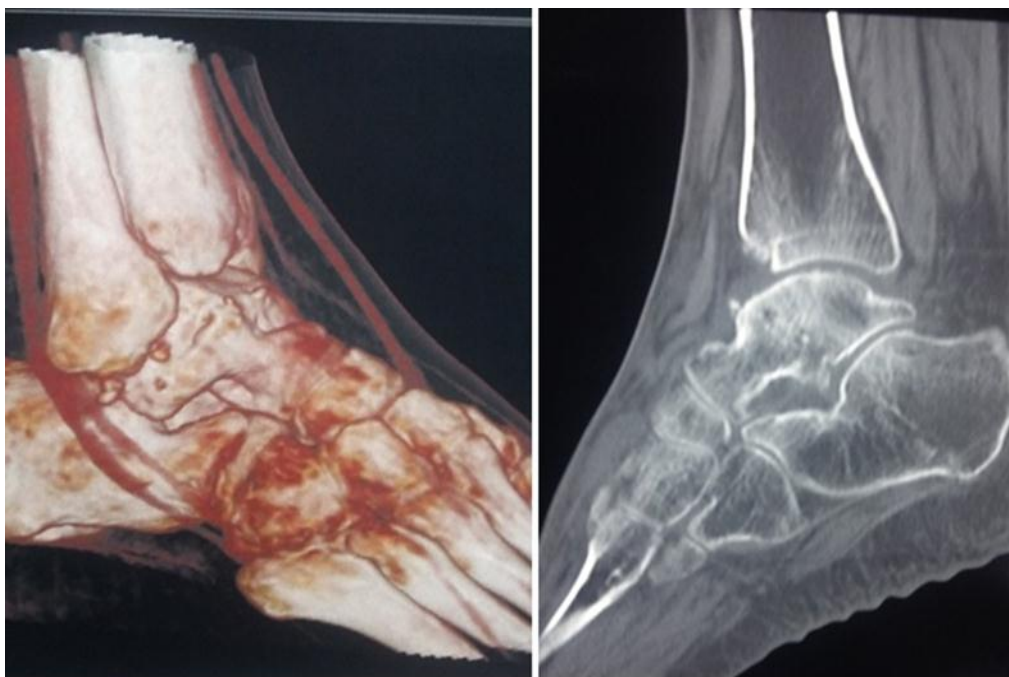


Figure 3: CT control of the fracture of the body of the talus at 1 year back.



Figure 4: good clinical result with absence of necrosis and osteoarthritis on ankle MRI at 2 years of follow-up.

Case 2

A 22-year-old, was the victim of a traffic accident that caused a fracture of the left femoral diaphysis with sparse benign lesions. The patient was operated on and benefited from an intramedullary

nail. Three months after the trauma, the patient reported pain in the left ankle after resumption of support. The examination found pain when mobilizing the ankle, especially in supination, without however, any limitation of the articular movements. Standard x rays found a Hawkins type I talar neck fracture (2) undergoing consolidation (Fig. 5).



Figure 5: X-ray of ankle profile showing neglected fracture of the talus (Hawkins type1)

The patient underwent functional rehabilitation and analgesics' intake. The evolution was marked by the consolidation of the

fracture with a painless and stable ankle (Fig. 6).



Figure 6: X-ray and CT control demonstrating consolidation of the talus fracture on one-year follow-up.

The AOFAS score was evaluated at 85, rated as a good result. An MRI performed after 2 years showed no sign of talar necrosis but a start of talo-calcaneal osteoarthritis.

Discussion

Talus fractures are rare, representing 0.14 to 1.68% of all bone fractures^[3]. Their particularity is due to the anatomical conformation of the talus, of which 70% of the surface is covered with cartilage, its mechanical importance, the intermediate link between the ankle and the foot and its vascularization ensured by the capsulo-ligament insertions. The lesional mechanism was modulated by Buttel and Vitvoet^[4] then by Daniel^[5] which according to them, this fracture is the result of a dorsal-shear hyperflexion exerted in front of the talus with respect to a hindlimb locked in subtalar causing axial compression of the talus between the tibial mortise and the calcaneus.

Classically, the Hawkins classification^[2] is the most frequently used, it only concerns fractures of the neck of the embankment. In contrast, the simpler Marti^[1] classification includes fractures of the cervix and body of the talus and takes into account the risk of necrosis.

Therapeutically, reducing the fracture is of extreme urgency. This is done by forced plantar flexion in axial traction to align the head of the talus and the rest of the foot on the posterior fragment. Trans-calcaneal traction facilitates reduction^[6]. Subsequently osteosynthesis can be performed in the same operating time, or delayed depending on the general condition of the patient and / or habits of the surgeon^[7].

In our first case, after rejection of the surgical procedure by the patient, the ankle was immobilized after anatomical reduction of the fracture, followed by an x-ray control (RX-CT). Evolution was marked by fracture consolidation. The patient was satisfied with the result. Our second case was a neglected fracture of the exposed talus after the full limb loading of the member. This was a slightly displaced type1 fracture of Hawkins^[2]. This type of fracture presents a risk of subtalar articular posterior incongruence leading

to secondary osteoarthritis^[2]. In our case, the landfill applied to the femur fracture favored the consolidation of the talus neck and made it possible to avoid pseudarthrosis, which is on the other hand infrequent and estimated between 1 and 4% of the cases. This low rate would be related to the long discharge period generally applied to these fractures which limits the shear forces generated by the movements of inversion and eversion of the foot exerted on the fracture site thus disrupting the formation of bone callus^[8]. The external maneuver to reduce displaced fractures has been well codified by Bohler^[9], Watson-Jones^[10] Butel and witvoet^[4]. It must always be tried urgently because it can prevent the worsening of the vascular risk. It can be deferred until the 3rd week. According to the literature^[11], the rate of occurrence of osteoarthritis and osteonecrosis of the talus is increased in case of orthopedic treatment. For this reason most authors^[11] recommend an open fixation of these fractures in order to improve the functional result and the prognosis. However, dilapidated surgery appears to statistically increase the percentage of osteonecrosis^[12].

In both cases, there were no signs of osteonecrosis on the MRI which can be explained by early fracture reduction in the first case and landfilling in the second case. On the other hand, the beginning of osteoarthritis in the second case was objectified.

Conclusion

An early and anatomical reduction of a displaced fracture of the talus is a necessary precondition for a satisfactory functional result. The prognosis is related to the installation of complications, mainly osteonecrosis and osteoarthritis that can be observed during these fractures.

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