

TALUS EXTRUSION: A CASE REPORT AND LITERATURE REVIEW

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Article Received on 05/03/2024

Article Revised on 25/03/2024

Article Accepted on 15/04/2024

ABSTRACT

Enucleations of the talus are rare injuries that have a poor prognosis since they are complicated, in 90% of cases, by osteonecrosis of the talus. We report a case of open anteromedial enucleation of the right foot, of a 32-year-old men, following a work accident. The patient benefited urgently in the OR of a reduction by external maneuvers with stabilization by a transplant foot nail. The follow-up was excellent with a stable ankle and satisfactory mobility, without radiological signs of necrosis.

INTRODUCTION

Enucleation of the talus is a rare traumatic lesion representing 2 to 10% of talar trauma. The talus loses all its connections with the tibia, the navicular bone and the calcaneus. The vascularization is completely interrupted. The essential role of the talus is the stability of the foot, and its precarious vascularization are elements which allow us to appreciate the seriousness of this lesion. The prognosis of this type of lesion is dominated by osteonecrosis. We report the case of a patient being treated in our training.

CASE REPORT

Male patient, 32 years old, victim of a fall from a height of approximately 6 meters, during a work accident. The clinical examination showed a deformation of the right foot in supination, a 10 cm wound next to the lateral malleolus and a protruding talus anterolaterally, without vascular and nervous complications. Standard radiography of the right ankle showed anterolateral enucleation of the talus (figure 1). A CT scan was requested to confirm the absence of an associated fracture.

The surgical procedure was carried out urgently under general anesthesia. It consisted, after wound debridement, of reducing the dislocated talus by simple digital pressure after placing the foot in forced pronation and plantar flexion. Hindfoot stability was maintained by a trans-calcaneo-talotibial pin (figure 2), with closure of the wound without tension. The ankle was immobilized in a cast boot for two months, at which time the pin was removed.

Partial weight-bearing was authorized in the 2nd month with progressive passive and active physical therapy and return to work in the 7th month after the accident. The evolution was marked by the resumption of a satisfactory mobility without clinical or radiological signs of osteonecrosis.



Figure 2: X-Ray shows anterolateral enucleation of the talus.



Figure 2: post surgery X-Ray.

DISCUSSION

Talus dislocations are rare and total enucleations are even rarer with an age variation of 20 to 60 years, affecting men more than women.^[1-2] The main cause of this trauma is traffic accident and falls from height. The mechanism of this injury is a blocked foot in pronation or supination with a subtalar dislocation first and a dislocation of the talus last, both in opposite directions. The talus dislocates either in the anteroposterior direction, or lateromedial. For several authors, expulsion of the talus is generally done anteriorly and laterally when the enucleation is complete. Astragalus fractures with malleolar fractures are the associated fractures most frequently reported in the literature. This is due to the mechanical value of the mortise and the ligamentous force. The ligaments are usually stronger than the

malleolus, so it is often fractured with the body or the talar neck.^[3]

The diagnosis is most often obvious as the deformation is significant or even monstrous. In all the cases described, the functional impotence is total, and the pain is intense. In the case of antero-external dislocation, the deformation of the foot is caricatured, and the ankle is swollen. Palpation reveals that the external malleolus is abnormally prominent. Often the skin covering of the foot is wide open giving an anterior hemorrhagic wound.^[4] with the external malleolus, and the talus often being embedded in the wound like a plug, completely expelled. Less frequently, the lesion is closed, and the talus is anterior or posterior to the external malleolus.

AP and lateral X-rays of the ankle will easily pose the diagnosis in most cases.^[5] They will also be able to show associated bone lesions, check the ankle joints after reduction and monitor progress. A CT scan may be requested in case of doubt about an associated fracture.

Early treatment is essential, rapid reduction must be attempted to ensure permeabilization of the stretched vessels, thus the risk of necrosis could be reduced. Surgical debridement is a fundamental procedure to be carried out urgently. The reduction must be as anatomical as possible, it must restore the morphology of the talus and the joint congruence without allowing any displacement to persist. It must always be attempted first, because it carries no risk of sepsis and does not aggravate the trauma of the arterial pedicles of the talus.^[6]

In case of an instability, a pin between the calcaneus, talus and tibia is necessary. If the reduction is impossible, open emergency is necessary to reduce the talus, repair the capsuloligamentous complex and orif for potentially associated fractures.^[7]

The principal complication of talus dislocation is osteonecrosis. The incidence of post traumatic avascular necrosis of the talus is reported to be as high as 90%. About 60% of the talus is covered by cartilage, limiting the area for arteries to penetrate the bone.^[8] The main artery supplying the body of the talus is the artery of the tarsal canal, a branch from the posterior tibial artery. Head and neck are supplied mainly by the dorsalis pedis artery. The blood supply to the talus enters the bone through the capsular and ligamentous attachments from the different bones surrounding it.

Good prognosis was found when one of the malleolar ligaments is preserved. The risk for avascular necrosis is highest in the first year after the initial trauma and decrease after this period. Serial radiographs should be performed for several months after the initial accident to monitor possible signs of avascular necrosis.

CONCLUSION

Talus dislocation is a rare injury occurring due to a high energy trauma. The diagnosis is clinical and radiologic. Closed reduction should be attempted first. In case of failure, open surgery is necessary to restore the functionality of the foot. The main complication is osteonecrosis.

CONSENT

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

Competing Interests

The authors declare no competing interest.

Authors 'Contributions

All authors have read and agreed to the final version of this manuscript and have equally contributed to its content and to the management of the manuscript.

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