

CASE IMAGE

Post-traumatic missing talus: Staged allograft interposition and fusion. Should we fuse the “talo-navicular” joint?

Dimitrios Kitridis  | Vasileios Lampridis | Dimitrios Rigkos | Ioannis Savvidis |
Dimitrios Georgiannos | Ilias Bisbinas

1st Orthopaedic Department, 424
Army General Training Hospital,
Thessaloniki, Greece

Correspondence

Dimitrios Kitridis, 1st Orthopaedic
Department, 424 Army General
Training Hospital, Thessaloniki,
Greece.
Email: dkitridis@gmail.com

Abstract

Complete talar dislocation—extrusion is an uncommon sequela of high-energy trauma. When the talus is unavailable for reimplantation, a staged treatment plan with the use (a) of an antibiotic cement spacer, followed by (b) tibiototalcalcaneal fusion with bone allograft interposition, may ensure a good clinical outcome.

KEYWORDS

allograft interposition, missing talus, talar extrusion, tibiototalcalcaneal fusion

1 | CASE PRESENTATION

A 24-year-old man with an unremarkable medical history sustained head and visceral trauma along with a twisting “open” right ankle injury in a highway motor vehicle accident and presented unconscious with a contaminated laceration of the lateral side of the ankle in a local District General Hospital. The ATLS guidelines were followed, and he was transferred in our hospital hemodynamically stable. The sensory and vascular findings of the foot were normal. The radiographs of the ankle revealed complete talus absence, which was never found in the accident site (Figure 1). A bilateral CT imaging was performed (Video S1). He was taken to the operating room later the same day for debridement followed by

implantation of a cement spacer impregnated with 1 g vancomycin and 1 g gentamycin, which was fashioned by hand according to the dimensions of the contralateral talus (Figure 2). The spacer was positioned to stabilize the clear space and avoid capsular ligament retraction. Three months postoperatively, the laboratory infection markers were within normal limits and the second reconstruction stage was performed. Through a transfibular approach, a distal fibular resection was performed, and the spacer was replaced by a femoral head allograft. Fusion of the ankle and subtalar joints were achieved with a tibiototalcalcaneal nail with interposition of the allograft, and the “talo-navicular” joint was stabilized with partial-threaded screws (Figures 3 and 4A). The fibula was resected as part of the approach and used as bone autograft (Figure 4B).

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial](https://creativecommons.org/licenses/by-nc/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2022 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.



FIGURE 1 Initial Antero-Posterior (AP) (A) and Lateral (B) ankle radiographs showing complete talar absence.

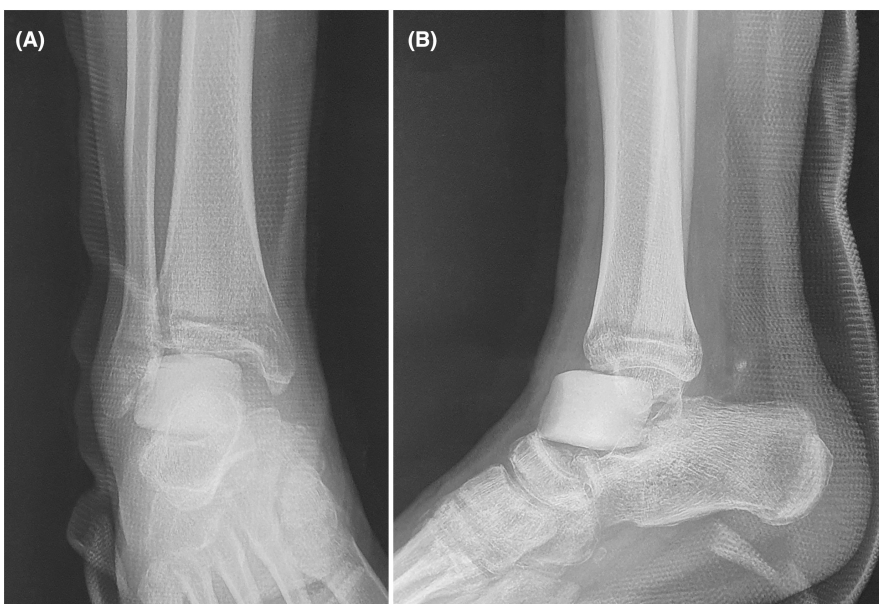


FIGURE 2 AP (A) and Lateral (B) radiographs after the cement spacer implantation.

The postoperative course was uneventful, and the radiographic evaluation revealed a well-incorporated allograft fusion. Six months postoperatively, the “talo-navicular” screws were removed, and a painless fibrous union was identified. The patient remains asymptomatic 2 years after the injury (Figure 5, Video S2). The two-year follow-up American Orthopedic Foot and Ankle Society ankle-hindfoot score was 73 of 100 and the Olerud and Molander ankle score was 75 of 100.

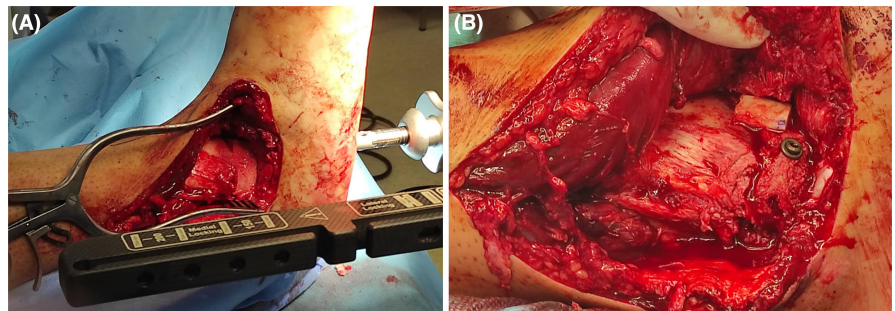
2 | DISCUSSION

Complete talar dislocation—extrusion is an uncommon sequela of high-energy trauma.¹ Reimplantation of the talus is a reasonable option; however, the appropriate treatment in cases of missing bone or severely contaminated talus remains controversial. Complications such as infection, deformities, leg length discrepancy, and post-traumatic arthritis may compromise the outcomes. A staged treatment plan with (a) the use of

FIGURE 3 Postoperative AP (A) and Lateral (B) radiographs showing the tibiotalocalcaneal and “talo-navicular” fusion with bone allograft interposition.



FIGURE 4 Intraoperative photographs showing the placement of the tibiotalocalcaneal nail and the allograft (A), as well as the fibular autograft (B).



an antibiotic cement spacer followed by (b) tibiotalocalcaneal nail with allograft interposition and fibrous union of the “talo-navicular” joint, may ensure a good clinical outcome.² The allograft interposition ensured the preservation of leg length and hindfoot anatomy, and the stabilization of the “talo-navicular” joint resulted in a fibrous union, which remained mobile and asymptomatic.

AUTHOR CONTRIBUTIONS

DK drafted and submitted the manuscript. DR obtained the photographs and contributed to patient care. DR and IS extracted patient history and assisted in completing edits. DG and VL contributed to patient care and critically reviewed the manuscript. IB critically reviewed the paper.

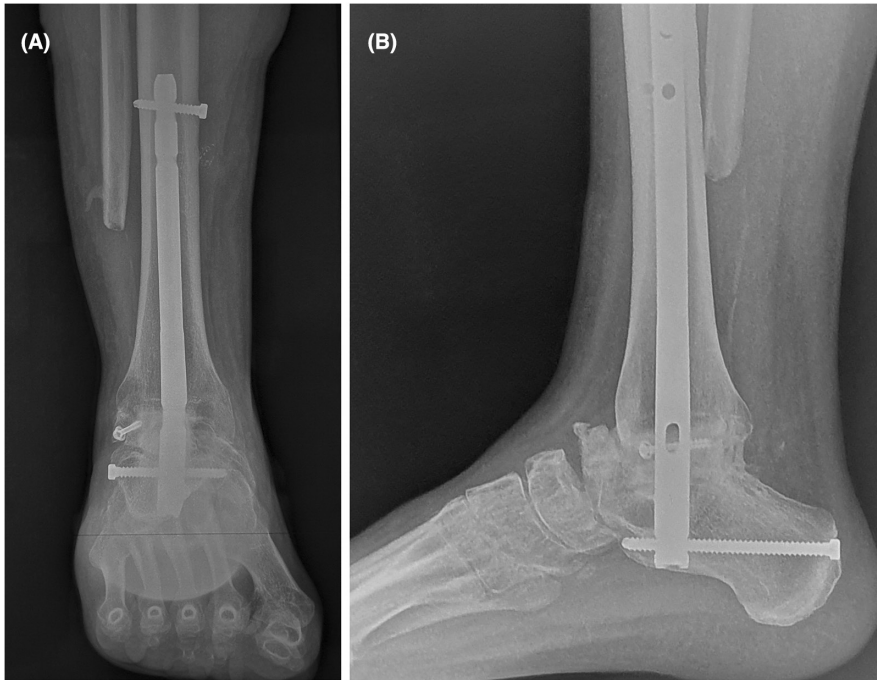


FIGURE 5 Two-years follow-up AP (A) and Lateral (B) radiographs demonstrating a stable tibiotalocalcaneal fusion and “talo-navicular” fibrous union.

FUNDING INFORMATION

No funding was received for this study.

ACKNOWLEDGMENT

None.

CONFLICT OF INTEREST

There is no conflict of interest associated with this publication, and there has been no financial support for this work that could have influenced its outcome.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

ORCID

Dimitrios Kitridis  <https://orcid.org/0000-0002-6063-8650>

REFERENCES

1. Weston JT, Liu X, Wandtke ME, Liu J, Ebraheim NE. A systematic review of total dislocation of the talus. *Orthop Surg*. 2015;7(2):97-101. doi:10.1111/os.12167
2. Huang P, Lundgren ME, Garapati R. Complete talar extrusion treated with an antibiotic cement spacer and staged femoral head allograft. *J Am Acad Orthop Surg*. 2018;26(15):E324-E328. doi:10.5435/JAAOS-D-16-00748

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Kitridis D, Lampridis V, Rigkos D, Savvidis I, Georgiannos D, Bisbinas I. Post-traumatic missing talus: Staged allograft interposition and fusion. Should we fuse the “talo-navicular” joint? *Clin Case Rep*. 2022;10:e06328. doi: [10.1002/ccr3.6328](https://doi.org/10.1002/ccr3.6328)