Case Report

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Successful nonoperative treatment of a closed posteromedial ankle dislocation without associated fractures – a case report

Nahar Almotlaqem, MD, Abdulaziz Altammar, MD, Adnan Hassan, MB BCh BAO (NUI RCSI), Ali Lari, MB BCh BAO (NUI, RCSI)

Introduction: Pure ankle dislocations occurring in the absence of malleolus fractures are extremely rare injuries. These injuries often present with high-energy trauma and ligamentous injury. Comprehensive research is not available due to the rarity of the injury. However, recent literature has supported treatment by nonoperative means. This case report aims to discuss a similar case and offer insight into the prognosis of such injuries.

Case presentation: A previously healthy 26-year-old male was diagnosed with a closed posteromedial ankle dislocation without associated fractures. Reduction was performed under procedural sedation and confirmed with postreduction radiographs. The patient was immobilized and scheduled for serial follow-up in the outpatient department. Weight bearing was gradually introduced at 6 weeks along with physiotherapy. The American Orthopedic Foot and Ankle Score was 90 and 100 at 6 months and 1 year follow-up, respectively. Return to sports was possible at 1 year postinjury. Range of motion was normal apart from a 5–8° ankle dorsiflexion deficit. Radiographs, computed tomography, and MRI were unremarkable with longer term follow-up.

Conclusion: Patients who sustain pure ankle dislocations with an intact distal tibiofibular syndesmosis can expect favorable outcomes with immobilization, splinting, and gradual rehabilitation, as evident by the high American Orthopedic Foot and Ankle Score and the time to return to sports. This case report serves to provide prognostic information and anticipate outcomes in patients with similar injuries.

Keywords: ankle dislocation, no fracture, nonoperative, pure ankle dislocation

Introduction

Ankle dislocations in the absence of associated local fractures are extremely rare injuries[1]. Typically these injuries are synonymous with high-energy trauma where failure of the ligamentous stabilizers predominates. Reports of such cases are scarce, however, may provide insight into how to adequately manage these injuries[2,3]. The incidence of this injury has been estimated to be 0.46% of all presentations with an ankle dislocation[1]. The typically affected, younger population requires some sort of prognostication as to the outcomes of the injury and its respective treatment. Further, management of patient expectations allows a realistic outlook on the outcomes of this rare injury[4]. In this report, we discuss a case of a posteromedial ankle dislocation with no osseous involvement that was successfully treated with nonoperative measures. This case report was reported in line with the CARE criteria and the SCARE criteria[5,6].

HIGHLIGHTS

- Pure ankle dislocations are extremely rare injuries that occur in the absence of malleolus fractures.
- These injuries are usually associated with high-energy trauma and result in considerable ligamentous injury.
- Although ligamentous injuries are likely, nonoperative management with immobilization, nonweight bearing, and aggressive physiotherapy can result in good outcomes.

Case presentation

A previously healthy, 26-year-old male presented to ED after a football injury. The patient sustained a direct blow to the mid-leg with his feet grounded. The patient presented within an hour of the initial injury directly to the emergency department; and had not received any treatment before presentation. Initial assessment revealed a gross deformity and marked swelling of the left ankle. There were no open wounds, and a neurovascular exam was unremarkable for any deficit. After radiographs revealed a posteromedial ankle dislocation (Fig. 1), closed reduction was performed by using simple traction and gradual dorsiflexion for 5–10 min under procedural sedation and local anesthesia. A post-reduction neurovascular exam was performed followed by

AlRazi Orthopedic Hospital, AlSabah Medical Region, Kuwait City, Kuwait

**Corresponding author. Address: AlRazi Orthopedic Hospital, AlSabah Medical Region, Kuwait City, Kuwait. E-mail address: dr.alilari@gmail.com (A. Lari).*

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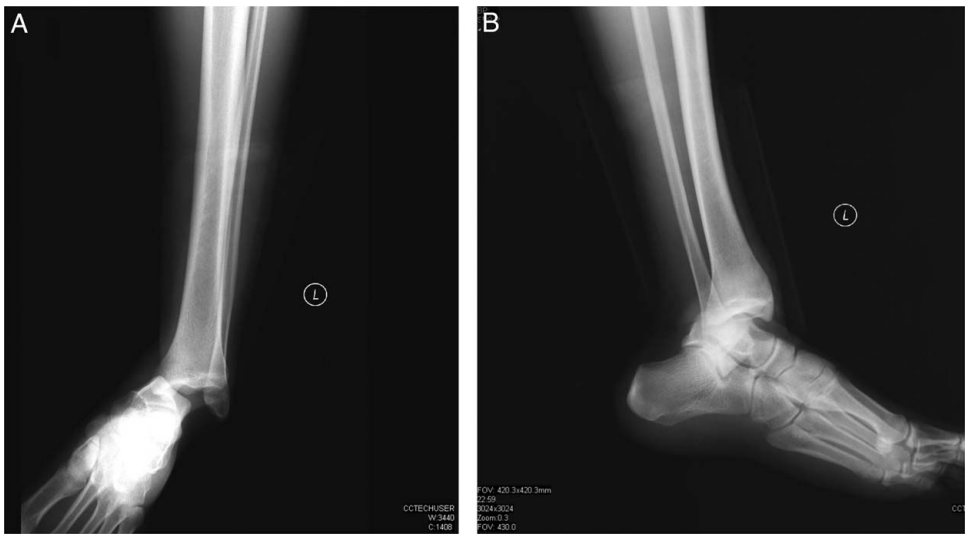

Figure 1. Anteroposterior (A) and lateral (B) radiographs showing a posteromedial ankle dislocation with no fractures of the malleoli.

immobilization in a below-knee slab followed by a plain radiograph (Fig. 2).

A computed tomography scan was obtained, revealing no fractures and a reduced joint. The patient was discharged to follow-up in the outpatient department in a well-moulded below-knee cast and was instructed not to bear weight. Serial outpatient department visits were scheduled at 2, 4, and 6 weeks postinjury. At the third visit, the cast was changed to an air-cast boot, allowing for gradual weight bearing as tolerated and range-of-motion exercises under the supervision of physiotherapy. The patient was allowed to bear weight without crutches or a boot at 3 months postinjury.

At the 6-month visit, the patient had no complaints and was able to practice all activities of daily living without pain. There was no tenderness around the ankle joint. Range-of-motion assessment revealed an 8° deficit in dorsiflexion compared to the contralateral side. An assessment of the American Orthopedic Foot and Ankle Score at 6 months obtained a score of 90/100 due to mild occasional pain. At the 1-year follow-up, the American Orthopedic Foot and Ankle Score was 100. An anterior drawer test was positive for mild laxity without pain. Return to sporting activities was possible at 1 year postinjury, delayed due to apprehension. Sporting activities included running and football, although some apprehension was still present. The patient graded

Figure 2. Postreduction anteroposterior and lateral radiographs showing an adequately reduced ankle with no talar shift or syndesmotic disruption.

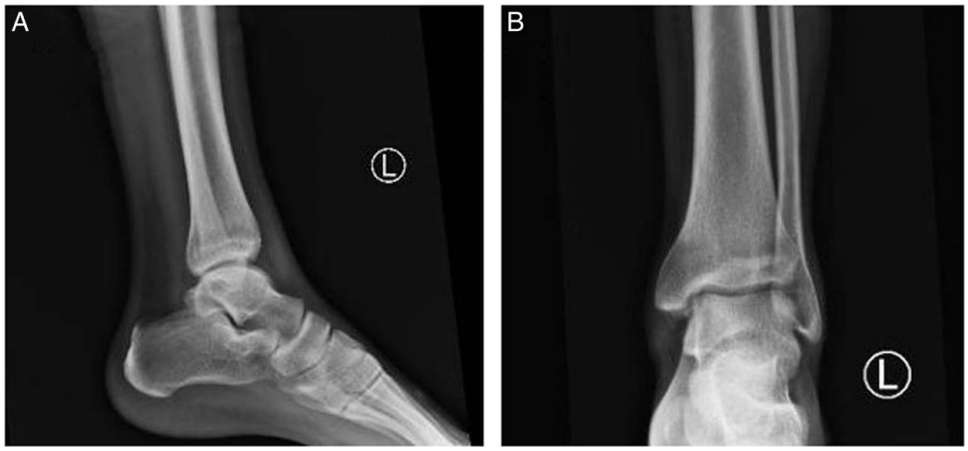

Figure 3. An anteroposterior and lateral radiographs of the ankle taken at 1-year after injury showing a congruent ankle with mild osteophytic changes beneath the medial malleolus.

satisfaction with the management and outcomes 10 out of 10. The Left ankle range of motion was revealed: dorsiflexion 20°, flexion 45°, inversion 30°, and eversion 17°. A MRI scan performed at 6 months showed thickened anterior talofibular and deep tibiotalar ligaments with surrounding edema. Finally, a plain radiograph was performed at 1 year postinjury (Fig. 3).

Discussion

Pure ankle dislocations without the presence of fractures are rare. Wight *et al.*[1] estimated an incidence of 0.46% of ankle dislocations in the absence of fractures. Joint dislocations without fractures are generally rare but have been reported to occur in other joints, including the elbow joint and subtalar joint[7,8]

Factors that may potentially be implicated in dislocations are; ligamentous laxity, medial malleolus hypoplasia, weak peroneal muscles, and previous injuries[9]. The initial management of dislocations is well established; however, there was previous controversy over the benefits of ligamentous repairs in the acute setting[1]. To guide future management, a computed tomography scan may be beneficial in identifying osteochondral lesions not appreciated on radiographs. An MRI scan showed evidence of previous ligamentous strains and tears with local disuse osteopenia. Although previous treatment strategies were conflicting, recent evidence suggests that patients sustaining pure ankle dislocations can expect good outcomes when managed nonoperatively with a period of immobilization followed by gradual rehabilitation. Provided that the distal tibiofibular syndemosis remained intact. Another important endpoint for the patient is the ability to return to sporting activities. In this patient, return to sports was possible at 1-year postinjury. However, it is important to highlight that patients may be apprehensive about a return to play and should attempt a gradual return.

Conclusion

The findings from this case report suggest that patients sustaining a pure ankle dislocation may expect good outcomes when treated nonoperatively. Provided the patient adheres to a strict postinjury regimen involving immobilization, intensive physiotherapy, and an accurate assessment during follow-up sessions.

Ethical approval

This study was exempt from ethical approval – observational case report.

Consent

Written and verbal consent was obtained from the patient for the publication of this case report. A copy of the consent is available at the request from the Editor-in-Chief.

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Author contributions

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We, the authors of this submission confirm that we have not published the same or a very similar study with the same or very similar results and major conclusions in any other journals. These include English or non-English language journals and journals that are indexed or not indexed in PubMed, regardless of different words being used in the article titles, introduction, and discussion.

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