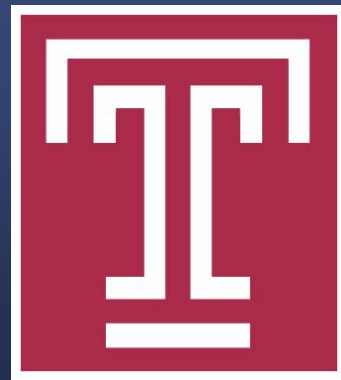


# A Case Report of Open Ankle Dislocation without Associated Fracture

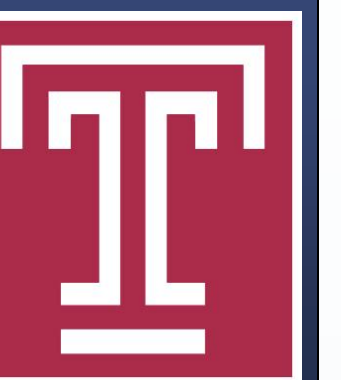
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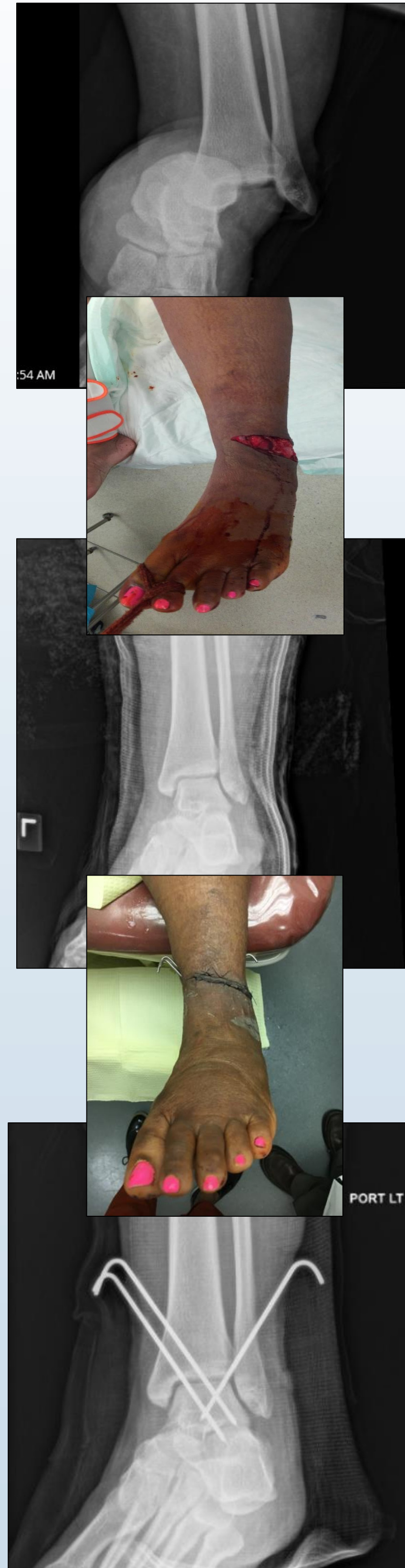


## Statement of Purpose and Literature Review

Pure ankle dislocations without associated fracture are a relatively rare event. Due to this rarity, these cases are generally reported in the literature in the form of case reports or small case series with limited available epidemiological data. For example, in one literature review, Wight et al. reported that ankle dislocations without fracture are seen in only approximately 0.065% of patients with ankle injury, and 0.46% of patients with ankle dislocation [1].

These injuries have been most commonly described in middle aged men following motor vehicle accidents or sporting injuries. However, other contributing factors might include medial malleolus hypoplasia, ligamentous laxity, weakness of peroneal muscles, and a history of previous ankle sprains [1-7].

**Even more rare is this clinical presentation as an open injury. In this report we present a case of the evaluation and management of a patient who presented to our Level-1 trauma center with an open ankle dislocation without associated fracture secondary to a motor vehicle accident.**



## Figures



**Figure 1:** Pre-reduction clinical image with overlying transparent radiograph demonstrate a medial ankle dislocation with >5cm soft tissue laceration and exposure of the lateral malleolus.



**Figure 2:** A closed reduction was performed in the Emergency Department and the patient was subsequently urgently brought to the OR.



**Figures 3 and 4:** Following irrigation, the ankle joint was pinned and the soft tissue envelope was closed including primary repair of the ATFL. The patient was kept immobilized and NWB for 8 weeks, at which point the pins were removed and a physical therapy protocol was initiated.



## Case Report

A 41 year-old female with no significant past medical history presented to the Temple University Hospital Emergency Department with an open left ankle dislocation following a motor vehicle accident in which she was a front-seated passenger. No other injuries were identified. Her extremity neurovascular status was intact, with a large soft tissue defect at the anterior-lateral ankle and exposure of the distal tibia and fibula. Pre-reduction radiographic images demonstrated a posterior-medial dislocation without evidence of acute fracture. In the emergency department the wound was irrigated with 6L of normal sterile saline and a successful closed reduction with conscious sedation was performed.

She was then urgently brought to the operating room where another irrigation was performed with wound exploration. The ATFL was noted to be transected without appreciable cartilage injury. Three Steinmann pins were inserted across the joint in a reduced position and the soft tissue envelope was closed including primary repair of the ATFL. The patient was kept immobilized and NWB for 8 weeks, at which point the pins were removed and a physical therapy protocol was initiated. She made a complete functional recovery.

## Discussion

Fernandes has attempted to determine the mechanism by which pure ankle dislocations occur [6]. He described the mechanism to be of an anterior dislocation after maximal plantarflexion, then followed by inversion. In a closed dislocation, the anterolateral capsule, ATFL, CFL, and both extensor and peroneal retinaculum are expected to be injured. In an open dislocation, the same structures are expected to be injured in addition to the peroneus tertius. Plantarflexion and axial loading might lead to anterior extrusion of the talus, with inversion or eversion determining the direction of dislocation. Additionally, the Achilles tendon draws the foot posteriorly following the initial anterior dislocation. He reported that the majority of pure ankle dislocations are in the posteromedial direction, as seen in this case.

This report presents a rare clinical presentation of a pure open ankle dislocation without associated fracture. The patient presented with the injury following a commonly described mechanism of injury (motor vehicle accident) and did well with a treatment protocol similar to an open fracture.

## References

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