



Initial Management Algorithm for Ankle Dislocations

Jeffrey R. Baker, DPM, AACFAS, Shail N. Patel, DPM, AACFAS, Adam J. Teichman, DPM, AACFAS, Summer E.S. Bochat, DPM
Weil Foot and Ankle Institute, 1455 Golf Road, Suite 110, Des Plaines, IL 60016
www.weil4feet.com

INTRODUCTION

Ankle dislocations are medical emergencies encountered by the foot and ankle surgeon. The disruption of the ankle mortise can lead to significant complications if not evaluated and treated in a timely manner. There are several reasons why emergent reduction is necessary: dislocation can compromise the neurovascular status of extremity, gross malalignment of the osseous structures causes pressure ischemia on areas of the skin, less post-injury edema is noted with early reduction, and prompt reduction prevents further damage to articular cartilage. Due to the strong construct of the ankle ligament complex and inherent stability of the ankle joint, pure dislocations are rare. Most ankle dislocation occur with an associated ankle fracture. The goal of closed reduction for ankle dislocations is to reduce the talus underneath the tibia. A stepwise approach for the treatment of ankle dislocations has been used for years by physicians treating these complex injuries. While these treatment methods have been documented through a written format, a formal treatment algorithm has yet to be developed. Using a combination of a review of the literature and clinical experience, the authors have developed a treatment algorithm for dislocations of the ankle to aid physicians in the initial treatment of this emergent injury.

RETROSPECTIVE ANALYSIS

Community Based Hospital Emergency Room Setting
St. Mary Hospital Hoboken, NJ 1998-2003
Thorek Memorial Hospital Chicago, IL 2006-2008

40 Patients
 21 male
 19 female
Age Range
 12-86
Average Age
 44

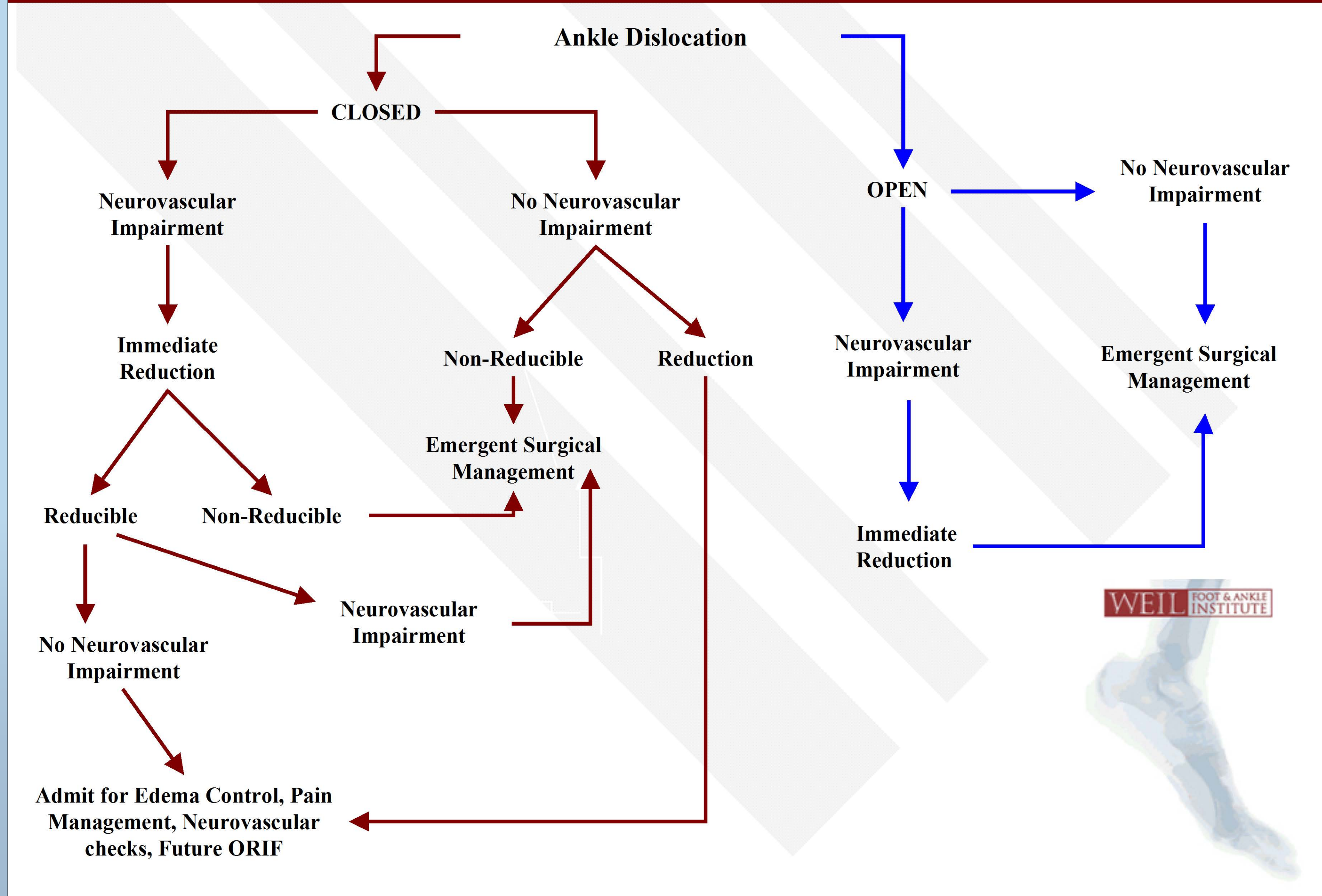
Injury Characteristics
39 Closed Injuries
 35 SER IV
 1 PAB III
 1 PER IV
 1 Pilon Fracture
 1 Salter-Harris II Tibial Fracture
1 Open Injury
 Open Dislocation without fracture
1 case of neurovascular compromise prior to reduction
 PER IV

Reduction Attempts Per Patient
28 single reduction attempts
11 multiple reduction attempts
 5 cases of partial reduction of the talus under the tibia
 4 cases of AO splint inability to maintain reduction
 1 case of posterior tibial tendon interposition into the tibiotalar joint blocking reduction
 1 case of a large posterior malleolar fragment blocking reduction

MATERIALS AND METHODS

A retrospective review was performed on 40 patients who presented to a community based hospital emergency room [St. Mary Hospital Hoboken, NJ 1998-2003 and Thorek Memorial Hospital Chicago, IL 2006-2008] with an ankle dislocation. An analysis of patient demographics, injury pattern/classification, number of reduction attempts, and immobilization method was performed and evaluated. This analysis was correlated with a review of the literature to develop an algorithm for the initial management of ankle dislocations.

INITIAL MANAGEMENT ALGORITHM FOR ANKLE DISLOCATIONS



RESULTS

In the community hospital setting, ankle dislocations most often occur with an associated ankle fracture. The majority of the associated ankle fractures were classified as an SER IV fracture pattern. Interposition of soft-tissue structures or a large posterior malleolar fragment caused the reduction to be more difficult requiring multiple reduction attempts. The use of a post-reduction bi-valved fiberglass cast was noted to be superior in maintaining reduction versus an AO splint. In a review of the literature, ankle dislocations due to a pronation/external rotation mechanism were associated with the highest number of cases with neurovascular impairment. The authors experienced one case of an ankle dislocation with neurovascular impairment secondary to a PER IV fracture pattern.



CONCLUSIONS

When reduction of ankle dislocations are approached in a stepwise manner, the number of reduction attempts and complications are decreased. The authors specifically advocate the use of a bi-valved cast for immobilization of ankle dislocations after closed reduction based on their clinical findings.

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