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A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients

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Introduction

Stability of isolated Weber B fractures is typically determined by stress radiographs (either manual or gravity stress), or even magnetic resonance imaging. In clinical practice, initial weight bearing (WB) ankle radiographs are frequently utilized and are thought to be predictive of stability in these injuries. We describe a cost-effective and reliable method, using WB ankle radiographs, to determine stability of isolated Weber B fractures and a functional treatment for these injuries.

Methods

A retrospective review of prospectively collected patients was performed. Weber B ankle fractures with medial clear space (MCS) <7mm on initial injury gravity stress radiographs and normal mortise relationship on initial weight bearing ankle radiographs were defined as stable injuries. Fifty-one patients meeting these criteria were treated nonoperatively with a functional weight bearing treatment plan and serial radiographs. Functional scores were obtained after 1 year.

Results

All 51 patients completed 1 year of treatment. Average functional scores were as follows: American Orthopaedic Foot and Ankle Society Ankle & Hindfoot (93.2), Foot and Ankle Ability Measure for Activities of Daily Living (93.2), Olerud and Molander Ankle Score (91.3), and Visual Analog Scale (0.57). Despite mean initial gravity stress MCS of 4.42mm (15 patients >5mm), no patient demonstrated MCS widening on any weight bearing ankle radiographs during their treatment course. Mean MCS on one-year follow-up standing radiograph was 2.64mm. Fracture union rate was 100%.

Conclusion

Initial weight bearing ankle radiographs are predictive of stability in isolated Weber B fractures. Gravity stress radiographs using traditional measurement criteria may overestimate instability in these injuries, potentially leading to unnecessary surgical intervention. These very common injuries can be successfully treated with immediate functional protected weight bearing.