POSTER ABSTRACTS

SCIENTIFIC POSTER #8  Foot, Ankle, Pilon  OTA 2018

Posterior Malleolar Fixation Reduces the Need for Syndesmotic Screw Fixation in Rotational Ankle Injuries

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Purpose: Inaccuracy of syndesmotic repair following rotational ankle injury can lead to significant problems with ankle kinematics. The relationship between the posterior malleolus (PM) and the syndesmotic complex is well established. Accurate reduction and fixation of this fragment can often be achieved intraoperatively, and, theoretically, may preclude independent syndesmotic fixation. The goal of this study was to determine whether PM fragment fixation reduces the need for independent syndesmotic fixation.

Methods: An IRB-approved review was performed for a consecutive series of patients treated operatively for a rotationally unstable ankle fracture between 2011 and 2017. Radiographs were reviewed to identify cases with PM involvement. Patient demographics and injury characteristics were recorded. All fractures underwent surgery using standardized techniques. Intraoperative ankle stress evaluation was done following fixation to evaluate syndesmotic instability. The decision to fix the PM was made by the surgeon. The 2 groups (PM fixed vs not fixed) were compared for demographics, fracture characteristics, and intraoperative instability and transsyndesmotic fixation using Fisher’s exact test or independent t-tests as appropriate. Binary logistic regression was used to re-test the association between need for syndesmotic fixation and PM fixation group after adjusting for PM fragment size.

Results: 85 patients with 85 unstable ankle fractures with a PM fragment were included. 43 fractures underwent PM fixation and 42 did not. There were no differences between the PM fixation groups with regard to age, gender, body mass index, or fracture pattern (P = 0.183 for all). The average size of the PM fragment in the fixed group was larger than among those not fixed (P <0.001). There were significantly lower odds of needing syndesmotic fixation if the PM fragment was fixed (odds ratio: 0.011, 95% confidence interval [CI] 0.002-0.058). Only 2 out of 43 ankles with a fixed PM fragment underwent syndesmotic fixation compared with 34 out of 42 non-fixed PM fragments.

Conclusion: The decision to fix PM fragments as part of ankle fracture repair surgery is multifactorial. This clinical study lends evidence to the fact that PM fixation imparts syndesmotic stability and may be considered as an alternative to transsyndesmotic fixation for restoring dynamic ankle mortise congruence.

See the meeting app for complete listing of authors’ disclosure information.