

Peroneal Tendon Dislocation Associated with Intra-Articular Calcaneus Fractures

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Background: Peroneal tendon subluxations or dislocations (PTD) are often undetected and 20 under-treated in the setting of intra-articular calcaneus fractures. Existing studies demonstrating 21 an association of PTD with intra-articular calcaneus fractures are limited by small sample sizes 22 and do not correlate PTD with fracture classification; therefore, offering little diagnostic or 23 prognostic value. The goals of this study are to determine: (1) incidence of PTD associated with 24 intra-articular calcaneus fractures; (2) correlation of PTD with fracture classification; (3) 25 association of PTD with heel width; and (4) the rate of missed radiographic diagnosis and lack of 26 treatment of PTD.

Methods: A radiographic retrospective review of all calcaneus fractures presenting from 6/30/06 28 to 6/30/11 was performed at three institutions. Four hundred twenty-one intra-articular calcaneus 29 fractures involving the posterior facet had CT imaging available for review. Fractures were 30 classified by the Essex-Lopresti and Sanders systems. The incidence of PTD was noted and 31 correlated with fracture classification and heel width. Radiology reports and operative reports 32 were reviewed to determine if PTD was identified and treated.

Results: There were 118 (28.0%) PTD cases out of a total 421 calcaneus fractures. PTD was 34 significantly associated with joint depression fractures when compared to tongue-type fractures 35 ($p < 0.001$). Increasing severity of fractures, based on Sanders classification, was associated with 36 PTD ($p < 0.002$). Among cases with PTD, the mean heel width on CT scan was significantly 37 greater than cases without PTD ($p = 0.003$). Only 12 (10.2%) of the 118 PTD cases were 38 identified in radiology reports. Sixty-five (55.1%) fractures with PTD were taken for fixation, 39 however only seven (10.8%) of the 65 cases had the PTD surgically addressed.

Conclusion: Results of this radiographic analysis showed a 28% incidence of peroneal tendon 41 displacement associated with intra-articular calcaneal fractures. Surgeons and radiologists are 42 encouraged to be aware of this significant finding. Further research is required to determine the 43 resultant morbidity from peroneal tendon dislocations associated with calcaneal fractures.

Level of Evidence: IV