

Peroneal Tendon Dislocation Associated With Intra-Articular Calcaneus Fractures: An Underappreciated Problem

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Background/Purpose: Peroneal tendon dislocations (PTDs) are often undetected and undertreated complications of intra-articular calcaneus fractures. Existing studies demonstrate an association of PTD with intra-articular calcaneus fractures using CT. However, these studies are limited by small sample sizes, making the determination of true incidence unreliable. Further, existing research does not correlate fracture classification with PTD and therefore offers little prognostic value. The goals of this multicenter, retrospective study are to determine: (1) incidence of PTD associated with intra-articular calcaneus fractures, (2) correlation of PTD with fracture classification, (3) association of PTD and heel width, and (4) the rate of missed radiographic diagnosis and subsequent lack of treatment of PTD.

Methods: An IRB-approved review of calcaneus fractures from June 30, 2006 to June 30, 2011 was performed. Cases of intra-articular calcaneus fractures on plain film and CT imaging were included. Fractures were classified by the Essex-Lopresti and Sanders classifications. CT imaging was used to measure heel width and to identify PTD using available techniques. Plain radiographs were examined for signs of PTD (ie, “fleck” sign, distal fibular avulsion fracture). Radiology reports were reviewed for identification of PTD. Medical records of PTD cases were reviewed for operative treatment of PTD at initial fracture fixation or at a later date.

Results: Of 354 calcaneus fractures, 269 (76%) were intra-articular. 63.2% were classified as joint depression, the remainder were tongue type. 13.8% were Sanders I, 37.1% Sanders II, 27.5% Sanders III, and 17.1% were Sanders IV. 31.7% of intra-articular fractures had peroneal tendon dislocations. There was a statistically significant correlation between heel width ($P < 0.001$) and joint depression fractures ($P = 0.003$) with PTD. Sanders IV fractures were statistically significant and more likely to have PTD than Sanders Class I to III fractures ($P = 0.003$). Radiologists identified 9.2% of PTDs on CT scans. None (0%) of the fractures with PTD taken for surgical fixation had the peroneal tendons surgically addressed. The “fleck” sign was seen in 5.6% of patients with PTD. This diagnostic test for PTD had a sensitivity of 21%, a specificity of 100%, a positive predictive value of 100%, and a negative predictive value of 73%.

Conclusions: The results of our study demonstrate a statistically significant and high incidence of PTD with intra-articular calcaneus fractures. This injury is often overlooked by radiologists and undertreated by orthopedists. Further research is required to determine if this finding is linked with increased patient morbidity.

Current Faculty and Residents

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