

Patterns of Anterior Inferior Tibiofibular Ligament Avulsion Fracture Accompanied by Ankle Fracture

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Abstract

The anterior inferior tibiofibular ligament (AITFL) avulsion fracture accompanying an ankle fracture can compromise ankle stability, necessitating accurate evaluation and a clear understanding of its pathophysiology. The aim of this study was to investigate the association between AITFL avulsion fracture and Lauge–Hansen, Wagstaffe classification. A retro-prospective study was conducted at a university-affiliated tertiary care medical center. We selected 128 patients who underwent surgery at our institution between January 2013 and July 2017 and analyzed the association between AITFL avulsion fracture and the foot position. According to the modified Wagstaffe classification system, there were 39 cases of type II, followed by 9 cases of type III and 8 cases of type IV. Of the 7 pronation-abduction fractures, 3 were AITFL avulsion fracture (43%), while of the 21 pronation-external rotation fractures, 9 were AITFL avulsion fracture (43%). Of the 95 supination-external rotation fractures, there were 56 cases (59%) of AITFL avulsion fractures. Of the pronation fractures, 0% were fibular avulsion fractures and 43% were tibial avulsion fractures. Of the supination fractures, 44% were fibular avulsion fractures and 16% were tibial avulsion fracture. The difference in the ratio of fibular to tibial avulsion fractures between pronation and supination fractures was significant ($p < 0.001$). These results suggest that tibial avulsion fractures of type IV in the modified Wagstaffe classification and pronation fractures occur due to collision with the anterolateral corners of the distal bone when the talus externally rotates. A new type of AITFL avulsion fracture has been observed in cases of pronation fractures and a modification to the Wagstaffe classification is proposed to include these fractures.

Conflict of Interest:

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