Measuring Visualized Tendon Length in Peroneal Tendoscopy

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Introduction/Purpose: Tendoscopy is a relatively new method of evaluating for tendon lesions in foot and ankle surgery. Despite multiple studies describing peroneal tendoscopy use, no study exists to determine the efficacy of tendoscopy at visualizing the entire length of the peroneal tendons. The purpose of this cadaver study was to measure the length of the peroneal tendons that could be visualized using tendoscopy.

Methods: Ten (10) fresh cadaveric specimens, complete above- or through-knee specimens, were evaluated. Peroneal Tendoscopy was performed with routine portal placement including proximally 2 cm above the lateral malleolar tip and mid-tendon proximal to the peroneal tubercle. For the initial 5 specimens, the peroneus longus sheath was entered distal to the tendon bifurcation and proximal to the lateral cuboid under direct visualization for zone 3 tendoscopy. For the subsequent 5 specimens, a more distal point closer to the base of the 5th metatarsal was used as a landmark for skin incision and the sheath was entered at the distal aspect of the cuboid. The edges of visualized longus and brevis tendons were marked with kirschner wires placed through the tendon percutaneously under direct visualization. The tendon sheaths were then dissected and the distances from anatomic landmarks were directly measured.

Results: Proximally (zone 1), both the peroneus tendons were followed circumferentially to the musculotendinous junction of the longus in all specimens. Peroneus brevis was visualized in zone 2 to an average of 19.5 mm (95% CI 16.5-22.5) from its insertion onto the base of the 5th metatarsal. Using a peroneal tubercle start point, zone 3 of peroneus longus was visualized up to an average of 17 mm (11-23) from its insertion onto the base of the 2nd metatarsal. Using a more distal start point, longus was seen up to 1.6 mm (0.3-2.9) from its insertion. The muscle belly of peroneus brevis ended an average of 1.9 mm (-3.7-7.3) above the tip of the lateral malleolus.

Conclusion: The results suggest that the vast majority of the peroneal tendons can be visualized during peroneal tendoscopy. It was also noted that a more distal skin portal site may improve visualization of zone 3 of peroneus longus.