A Simplified Technique for Repair of Recurrent Peroneal Tendon Subluxation

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Peroneal tendon subluxation or dislocation denotes intermittent or chronic anterior displacement of the peroneus longus and brevis tendons out of their fibro-osseous tunnel at the distal and posterior aspect of the fibula. Numerous surgical techniques have been described to address peroneal tendon subluxation, including isolated or combined soft tissue and osseous reconstructive procedures. The authors present an efficient and simplified approach for addressing this pathology using multiple, nonabsorbable retention sutures without the need for extensive dissection or osteotomy. (The Journal of Foot & Ankle Surgery xx(x):xxx, 2009)

Key Words: dislocation, peroneal tendon, peroneus brevis, peroneus longus, subluxation

Operative Technique

The patient is positioned in the lateral decubitus or supine position with a bolster underlying the ipsilateral hip to facilitate internal rotation of the respective extremity and exposure. A 6- to 8-cm longitudinal incision is made over the posterolateral aspect of the distal fibular, extending to

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the fibular malleolus (Figure 1). Anatomical dissection and hemostasis are used to expose the deep fascia and peroneal retinaculum (Figure 2). Exposure is carried out to the point that the subluxated peroneal tendons are identified within their distended tunnel or sheath. Next, the peroneal tendons are manipulated back into their correct anatomical position posterior to the fibula, with the use of a blunt instrument such as an unloaded scalpel handle or the hinge (proximal) portion of an Adson forceps (Figure 3). The tendons are maintained in this position with the blunt instrument while a moderate- to large-caliber nonabsorbable suture, such as a 2–0 braided nylon, is used to reef the SPR and the sheath. The technique involves placing multiple interrupted over-and-over sutures along the distal course of the SPR/peroneal tendon sheath, at the level of the posterolateral margin of the fibular. The aim is to reapproximate and anchor the SPR and sheath insertion to the periosteum along the posterolateral margin of the fibula. The size of the “suture bite,” or the amount of soft tissue reefing, that is required depends on the degree of distension of the respective retinaculum and sheath. Care must be taken to avoid overly tightening the fibro-osseous tunnel, thereby stenosing the peroneal tendons.

With the foot maintained at 90 degrees to the leg and the peroneal tendons situated posterior to the fibula, the over-and-over sutures are thrown from posterior and lateral to anterior, purchasing the distended SPR and sheath, while
making sure that the needle passes through both periosteum and the fibrocartilaginous posterolateral lip of the fibular-peroneal tunnel (Figure 4). The needle is subsequently re-routed back through the SPR and sheath while progressing anteriorly, ensuring that the needle passes once again through both periosteum and the fibrocartilaginous posterolateral lip of the fibular-peroneal tunnel. Approximately 5 to 6 interrupted over-and-over sutures are placed and left untied (Figure 5) until all have been positioned and the final peroneal tendon position has been assessed. All independent suture throws are then tied down progressively, under sufficient tension, from superior to inferior to ensure maintenance of reduction.

The wound is then irrigated and is closed in layers, after which the foot and ankle are dressed in a sterile Jones compression bandage with a posterior splint holding the ankle and foot in a 90-degree relationship. Postoperatively, the patient is kept non-weight bearing for 3 weeks, after which time the patient is allowed to ambulate with partial weight bearing in an immobilizing boot, progressively bearing increased weight on the operated side to the point of full weight bearing over an approximately 3-week period of additional time. At 6 weeks post operation, the patient typically returns to lace-up footwear with a compression garment, but is restricted to flat surfaces and allowed exercise in the form of stationary bike, elliptical trainer, or level ground walking. No activity involving medial to lateral or pivoting motion is recommended until approximately 12 weeks following the operation, when unrestricted activity is usually capable of being sustained.
Discussion

The senior author (C.A.C.) has performed the technique described in this report in 16 patients over an approximately 12-year period of time, and has had no cases of recurrent peroneal subluxation or dislocation. Based on this experience, a number of important caveats seem to be associated with success. First, this procedure is a “no-look” technique that is predicated on the absence of intrinsic peroneal tendon pathology. That is to say, there is no evidence of intratendinous tear that requires intrasheath dissection, and the SPR and tendon sheath must remain intact. Therefore, preoperative imaging in the form of ultrasound or magnetic resonance image (MRI) scans, in conjunction with a thorough clinical examination, is required for the surgeon to be reasonably assured that the tendon/s are intact. Caution is recommended, however, in regard to depending totally on MRI scans to ascertain the status of the tendons within the peroneal sheath (11, 12), and surgeons are encouraged to carefully assess the patient clinically. If there is doubt as to the integrity of the intrasheath structures, then surgical inspection should be considered. In cases of acute peroneal tendon subluxation or dislocation with overt rupture of the SPR and sheath, and/or avulsion of a portion of the fibular cortical fragment, direct peroneal tendon realignment and anatomic reconstruction must be considered. Furthermore, in the presence of a convex fibular sulcus, an osseous procedure to deepen the sulcus is recommended.

References