

Statement of Purpose

The aim of this report is to describe a method that provides stability to peroneal tendons after resection of a hypertrophied tubercle, repair of peroneus brevis tendinous defect, and reconstruction of not only the superior peroneal retinaculum, but the inferior peroneal retinaculum as well, via a double peroneal retinaculoplasty. This technique we believe is effective at stabilizing the peroneal tendons without the need for osseous remodeling of retromalleolar sulcus or use of tendon graft.

Abstract

Presence of a hypertrophied peroneal tubercle can cause lateral rearfoot pain and lead to progression of peroneal tendon pathology. It has been described that often times it is associated with peroneal tenosynovitis, peroneus longus tendon impingement or peroneus brevis tear. Rarely, these pathologies may also present in conjunction with subluxation of the peroneal tendons due to weakness of the peroneal retinacula.

The following is a description of a surgical technique for management of hypertrophied peroneal tubercle with associated tear of peroneus brevis and double peroneal retinaculoplasty—reconstruction of superior and inferior peroneal retinacula using suture anchors and dermal graft augmentation—which we believe provides greater biomechanical stability to prevent subluxation of the peroneals.

Level of Evidence: IV

Case Example

An active 65-year-old female had history of 6 month chronic lateral ankle pain along the course of the peroneal tendons, with painful bony prominence over lateral rearfoot with failed conservative management.

Diagnostic MRI indicated tenosynovitis of the peroneal tendons with tear of the peroneus brevis at the level of the peroneal tubercle, which was noted to be hypertrophic

Methodology & Procedures

- Standard peroneal surgical incision is made along the lateral rearfoot
- Hypertrophied peroneal tubercle is resected and sealed with bone wax
- Peroneal tendons are inspected, debrided and repaired per surgeon preference

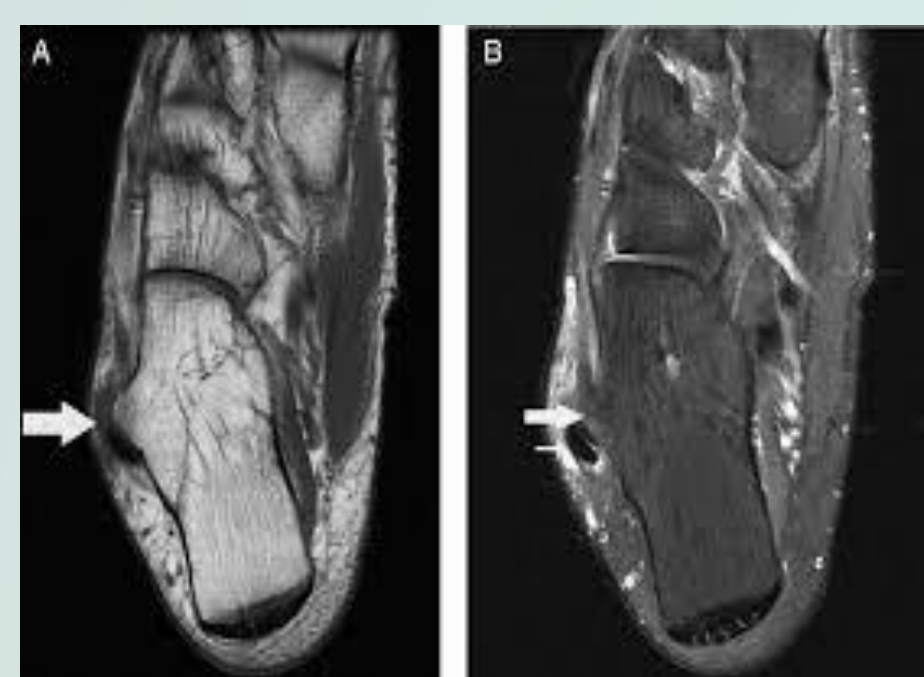


Figure 2. MRI of Hypertrophied peroneal tubercle with tenosynovitis and peroneus brevis tear

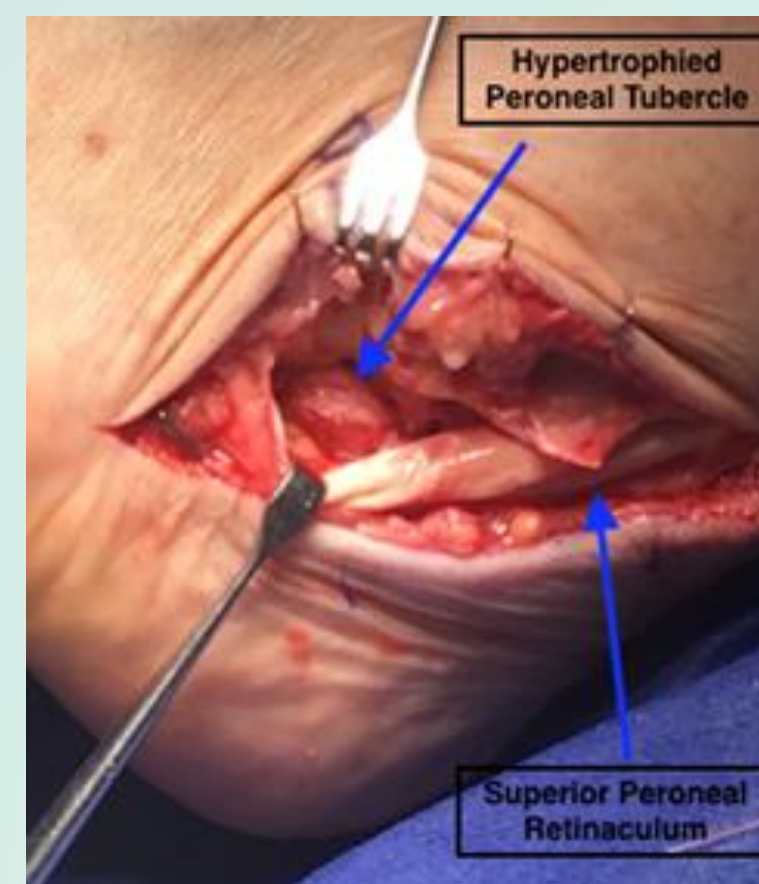


Figure 2. Hypertrophied peroneal tubercle is resected and bony surface remodeled with bone wax.

Methodology & Procedures

- Double retinaculoplasty is then performed using a dermal matrix graft and bone anchors to augment the repair of the superior and inferior peroneal retinacula
 - The first anchor is secured into the posterior aspect of the distal fibula within the fibular retromalleolar groove perpendicular to the longitudinal axis of the fibula
 - The second anchor is used distally on the lateral calcaneus, inferior to the area where the peroneal tubercle was resected.
 - A modified “Tommy-John” technique is used for the reconstruction, taking the superior peroneal retinaculum reinforced with the graft from proximal posterior, curving around anteriorly and then again inferiorly and posterior.

Literature Review

When surgically addressing a symptomatic, enlarged peroneal tubercle, many surgical techniques recommend that the procedure include reconstruction of the superior peroneal retinaculum [2].

When the retinacular fibers are scarce, various reconstruction methods have been described, including fibular groove deepening, bone block procedures, and tendon graft reinforcement

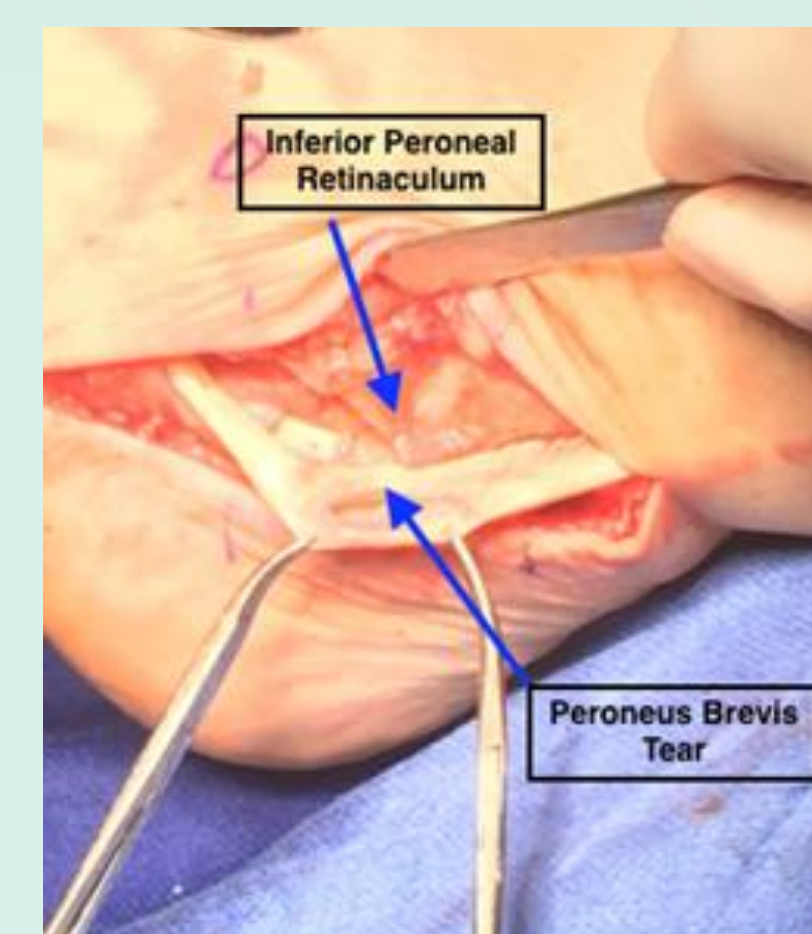


Figure 3. Peroneus Brevis tear distal to tip of lateral malleolus



Figure 4. Repaired Peroneus Brevis with dermal matrix graft augmentation

Results

- Near anatomic reattachment of the retinaculum is restoration of the primary restraint to the peroneal tendons [7].
- Restoration of strength of peroneal tendons
- Asymptomatic and return to regular activities after 6 months post-operatively
- Biomechanically stable rearfoot and medial column

Analysis and Discussion

Various techniques on surgical management of hypertrophic peroneal tubercle associated with concomitant peroneal tendon pathology have been described including fibular groove deepening, bone block procedures, and tendon graft reinforcement.

Fibular groove deepening and bone block procedures are primarily indicated for primary subluxation of peroneal tendons due to a shallow retromalleolar fibular sulcus, however they have been indicated for cases where there are not enough superior peroneal retinacular fibers available for repair.

Mendeszoorn et al described a method of stabilizing the superior peroneal retinaculum utilizing a lateral slip of the Achilles tendon [11]. Oliva et al described a technique using anchors for a single superior peroneal retinaculum reconstruction using anchors to prevent subluxation [2].

Endoscopic repair of superior peroneal retinaculum using anchors has been reported for treatment of isolated subluxation of peroneal tendons, however careful attention to anchor size is needed to avoid mal-positioning of anchors, iatrogenic fracture, and irritation of peroneal tendon from prominent suture knots [8].

Conclusions

Though it is well accepted that the direct repair or reconstruction of the superior peroneal retinaculum alone is sufficient to address peroneal subluxation, as it is the primary restraint for the proper course of the peroneal tendons, we believe it is important to address the inferior retinaculum as well as this provides the desired restraint to the distal portion of the peroneus longus tendon without the stenosis expected from reactive scar tissue and thus affording better biomechanical stability of the medial column during gait.

The technique described is easily reproducible, minimally disruptive to osseous structures, and provides excellent stability to the foot and ankle.

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