a tendon graft is used *it* is assumed that the repair is not under undue tension; therefore, the cast need not be applied in dorsiflexion and weight bearing is allowed.

RESULTS

Surgical repair or reconstruction of a ruptured tibialis anterior produced uniformly good results with return to preinjury activity in almost all reported cases. Only one case in which surgery had been performed was noted to have persistent disability.[3] Persistent symptoms have been reported in patients treated nonoperatively, although they seem to do well overall because of their low level of activity. Most investigators recommend surgical repair for the symptomatic patient, with a moderate to high activity level unless otherwise contraindicated.[1, 6, 7, 9, 11] Although no significant complications have been reported, Mann[5] outlined potential risks of surgical intervention: to prevent adhesions the incision should not lie directly over the tendon, and if possible, should lie slightly medial to it; the pull-out wire should draw the tendon beneath the extensor retinaculum, otherwise the wire will tent the tendon, resulting in a difficult wound closure.

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PERONEAL TENDON DISLOCATIONS

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Subluxation or dislocation of the peroneal tendons is an uncommon injury compounded by the fact that there are frequently only subtle differences separating these injuries from the much more common and better recognized lateral ankle sprain. The first description dates back to 1803, when Monteggia reported this problem on a ballet dancer.[30] The first reports of treatment directed at this injury were submitted by Blanulet[5] in 1875 and Gutierrez[17] two years later. By 1895 subluxation and dislocation were considered "well-recognized conditions."[56]

Most peroneal tendon dislocations are traumatic events. An overwhelming majority of these are sports related with a preponderance of occurrences resulting from snow skiing (71%).* Football is the next most common antecedent (7%), with cases related to running, basketball, soccer, and ice skating as distant followers. Forces responsible for these injuries have been described as a sudden violent contraction of the peroneals combined with an abrupt involuntary dorsiflexion stress of the ankle.[2, 11, 13, 51, 59] Some authors have suggested that foot and ankle position is not as important and that the tendons can dislocate regardless of whether the foot is dorsiflexed, plantar flexed, inverted, or everted; however, all agree that the violent reflex contraction of the muscle group is necessary to produce this injury.[25] In fact, if the peroneals are not under maximum stress with the same applied torque, the result is more likely to be a trimalleolar fracture.[34]

The predilection of these injuries in snow skiiers serves as support for the presumed mechanism of injury.[32, 51] Skiiers describe digging the

* References 1, 3, 8, 10, 12, 13, 24, 26, 27, 31, 32, 45, 46, 50, and 51.

From Baxter, Clanton & Winston Orthopaedic Associates, Houston, Texas

tips of their skis into the snow, creating a sudden deceleration force combined with the dorsiflexed position of the ankle in the ski boot. The rigid boot prevents significant torque on the skeleton at the ankle but force is transmitted to the muscles, culminating in the abrupt forceful reflex contraction of the peroneals that overcomes the soft-tissue restraints. Others propose that, the motions involved in "edging" the ski can produce this injury by maximizing eversion forces leading to a tension effect at the calcaneofibular ligament, which subsequently narrows the fibro-osseous tunnel and forces the tendons against the superior peroneal retinaculum.[13, 51, 54] Any laxity or weakness in the retinaculum could possibly be overcome if enough force were generated in a downhill turn.

Not all peroneal instability is traumatic, however. One large series reported that approximately 3% of newborns will manifest clinically subluxatable peroneal tendons but that this appears to spontaneously resolve without treatment.[21] This could explain the findings of Huber and Imhoff,[18] who found over half of their patients with peroneal tendon dislocations reported no history of antecedent trauma. One theory suggests that these patients may have been predisposed to peroneal instability from birth because of anatomic considerations. Based on these studies, Frey and Shereff[14] have even classified these injuries into subgroups: traumatic and habitual or voluntary. Diagnosis and treatment for both groups, however, is identical.

ANATOMY

Peroneal tendons take their origin from the posterolateral fibula and pass within a fibro-osseous tunnel just behind the lateral malleolus on their way to insert into the foot.[2] The peroneus longus lies posterior at this level and is purely tendinous, whereas the brevis tends to maintain some muscular fibers more distally in its course. The tunnel is bounded by the fibula at its floor and walls. A combination of the fascial thickening of the peroneal sheath as well as the calcaneofibular and posterior talofibular ligaments act as its roof. A retromalleolar sulcus exists 82% of the time, but its depth is highly variable and is absent or even convex in nearly 20% of normal individuals.[12] Cadaver dissection has revealed that the width of the sulcus ranges from 5 to 10 mm and its depth from 2 to 4 mm. The depth is enhanced by a lateral bony ridge in approximately 70% of cases. This ridge, if present, will range from 2 to 4 mm in height and is usually bolstered by a cartilaginous cap adding an additional 1 to 2 mm.[12, 44] By itself the bony ridge is believed to be inadequate to maintain the tendons within the groove. This ridge has been histologically shown to be only loosely affixed to the neighboring fibular periosteum.[11]

The superior peroneal retinaculum is important in maintaining a relationship between the fibula and the peroneal tendons. The structure exists as a band 1 to 2 cm wide beginning approximately 1 to 2 cm proximal to the tip of the lateral malleolus. It arises as a thickening of the superficial fascia of the leg and the sheath of the peroneal tendons.

Its origin is confluent with that of the fibular periosteum to which it is intimately attached anteriorly and inserts on the fascia surrounding the Achilles tendon along with the periosteum of the lateral calcaneal wall posteriorly.[2, 11, 12, 44]

The inferior peroneal retinaculum is a condensation or extension of inferior extensor retinaculum arching over the tendons about 2 to 3 cm distal to the tip of the fibula.[44] The inferior peroneal retinaculum takes its origin near the sinus tarsi and inserts into the calcaneus near its peroneal tubercle. This structure has no apparent contribution to the pathology of peroneal instability (Fig. 1).

DIAGNOSIS

Making the diagnosis of acute peroneal subluxation or dislocation is a challenging endeavor. Because of its infrequency and the fact that ankle

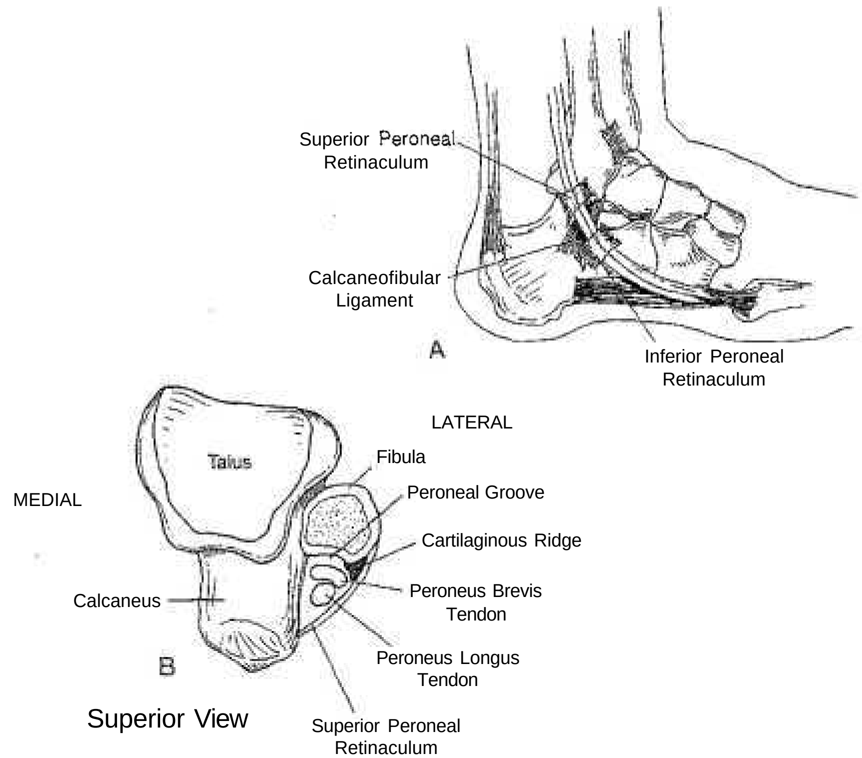

Figure 1. Anatomic relationships of the ankle with the peroneal tendons held in position by the superior and interior peroneal retinacula and the fibrous rim on the posterolateral aspect of the fibula. The calcaneofibular ligament lies below the peroneal tendons. *A,* Lateral view; S, Superior view. *(From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ (eds): Surgery of the Foot and Ankle, ed 6. St. Louis, MO, Mosby-Year Book, 1993, p 1169; with permission.)

sprains are among the most common injuries seen in emergency rooms and by orthopedic surgeons, injuries are frequently mistaken for a typical lateral ankle sprain. Although the presentations of lateral swelling, tenderness, and ecchymosis are similar, there are some obvious findings to which the careful examiner should pay heed. First, the patient is frequently at a loss to explain the mechanism as opposed to those with ankle sprains who typically report "rolling over" or "turning in." Although sprains and tendon subluxation have been reported to occur together, the physical findings are quite disparate.[49] Patients who subluxate demonstrate more posterior tenderness and fewer symptoms anteriorly, particularly over the anterior talofibular ligament. The anterior drawer test is negative and discomfort or apprehension is maximized by resisted eversion of the foot, which mimics the proposed mechanism of injury.

In the chronic setting the presentation is much different. The patient complains of a repetitive popping or snapping that may or may not be accompanied by pain. Occasionally, instability in the form of giving way is present in the face of normal anterior drawer and tilt tests. There is less likely to be swelling or tenderness when compared to patients with chronic ligament instability. The hallmark of diagnosis is a high index of suspicion prompting the clinician to test the patient by resisting eversion and dorsiflexion from an inverted plantar flexed position, thus witnessing the dislocation. Inability to demonstrate dislocation, however, does not necessarily exclude the diagnosis.

Radiographs and other diagnostic studies are frequently helpful in making the diagnosis. Most series suggest normal radiographic examinations, and this has been the authors' experience as well. A reported 15% to 50% of patients suffering acute subluxation or dislocation will manifest an avulsion fracture best seen on the internal oblique or "mortise" view.[6, 31, 38] For those patients in which suspicion is high but plain radiographic examination is negative, other modalities are helpful. CT is helpful in delineating the bony retrofibular anatomy and position of the tendons.[41, 42, 52] MR imaging has gained popularity because of its ability to delineate soft-tissue injury,[47, 58] in particular, damage to the superior peroneal retinaculum. Peroneal tenography, once thought to be useful, has fallen out of favor because of its lack of specificity, invasiveness, and difficulty in interpretation.[15, 39, 40] In most cases, however, a good examination and plain radiographs will suffice to ensure confident diagnosis.

TREATMENT

Acute Nonoperative Management

Once a diagnosis is established the surgeon must choose whether to initiate conservative treatment or approach the problem operatively. Support exists for both methods, but even with adequate conservative treatment the reported successful results are only marginally better than

50%.[26, 51] Even so, initial nonoperative treatment is a safe, legitimate approach to attempt to gain healing and avoid the operative risk to the patient. Adequate conservative management consists of immobilization and a well-molded cast or splint with the foot in slight plantar flexion (10 to 15 degrees) and mild inversion in an attempt to relax the peroneal tendons as well as maintain their reduction in the retrofibular groove. Non-weight-bearing crutch ambulation is continued for at least 6 weeks to allow adequate time for healing of the retinaculum and periosteum. Anything short of this will serve only to ensure a higher rate of recurrent subluxation or dislocation.[13]

Operative Management

Alternatively, many surgeons believe that because of the high risk of recurrent instability combined with the fact that most patients suffering from this injury are young, athletic, and highly motivated for a rapid return to activity, an initial operative management is a reasonable option.[10, 11, 25, 33] The authors agree and advocate early surgical treatment for those patients who desire a quick return to a sport or active lifestyle and for whom there are no contraindications to surgery.

Based on the results of Eckert and Davis[11] it is known that the peroneals will come to lie in a pouch created by the superior peroneal retinaculum and its confluence with the periosteum of the posterolateral fibula, which has been stripped but not torn free from bone. These authors arrived at a classification system for acute injuries based on which structure separated from the fibula (Fig. 2). In grade I injuries (51%) the superior peroneal retinaculum was stripped clean from the posterior lateral malleolus but remained attached to the fibular periosteum; grade II (33%) demonstrated a cartilaginous ridge avulsion from the distal fibula; grade III (16%) was associated with a small, bony avulsion of the posterior lateral cortex of the fibula. No actual tears of the superior peroneal retinaculum were encountered.

Regardless of the pathologic findings, direct reattachment of the superior peroneal retinaculum and periosteum via multiple drill holes in the fibula reliably eliminates the loss of peroneal restraint. The procedure may be performed under general, spinal, epidural, or regional anesthetic. A tourniquet may be used but is not required. The patient may be positioned in the supine, lateral decubitus, or prone position; however, the authors have found that the latter provides better visualization of the retrofibular area of interest. The procedure is performed through an incision just behind the fibula that directly overlies the peroneal tendons beginning 5 to 6 cm proximal to the tip of the lateral malleolus and is parallel to the course of the tendons (Fig. 3). Careful dissection is necessary to protect the sural nerve that lies directly posterior to the incision and may have an anterior branch coursing into the operative field. Dissection proceeds until the superior peroneal retinaculum is encountered. The structure is identified as a thickening of the tendon sheath whose inferior

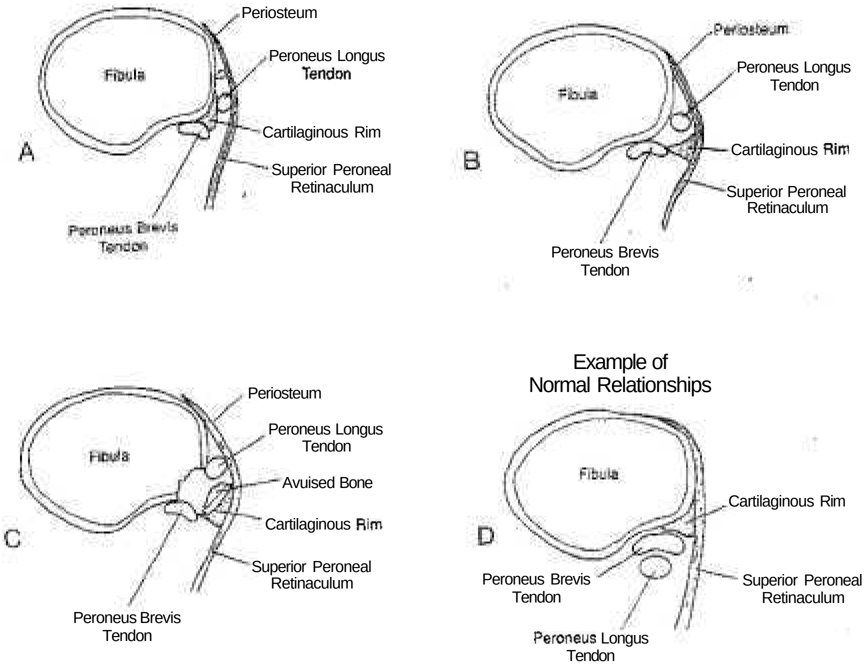

Figure 2. Classification of pathologic conditions in peroneal tendon dislocations. *A,* Normal. *B,* Grade I: Superior peroneal retinaculum stripped off the fibula. *C,* Grade II: Fibrous rim avulsed from the posterolateral aspect of the fibula along with the superior peroneal retinaculum. *D,* Grade III: Bony avulsion of the posterolateral part of the fibula by the superior peroneal retinaculum. (*From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ (eds): Surgery of the Foot and Ankle, ed 6. St. Louis, MO, Mosby-Year Book, 1993, p 1170; and *adapted from* Eckert WR, Davis EA Jr: Acute rupture of the peroneal retinaculum. J Bone Joint Surg Am 58:670-673, 1976; with permission.)

edge lies approximately 1 to 2 cm proximal to the tip of the fibula. Once the superior peroneal retinaculum is identified it is divided and the surgeon proceeds to evaluate the specific pathology. This typically involves retinacular and periosteal stripping but may also demonstrate a bony or fibrocartilaginous avulsion from the posterolateral ridge of the fibula. At this point a small trough is made in the lateral ridge using a rasp or a burr to roughen the bony edge and facilitate healing. Next, three or four drill holes are placed, starting within the lateral cortex and directed toward the fibular groove. Absorbable 0 or 0-0 sutures are used to bring the stripped retinaculum into the trough and then are tied over a bony bridge (Figs. 4-8). The wound is irrigated, subcutaneous tissues and sheaths are loosely approximated, and the skin closed in subcuticular fashion. The foot is placed in a cast or splint with slight equinus and eversion to minimize the stress on the repair.[54] (It should be noted that this position differs from that proposed for nonoperative treatment because lateral restraint has been restored and the tendons should be held in their relaxed position.)

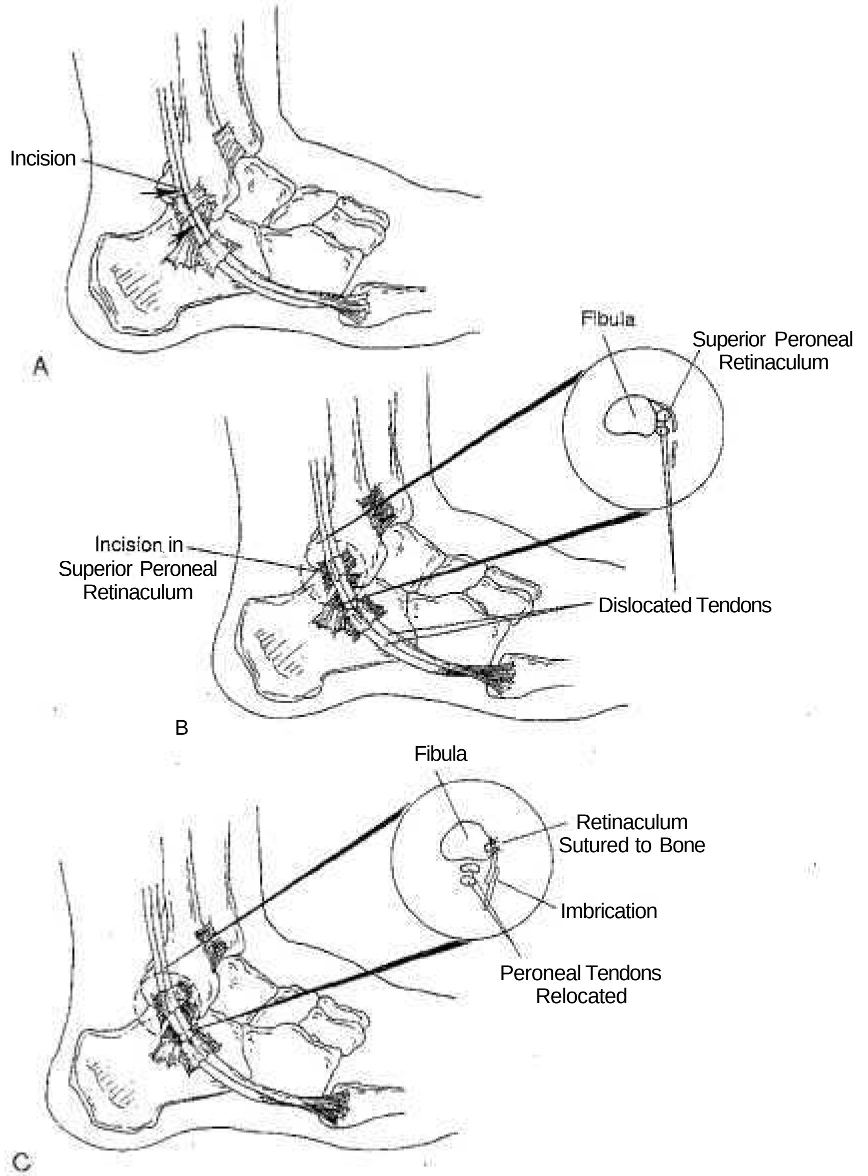

Figure 3. Surgical repair of an acute peroneal tendon dislocation. *A,* Surgical approach. *B,* Pathologic anatomy. *C,* Repair of the superior peroneal retinaculum by direct repairthrough drill holes in the posterolateral portion of the fibula. *(From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ (eds): Surgery of the Foot and Ankle, ed 6. St. Louis, MO, Mosby-Year Book, 1993, p 1172; with permission.)

Figure 4. Preoperative photograph of a grossly unstable peroneal tendon, dislocated lateral to the fibula.

Because of the reported 18% prevalence of shallow or convex grooves, surgeons should inspect for this possibility in every case. Should an inadequate sulcus be identified, a groove-deepening procedure as detailed in the treatment of chronic subluxation should be used in addition to the aforementioned repair.

Postoperative Management

The splint and dressing are maintained for 1 to 2 weeks postoperatively while the patient is non-weight bearing. At the first follow-up visit the patient is placed in a short-leg walking cast or brace that is worn for 1 month. Return to activity can commence only when the patient demonstrates full strength and range of motion as compared to the uninjured side. This usually requires 3 to 4 months for recuperation time.

Chronic Injuries

Because these injuries are frequently misdiagnosed or untreated in the acute phase, patients are frequently encountered after repeated bouts

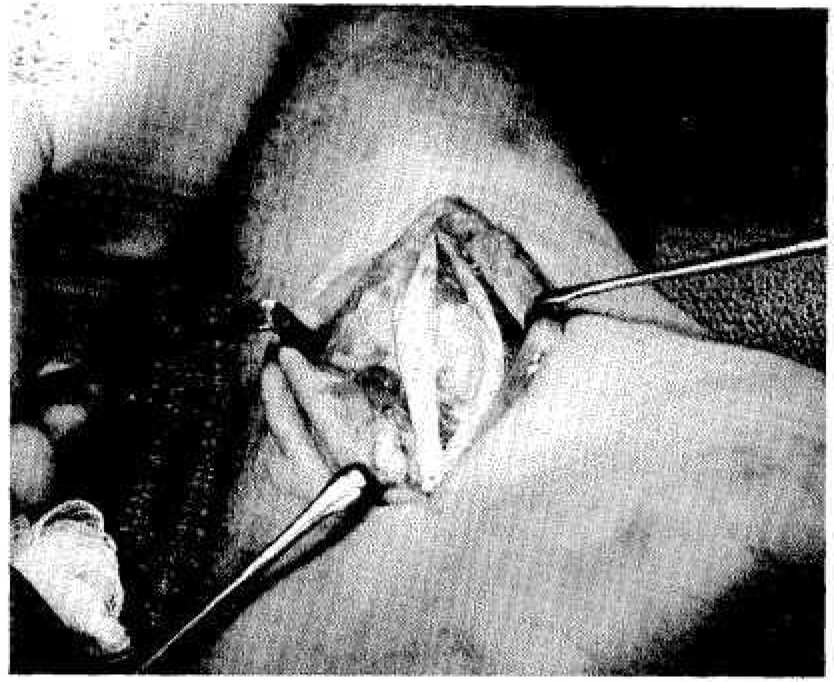

Figure 5. Surgical exploration demonstrates the unrestrained peroneus longus tendon clearly lying outside of the retrofibular groove.

of subluxation or frank dislocation. Conservative management plays no significant role in this situation. The only benefit to be gained by immobilization would be palliation of acute or chronic inflammatory symptoms. Otherwise, symptoms of instability are predictably recurrent in this patient population. The surgeon may choose from myriad procedures available for correction of this problem. These procedures tend to be grouped into five broad categories based on the method of retaining the peroneal tendons in their sheath: (1) superior peroneal retinaculum reattachment and reinforcement with local tissues[1, 3, 4, 11, 55]; (2) bone block procedures[5,20,22,25-27,33,57]; (3) tissue transfer procedures[2, 13, 16, 19, 27, 28, 45, 48, 50]; (4) tendon rerouting procedures[23, 24, 36, 37, 43]; and (5) groove-deepening procedures.[2, 53, 59] Each is discussed separately.

Anatomic Repair and Augmentation

Chronic dislocation of peroneal tendons resembles in many ways anterior dislocations of the glenohumeral joint.[8] Many authors draw the analogy of the superior peroneal retinacular pouch to a Bankart lesion in the shoulder. Both are similar in that they involve soft-tissue restraint that has torn free from its rim of attachment and created a more voluminous pouch for further subluxation or dislocation. Following a traumatic

Figure 6. The peroneal tendons are reduced manually to lie within the groove.

event it is intuitively obvious that the direct attachment of the avuised tissue would correct the problem, barring any anatomic predisposition toward instability. This procedure is popular because of the technical simplicity, its small incision, and an anatomic repair without disturbing other structures; however, the main drawback of this type of procedure is a failure to address any potentially causative factors for subluxation (i.e., shallow or convex groove or an incompetent retinaculum). Even so, the overall reported rate of recurrence is only 3%, with no complications noted in published reports.[1, 3, 4, 7]

Bone Block Procedures

Kelly was the first to describe the original bone block procedure in 1920.[20] Since then numerous modifications or variations have been described, but the basic premise of creating a more substantial lateral ridge or bony shelf to prevent tendon dislocation remains. These procedures also have in common the benefit of maintaining the fibro-osseous floor of the sulcus to allow smooth tendon passage within the tunnel; however, this type of procedure is technically demanding and carries a reasonably high rate of hardware-related complications. Additionally, it fails to address the actual source of pathology, which is the creation of a loose soft-tissue sleeve. Redundancy of soft tissues may actually be exacerbated by posterior translation of the anterior bony attachment of the superior

Figure 7. After the lateral ridge of the fibula has been abraded, sutures are placed through drill holes in the lateral fibular cortex and then in the superior peroneal retinaculum.

peroneal retinaculum. The procedure is also subject to complications inherent with osteotomies, including nonunion and fracture. The difficulty associated with this technique is highlighted by its 9% recurrence rate and 30% complication rate in review of the literature.[20,22,25,26,27,33]

Tissue Transfer

Healthy surrounding tissues may be used to supplant a potentially incompetent retinaculum and act as a check rein to augment the repair or reconstruction. Multiple techniques have been suggested to make use of adjacent structures for the purpose of preventing repeated dislocations. Authors have proposed the use of all or a portion of various tendons, including the Achilles tendon,[13, 19, 45] peroneus brevis,[2, 50] plantaris,[27] peroneus quartus,[28, 48] or other anomalous muscles if present. Advantages are the reasonable guarantee of healthy tissues to address the pocket of injured tissue directly, preservation of the anatomy of the sulcus, and lack of osteotomy. Criticisms, however, point to the potential reduction in motion created by the tenodesis effect and the compromise of normal tissues at the donor site. Although few reports exist, there is a 0% recurrence rate and a 19% complication rate, the majority of which involved limited range of motion.[2, 16, 19, 28, 29, 50]

Figure 8. The retinacular pouch is then reapproximated to reconstruct the peroneal sheath anatomically.

Rerouting Procedures

Numerous methods have been described to reroute the peroneal tendons. These procedures involve redirecting the tendons so another anatomic structure functions as the retinacular restraint. Most reroutings involve some method of passing the tendons beneath the calcaneofibular ligament (Fig. 9). Variations arise as to the method of manipulating the tendons into this tunnel and include detachment of one side of the calcaneofibular ligament or the other with reattachment, dividing the calcaneofibular ligament and repairing it in its mid substance, or dividing and resuturing the tendons in their new position.[35, 36, 37, 43] One report has even suggested that redirecting the line of pull of the tendons anterior to the fibula was more physiologic, but little support exists for this theory.[23] Proponents like the use of normal tissue to restrain the tendons and preserve the retrofibular anatomy, including the fibro-osseous tunnel. Although the tendons remain in this groove, concerns exist surrounding the potential risk of disturbing or sacrificing normal structures. These procedures seem to be effective with no reported recurrences but carry an inordinately high complication rate of 61%, including sural nerve injury, stiffness of the subtalar joint, and persistent discomfort.[24,36,37,43]

Groove Deepening

Advocates for groove-deepening procedures cite Edwards'[12] description of retrofibular anatomy as a rationale for this procedure. Approximately 18% of all individuals will have a shallow or convex sulcus. It is unknown what percentage of patients suffering from chronic instability of the peroneal tendons manifest this anatomic predisposition, but it is assumed to be greater than the average population. Proponents suggest that this procedure eliminates all anatomic predisposing factors. Detractors, however, are quick to point out that like bone block procedures the pathology of the dislocation pouch is not directly addressed, and therefore, potentially uncorrected. Other disadvantages are the technical demands and possibility of tendinitis by abrasion in the bony channel.[19, 26] This is thought to be reduced by the retention of the cartilaginous gliding layer.[53, 59] This step separates the newer techniques from older groove deepenings in which the tendons were left in a sulcus surrounded by cancellous bone to adhere or create friction.

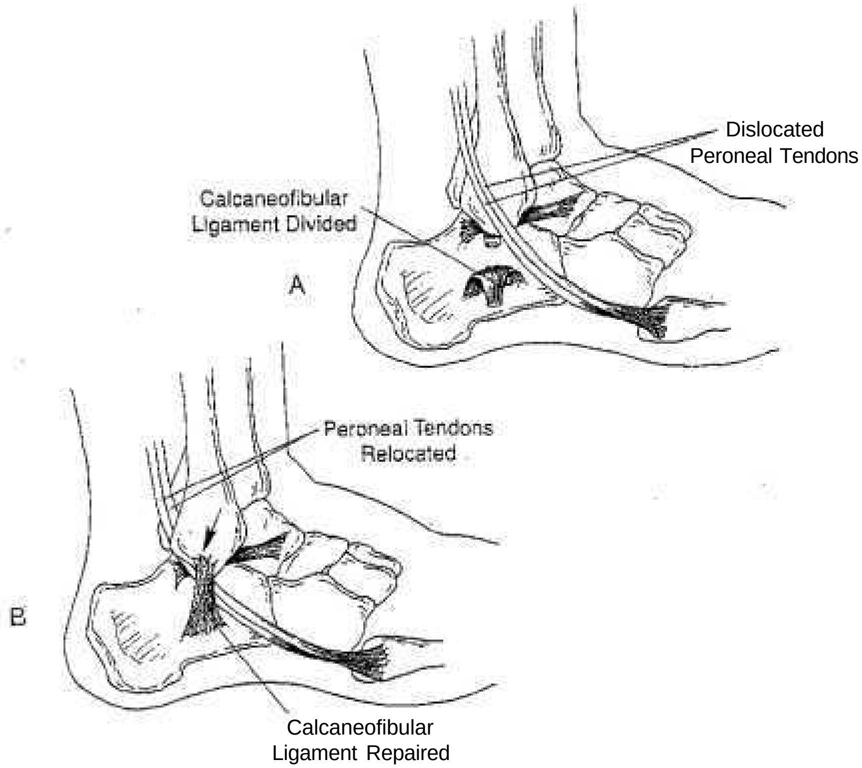

Figure 9. Platzgummer method of reconstruction fordislocating peroneal tendons by rerouting the peroneal tendons underneath the calcaneofibular ligament. *A,* Calcaneofibular ligament divided. *B,* Peroneal tendons relocated under the repaired calcaneofibular ligament. *(From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ (eds): Surgery of the Foot and Ankle, ed 6. St. Louis, Mosby-Year Book, 1993, p 1174; and *adapted from* Platzgummer H: Uber ein einfachs ver-fahren zur operativen behandlung der habituellen peronaeussennenluxation. Arch Orthop Unfallchir 61:144-150, 1967; with permission.)

The most difficult decision for the surgeon may be which of this plethora of procedures to choose. The authors' preference is to integrate the principles from several different categories and combine them based on the anatomic findings at the time of surgical exploration. The authors' preferred technique for the chronic dislocation/subluxation involves deepening the groove in the method of F.R. Thompson and others.[53] Additionally, to correct the soft-tissue defect a direct reefing of the superior peroneal retinaculum is included. If this tissue has become inadequate by attrition, an augmentation with Achilles tendon in the fashion of Ellis Jones is added.[19]

The surgical approach is similar to that involving the acute repair, but the incision is slightly larger in both directions. Care is taken to leave the sural nerve uninjured. Dissection proceeds to expose the sheath and superior peroneal retinaculum, which are then incised and the contents inspected. Particular attention is paid toward evaluation for tenosynovitis, longitudinal splits in the tendons, or impending rupture. Pathologic conditions, if identified, are corrected by performing tenosynovectomy, tendon repair, and débridement or repair as necessary. Once this is accomplished, the retromalleolar sulcus is exposed. The groove is deepened first by creating a medially hinged cortical flap. An oscillating saw is used to create a 1 cm X 3 cm trap door. A one-quarter inch osteotome is used to hinge the cortical cap and expose the underlying cancellous bone in a technique analogous to that used for harvesting iliac crest bone graft. Seven to nine millimeters of bone are removed using either a burr or curette to create a trough into which the door hinges closed. Tendons are then replaced against the fibrocartilaginous surface of the fibula (Fig. 10).

Proceeding, it is important to evaluate next the competency of the superior peroneal retinaculum. If adequate, it is reattached via drill holes as in the earlier section on acute dislocations. If not adequate to act as a restraint, a strip of Achilles tendon in the style of Ellis Jones is used. The tendoachilles is exposed laterally and a strip of tendon measuring roughly 10 cm long by 6 to 7 mm wide is harvested and left attached distally. A hole is made in the fibula with care taken not to fracture through the deepened groove. A 2.0-mm bit is used from anterolateral to posterior, and this hole is enlarged with a burr. The strip of tendon is then passed from posterior to anterior and back again on itself, then sutured with the foot in dorsiflexion and neutral version to allow normal postoperative motion (Fig. 11).

Postoperative Management

The patient is placed in a splint and dressing for 1 to 2 weeks of non-weight-bearing crutch ambulation. The foot is held in the neutral position. A short-leg walking cast or brace is then applied for the next month to 6 weeks. Rehabilitation focuses on strength and range of motion. It is continued until strength and motion are symmetric with the uninvolved

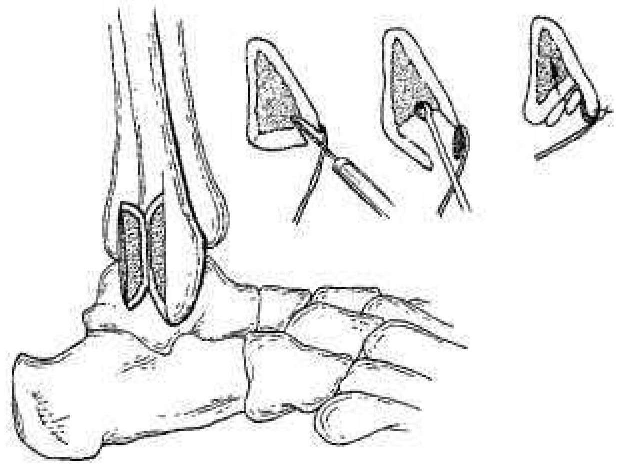

Figure 10. Surgical reconstruction for peroneal tendon dislocation by deepening the peroneal groove. *(From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ (eds): Surgery of the Foot and Ankle, ed 6. St. Louis, Mosby-Year Book, 1993, p 1177, and *adapted from* Slätis P, Santavirta S, Sandelin J: Br J Sports Med 22:16–18, 1988, and Zoellner G, Clancy W Jr: J Bone Joint Surg Am 61:292–294, 1979; with permission.)

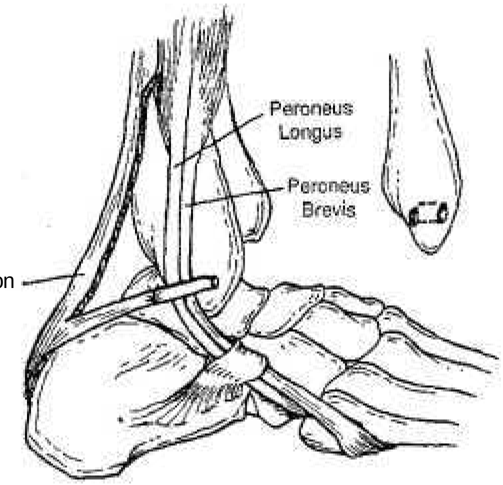

Figure 11. Jones procedure using a strip of Achilles tendon to reconstruct the superior peroneal retinaculum. The inset shows a drill hole in the fibula. *(From* Clanton TO, Schon LS: Athletic injuries to the soft tissues of the foot and ankle. *In* Mann RA, Coughlin MJ: Surgery of the Foot and Ankle, ed 6. St. Louis, MO, Mosby-Year Book, 1993, p 1174; and *adapted from* Jones E: J Bone Joint Surg 14:574–576, 1932; with permission.)

ankle. Return to sport or vigorous activities is usually between 4 and 6 months.

CONCLUSION

In summary, subluxation or dislocation of the peroneal tendons is a subtle injury that is often confused with or misdiagnosed as the more typical lateral ankle sprain. Considering this, it is probably more common than previously realized. Most peroneal subluxations and dislocations are sports-related traumatic incidents, but a certain percentage of the population will demonstrate this condition without revealing a specific isolated event. A poorly developed retrofibular groove and a deficient superior peroneal retinaculum are predisposing anatomic factors. The presumed mechanism is a sudden maximal contraction of the peroneal muscles with the foot in the dorsiflexed position, as can happen in skiing and football.

Diagnosis is made by physical examination and occasionally by radiographic studies. Plain radiographic findings will be present anywhere from 15% to 50% of the time. CT and MR imaging are sometimes helpful in delineating anatomic abnormalities.

Treatment is directed at maintaining the tendon sheath in the retrofibular groove and getting the avuised retinaculum/periosteum to heal in its anatomic position. Conservative treatment for acute injuries is successful in approximately 50% of the cases. Surgical management consists of reattaching the avuised tissues. Chronic subluxation or dislocation is a more difficult problem. The surgeon has a host of procedures to choose from to reconstruct the deficient area. Recommendations are made for the surgical approach of this problem. Results are usually excellent with proper diagnosis and treatment of this condition.

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DIAGNOSIS AND TREATMENT O PERONEUS BREVIS INJUR

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Injury to the lateral ankle can result in damage to numerous anatom structures. The lateral ankle ligament complex, specifically, the anteri talofibular ligament, is affected most commonly/although the calcane fibula ligament also can be involved. Injury to the peroneal tendor including subluxation or dislocation, can occur.[1,5] In addition, more insic ous pathologic conditions such as longitudinal tears of the peroneus brev and synovitis of the tendon sheath can occur. It now is believed th injuries to the peroneus brevis in the form of attritional tears and synovit as well as subluxation, are more common than previously appreciate Autopsy studies[8] have shown attritional tears of the peroneus brevis 11% of ankles examined. More extensive peroneal tendon disease resulti from trauma or surgical misadventure can result in an irreparable tendc In this case, reconstruction with the flexor hallucis longus tendon may necessary. This article discusses diagnosis and treatment of the problen

ANATOMY

The peroneal tendons originate in the proximal aspect of the fibt and proceed distally, posterior to the lateral malleolus, and pass deep the superior peroneal retinaculum within the common tendon sheath. the retromalleolar region the peroneus brevis lies deep to the longus (F

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