PERONIE TENDON AFFECTIONS Vasu Pai

EPIDEMIOLOGY

Peroneal tendon disorders are an uncommon

Is a source of lateral hindfoot pain and dysfunction that are often overlooked because it can be difficult to distinguish them from lateral ankle ligament injuries.

50% were accurately diagnosed at the first clinical evaluation

These disorders frequently cause chronic ankle pain in runners and ballet dancers, and they have been reported in up to 77% of patients (forty-seven of sixty-one) with chronic lateral ankle instability.

Isolated peroneal tendon tears and ruptures are rare, and most result from ankle inversion injuries. The **prevalence of incidental peroneus brevis splits found** in cadaver specimens has ranged from 11% to 37% whereas peroneus longus tears occur less frequently.

PREDISPOSING

1. A cavovarus foot position may cause overloading of the peroneal tendons
2. Peroneal tendon tears and ruptures are frequently associated with other disorders, such as chronic tenosynovitis, severe ankle sprains, ankle fractures, or chronic ankle instability
3. Among patients treated operatively for peroneal tendon tears, up to 33% (thirteen of forty) also have lateral ankle instability requiring primary ligament reconstruction, 20% (eight of forty) have documented peroneal tendon subluxation,
4. Tophaceous gout.
5. Subluxation of the peroneal tendons i:frequently associated with sports requiring cutting maneuvers, especially skiing.

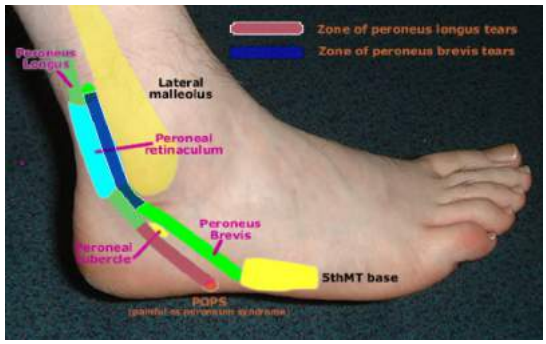
ANATOMY

1.The peroneal muscles reside in the lateral compartment of the leg and are innervated by the superficial peroneal nerve.

2. They course posterior to the lateral malleolus through a fibro-osseous tunnel called the **retro- malleolar groove**, with the peroneus longus tendon lying posterolateral to the peroneus brevis tend. This sulcus is lined with fibrocartilage and varies in depth and shape. 82% had a concave retromalleolar sulcus, 11% were flat, and 7% had a convex surface.

3.The superior peroneal retinaculum is the primary restraint to tendon subluxation at the ankle. It is a fibrous band of tissue approximately 1 to 2 cm wide that originates from the posterolateral aspect of the distal part of the fibula and has a variable insertion. The most common type was found in 47% (fourteen)- comprised two bands: a superior band that inserts on the anterior aspect of the Achilles tendon sheath and an inferior band that inserts on

the lateral aspect of the calcaneus at the peroneal tubercle. This leads to dis- ruption of the superior peroneal retinaculum and allows the peroneal tendons to subluxate anteriorly over the lateral malleolus



Distal to the ankle, the tendon sheath bifurcates around **the peroneal tubercle** as the peroneal tendons traverse the lateral aspect of the calcaneus.

The peroneus brevis tendon continues directly to its insertion onto the tuberosity of the fifth metatarsal.

The peroneus longus tendon turns medially between the cuboid groove and the long plantar ligament and inserts onto the plantar surface of the base of the first met tarsal and the lateral aspect of the medial cuneiform.

The os peroneum is located within the substance of the peroneus longus tendon at the level of the calcaneocuboid joint. It is estimated that the os peroneum is ossified in approximately 20% of the population

BIOMECHANICS

Eversion: 35% by Perneous longus and 28 by Peroneus Brevis

The peroneals are relatively weak plantar flexors, providing only 4% of the total plantar flexion strength compared with 87% provided by the gastrocnemius-soleus complex

The pero- neal tendons are also dynamic stabilizers of the lateral ankle ligament complex

CLINICAL FEATURES

Peroneal tendon may rupture: acute or chronic injuries. Usually related to inversion sprain can result in peroneus brevis split tears. However, attritional tears are not uncommon.

Site tear:
Peroneus brevis at the level of retromalleolar region
Peroneus longus at the level of the cuboid

1. Peroneal tendon injuries are **frequently overlooked as a cause** of lateral ankle pain, and they are often misdiagnosed as ankle sprains
2. Peroneal tendinitis may be precipitated by repetitive overuse injuries or acute trauma.

3. V**arus hindfoot alignment** can predispose patients to ankle inversion injuries and chronic peroneal tendinosis.
4. Pain posterior or distal to the lateral malleolus [Retromalleolar]
5. Should assess for swelling and warmth along the course of the peroneal tendons. These findings are a hallmark of acute tendinitis
6. Note cavovarus foot is associated with peroneal tendon disorders.
7. A Coleman block test
8. Peroneal muscle strength is often decreased; however, absence of nota- ble peroneal weakness does not rule out a tendon tear or rupture
9. **The peroneal tunnel compression test** is used to evaluate peroneus brevis tears. This maneuver involves applying manual pressure along the peroneal tendon sheath in the retromalleolar groove with the knee flexed 90° and the foot in a resting plantar flexed position
10. Occasionally, patients experience a painful snapping or popping sensation in the lateral aspect of the ankle.
11. Peroneal tendon subluxation can be visualized when the patient walks.
12. Patients with acute peroneal tendon subluxation demonstrate substantial swelling, tenderness, and ecchymosis posterior to the lateral malleolus.
13. Positive anterior drawer or talar tilt tests indicate injury to both the superior peroneal retinaculum and the lateral ligamentous complex.
14. Circumduction test
15. Presence of associated conditions. Rheumatoid arthritis, psoriasis, hyperparathyroidism, diabetic neuropathy, calcaneal fracture

INVESTIGATIONS

1. Weight-bearing AP and lateral radiographs of the ankle and foot X rays
2. Look for calcaneal fracture, **Fleck sign** [a small avulsion fracture of the lateral malleolus. This has been termed a fleck sign and indicates a Grade-III injury of the superior peroneal retinaculum
3. CT: Hypertrophy of perneal tubercle, calcaneal fracture, retrotrochlear eminence
4. US
5. MRI: Gold standard for : tenosynovitis, tendinosis, PB split, grading superior retinacular injury.

CONDITIONS

1. **Os peroneum syndrome/Tendinosis/rupture**
   A spectrum of posttraumatic conditions of the peroneal tendons. The syndrome includes an acute fracture of the os peroneum or diastasis of a multipartite os peroneum, a chronic fracture of the os peroneum associated with stenosing tenosynovitis of the peroneus longus, partial or complete rupture of the peroneus

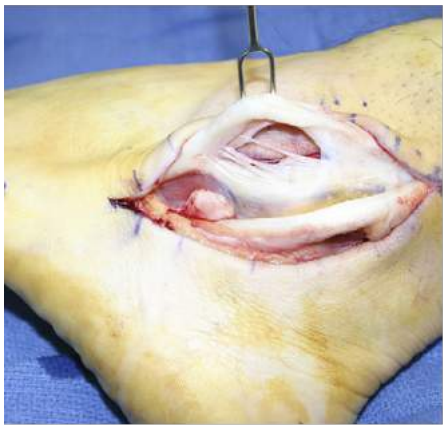
longus tendon near the os peroneum, or entrapment of the peroneus longus tendon and the os peroneum by a hypertrophied peroneal tubercle.

Peroneal tendinopathy should initially be treated **nonoperatively**. Conservative measures consist of nonsteroidal anti-inflammatory medications, rest, ice, compression, and modification of activity. Physical therapy that includes stretching, strengthening, and proprioceptive exercises can be beneficial. Management with an orthotic device is based on the foot alignment.

(CAM) boot, or a short leg walking cast for six weeks may be attempted. Corticosteroid injections should be used with caution to avoid iatrogenic tendon rupture.

Operative intervention

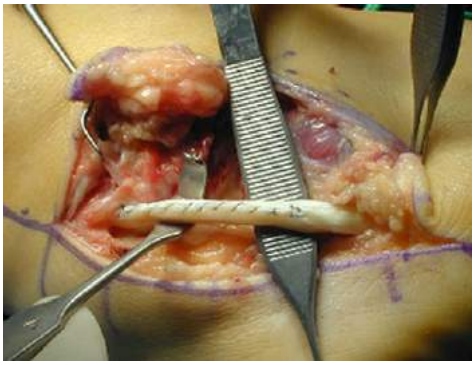
Debridement and tenosynovectomy.
If the peroneal tubercle is prominent, it can be excised.
Associated tendon split tears should be repaired primarily with a tabularization technique. The tendon sheath may or may not be reapproximated.
Initial immobilization in a short leg cast with the foot plantar flexed and everted allows tendon healing.



"Bucket handle" tear of peroneal brevis tendon.

Operative treatment of peroneal tendon tears varies depending on the severity of the pathological involvement. Tears involving <50% of the cross-sectional area be treated with excision of the affected area followed by tabularization and those involving >50% of the cross-sectional area be treated with tenodesis.

Transfers of the flexor digitorum longus to the peroneus brevis and of the plantaris to the peroneus longus have been utilized with satisfactory outcomes.



Treatment

- Peroneal tenosynovitis typically responds to conservative therapy, and operative treatment is reserved for re- fractory cases.

ä Operative treatment is frequently required for peroneal tendon subluxation and consists of anatomic repair or reconstruction of the superior peroneal retinaculum with or without deepening of the retromalleolar groove.

ä Operative treatment of peroneal tendon tears is based on the amount of remaining viable tendon. Primary repair and tubularization is indicated for tears involving <50% of the tendon, and tenodesis is indicated for tears involving >50% of the tendon.

TABLE VI Treatment Algorithm for Peroneal Tendon Tears

Redfern and Myerson[12] Type	Pathological Findings	Treatment
I	Both tendons are grossly intact	Excision of the longitudinal tear and tubularization of the remaining tendon
II	One tendon is torn and irreparable and the other tendon is functional (has sufficient excursion)	Tenodesis performed proximally between the peroneus longus and peroneus brevis
III	Both tendons are nonfunctional	
	No excursion of the proximal muscle	Tendon transfer
	Excursion of the proximal muscle and no tissue bed scarring	One-stage tendon graft
	Excursion of the proximal muscle with tissue bed scarring	Staged tendon graft

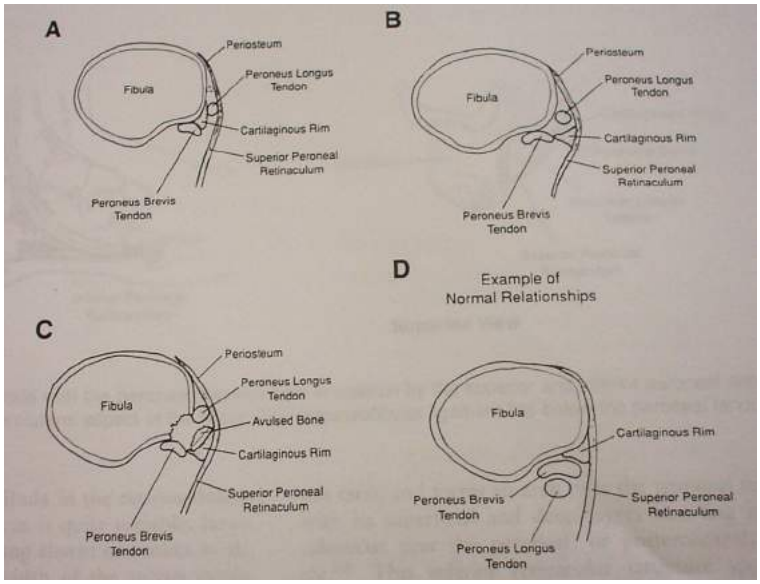
PERONEAL TENDON SUBLUXATION

Injury: Sudden dorsiflexion and eversion [downhill skiing]
Inversion injury

Fleck sign or rim fracture in 10% on X rays

Eckert classification

Grade I Superficial retinaculum reflected with periosteum of Fibula
Grade II Cartilaginous ridge avulsed with periosteum
Grade III with bony avulsion
"Posterior marginal rim sign'



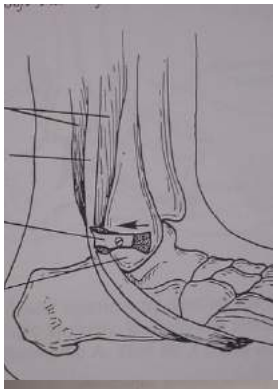
Treatment

Cast for 6 weeks

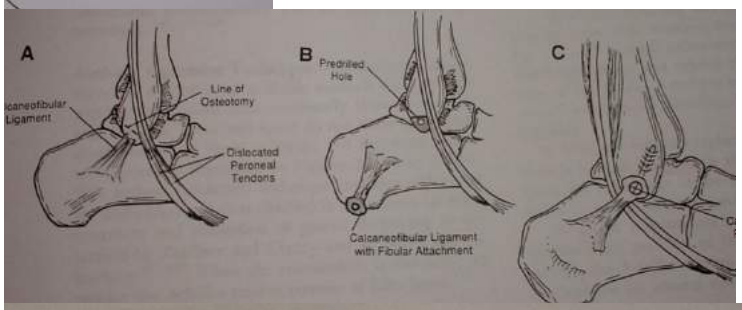
Recurrent: Open repair [Bankart's lesion]

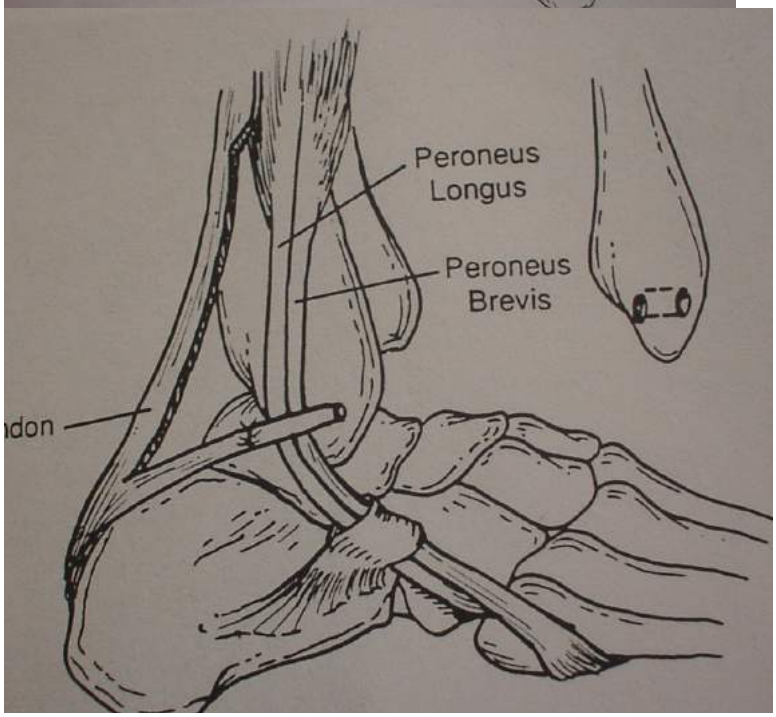
Very chronic case: a.Bone block procedures: DuVries
b.Ellis Procedure using part of Achilles

c.Thompson's Groove deepening
d.Pozo rerouting procedure



1. Bone Block Procedure
2. Pozo's procedure
3. Ellis procedure





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