Achilles Tendon Disorders
Acute and Chronic

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Failure

- Largest tendon in the body
- Greater length of tendon attached medially
- Fibers spiral 90° to insertion

Chao W, Deland JT, Bates JE. Foot Ankle Int 1997;18:81-84

Failure

- Vascular: proximal= muscular distal= periosteal plexus
- Hypovascular zone ~2-6 cm proximal to insertion.

Failure: Rupture

- Pathologic Studies on Acute Rupture
- 97% has preexisting degeneration


Failure: Biomechanics

- Gastroc-Soleus-Achilles = 3 joints
- Flexes ankle and knee. Inverts STJ
- 2,000 to 7,000 N of force in single limb stance

Achilles Disorders

- Acute Ruptures
- Partial Rupture
- Missed or Chronic Ruptures
- Tendenosis
- Insertional
- Sever’s Disease
Acute Achilles Ruptures

- Middle-aged, “weekend warriors”
- 10-20% chronic tendinosis history
- Missed diagnosis up to 25% by primary MD
- Associated conditions: RA, Lupus, Hyperparathyroidism, Renal Failure, Gout, Quinolone use (eg. Cipro)

Mechanism of Injury
1. Plantarflexion with an extended knee
2. Sudden DF of plantar flexed foot (eg. Fall)
3. Eccentric contraction

Diagnosis
- Exam: palpable gap, inability to heel raise
  Thompson’s test
- Radiographic: MRI, Ultrasound

Explode Achilles Rupture

Thompson Test
- Ruptured
- Normal

Pathophysiology
- Hypovascular region- 2-6 cm above insertion
- Blood supply reduces with age (anteriorly)
- Repetitive microtrauma vs eccentric overload

Treatment Options
- Operative vs Nonoperative
  - Rerupture rate
  - Wound Complication
  - Return to Sport/Activity
  - Rehab
Mini Open Technique

Achilles Tendon-Partial Tears
- Similar clinical presentation
- Active plantarflexion present (weak, swelling)
- Conservative management
- Location-Lateral vs Medial
- Immobilization, Rest, Ice, Heel lifts

Partial Achilles Tear

Achilles Tendon Partial Tear

Achilles- Chronic Ruptures
- > 2 months post-injury
- Elongated position, disorganized fibroblasts
- Impairment of ADL’s-running, jumping, descending hills
- Plantarflexion by FDL, FHL. PTT

Achilles- Chronic Ruptures
- Diagnosis
  - Clinical
- MRI
  - Determine size of defect
  - Evaluate quality of tendon
  - Essential in preop planning
**Achilles- Chronic Ruptures**

**Nonoperative Treatment**
- Cast
- Boot
- Lift
- AFO- spring loaded, solid

**Surgical Options**
- Primary Repair
- Primary repair +/- augmentation
- FHL transfer vs V-Y lengthening
- FHL transfer + V-Y lengthening

**Achilles- Chronic Ruptures**

**FHL Transfer**

**Achilles- Chronic Ruptures**

**V-Y lengthening**

**Tendinosis**
- Intratendinous degeneration
- Focal nodularity 6-8 cm from insertion.
- Can be painless but is often painful
- Can be aggravated with activity.
Achilles-Chronic

- Tendinosis
  - Intratendinous Degeneration
  - Palpable nodule within tendon
  - Treatment: operative treatment debridement +/- augmentation

- Insertional Tendonosis
  - Calcific
    - Older
    - Chronic
    - Posterior swelling
  - Non calcific
    - Younger patients
    - Inflamed
    - Retrocalcaneal pain

Achilles Tendon

- Insertional Tendonitis
  - Nonoperative treatment successful in most cases:
    - Heel Lift
    - Padding/ Achilles protector
    - Stretching
    - PT- US/ions/phono
    - NO STEROID INJECTIONS

Achilles- Insertional

- Insertional Tendonitis
  - Overuse phenomenon
  - Posterior Heel pain
  - Worse after activity
  - Difficulty with closed heel shoes
  - Tenderness typically central-lateral, rarely medial

- Heterotopic Bone Deposits
  - Degenerated tendon
  - Inflammation of paratenon
  - Ossification of tendon- broad plate of bone at insertion
  - No tendon attachment at posterior surface of spur
Achilles- Insertional

Operative Treatment
- Debride tendon
- Resect deformity
- Remove heterotopic bone deposits
- Debride retrocalcaneal bursa
- Reattach tendon insertion

Complications
- Delayed wound healing
- Rupture
- Persistent soreness
- Results- better without calcific tendon (79% vs 93%)
- Time to max improvement- 6.5-11 months

Achilles- Insertional

Sever’s Disease
- Posterior Heel pain
- Adolescents- Boys (10-12), Girls (9-11)
- Inflammation of calcaneal apophysis
- Apophysis is sclerotic and fragmented on X-ray
- Not fractured
- Self-limited- will resolve over time
- Conservative treatment (NSAID’s)
- Activity limitation based on pain

Thank You