



## Acute Achilles Tendon Rupture w/ Dr. Bitterman

### History/Physical

- Often occur during active, forceful, and sometimes unexpected plantar flexion
- Report a sudden snap in the heel followed by pain w/ ankle plantarflexion
- Palpable gap
- Bruising to heel
- Positive Thompson Test
- Matles sign
- Prodromal symptoms ?
- Increased resting dorsiflexion
- Acute v chronic

### Imaging

- Radiographs - Can rule out concomitant fractures or calcific tendon changes  
Rupture can cause avulsion of a large osseous fragment from the calcaneus

Ultrasound and MRI more sensitive

- Ultrasound is inexpensive, quickly obtained, and can be used for dynamic assessment
- MRI is more expensive, and cannot be used for dynamic testing
- MRI can assess the condition of the torn fibers and the extent of retraction and gapping. Also better for partial ruptures



## **Anatomy**

- Strongest and thickest tendon
  - Internally rotates 90 degrees distally and inserts into middle third of the posterior calc tuberosity
  - Loads as great as 12.5 x BW
  - Sural nerve crosses tendon 11cm proximal to the tuberosity and 3.5 distal to the musculotendinous junction (innervation)
  - Hypovascular at midportion
  - Musculotendinous unit that spans three joints; Knee flexion, tibiotalar flexion, and subtalar inversion

## **Risk Factors**

- Most commonly ruptured tendon
- Multifactorial
- Decreased blood supply w/ advancing age
- Steroid or fluoroquinolone use
- Male Sex
- Improper footwear
- High intensity plyometric exercises

## **Treatment**

- Optimal Treatment is controversial
- Nonoperative Mngt
  - Initial NWB and immobilization in cast with foot and equinus
  - May switch to functional bracing after 2 weeks
  - Patient allowed to perform plantar flexion exercises with unrestricted plantar flexion and limited dorsiflexion
  - Rerupture rate of functional bracing has been found to be similar to operative mngt when similar post-op protocols are employed



- Operative Management

Crucial to optimize condition of the skin (Swelling )

Approaches

- Midline
- Medial \*
- Lateral

Avoid injury to the sural & lesser saphenous nerve plexus

- Stitch Patterns

- Krackow
- Modified Bunnell
- Kessler
- Triple bundle Repair (Strongest suture repair)

- Bring tendon edges together under **appropriate tension w/ nonabsorbable suture**  
(Compare to resting tension of contralateral extremity or compare intact plantaris tendon)

- Percutaneous (Perc PARS) system

- W/o direct exposure of the tendon rupture site
- Uses posterior stab incisions , medially and laterally
- Lower incidence of wound breakdown

Increasing concern for sural nerve injury

- Mini-open

- Involves small incision that allow direct visualization of the ruptured ends
- Fewer wound infections when compared to open treatment
- No difference in the number of reruptures

- Chronic Achilles Tendon ruptures



- Poor healing potential and often require surgical treatment w/ augmentation
- 1-2 cm defect- end to end anastomosis and posterior compartment fasciotomy
- 2-5cm- v-y lengthening, augmented with tendon transfer if needed
- >5cm- tendon transfer alone or in combination with V-Y advancement or turndown
- 
- OR
- V-Y Advancement = <3cm in length
- FHL augmentation = >3cm in length
- Allograft for large defects

### **Complications**

- Rerupture
- Wound healing
- Sural nerve Injury

### **Everything Achilles: Knowledge Update and Current Concepts in Management**

Uquillas, Carlos A., MD; Guss, Michael S., MD; Ryan, Devon J., BA; Jazrawi, Laith M., MD; Strauss, Eric J., MD;  
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