Overview:

- Insertional Achilles Tendinitis
- Achilles Tendinosis / Tendinopathy
- Achilles Tendon Rupture: Acute vs. Chronic
Many possible causes of posterior heel pain

- Superficial bursitis
- Retro-calcaneal bursitis
- Insertional Achilles tendonitis
- Haglund’s syndrome
- Sural neuritis
- Sever’s apophysitis
- Achilles tendon rupture
Achilles tendon: anatomy

- Largest, most powerful tendon in body
- Formed by gastrocnemius and soleus (and plantaris)
- Subject to spectrum of inflammatory, degenerative, and traumatic pathology
Insertional Achilles Tendinitis
Insertional Achilles Tendinitis

- Inflammation of tendon at insertion into calcaneus
- Due to overuse -> degenerative attrition, calcification of tendon at insertion site
- Associated with Haglund’s exostosis, retrocalcaneal bursitis
- Associated with tight Achilles tendon
Insertional Achilles Tendinitis

- Very Common
- Presentation
  - Older, overweight, sedentary individuals
  - Athletes doing hill running
  - Point tender at insertion site
  - Tight Achilles tendon
- Often associated with calcification / ossification within tendon
- Very symptomatic → shoe wear
Imaging: X-ray
Imaging: MRI
Non-operative treatment

The Effects of Intratendinous and Retrocalcaneal Intrabursal Injections of Corticosteroid on the Biomechanical Properties of Rabbit Achilles Tendons

By Ronald Hugate, MD, Jason Pennypacker, MD, Marnie Saunders, PhD, and Paul Juliano, MD

Investigation performed at the Pennsylvania State University College of Medicine, Hershey, Pennsylvania
Operative treatment

- Surgical treatment involves debriding tendon, bursa, and underlying bone
- Split Achilles tendon
  - Resect calcification
  - Resect chronic tendinosis
- May need to re-attach tendon with anchor
- +/- FHL augmentation

Insertional Achilles Tendinosis: Surgical Treatment Through a Central Tendon Splitting Approach

William C. McGarvey, M.D.; Robert C. Palumbo, M.D.; Donald E. Baxter, M.D.; Bryan D. Leibman, M.D.
Houston and Katy, TX
Pre Op
Post Op
Achilles Tendon Rupture
Presentation

- Adults 40-50 yo primarily affected (M>F)
- Athletic activities, usually with sudden starting or stopping
- “Snap” in heel with pain, which may subside quickly
- Patients think someone kicked them in the heel
- Possible association with steroid use, quinolone abx
Diagnosis: physical exam

- Weakness in plantarflexion
- Palpable gap in tendon
- Injured side with increased resting dorsiflexion
- Positive Thompson test
Achilles Rupture: Imaging

- X-rays
  - Indicated if fracture or avulsion fracture suspected
- Ultrasound or MRI
  - Show degree of tendon retraction
  - Reveal previous tendon degeneration
Achilles Rupture: Imaging

- Lateral x-ray of ankle occasionally shows shadow where tendon has torn
Treatment: Non-operative vs. operative


Willits K¹, Amendola A, Bryant D, Mohtadi NG, Giffin JR, Fowler P, Kean CO, Kirkley A.


Cetti R¹, Christensen SE, Ejsted R, Jensen NM, Jorgensen U.

Operative versus nonoperative treatment of acute Achilles tendon rupture: An analysis of 12,570 patients in a large healthcare database


Department of Orthopaedic Surgery, David Geffen School of Medicine at UCLA, 10833 Le Conte Avenue, 76-143 CHS, Los Angeles, CA 90095, USA
## Treatment: Non-operative vs. operative

<table>
<thead>
<tr>
<th>Non-operative</th>
<th>Operative</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preferred for older, less active patients</td>
<td>• Preferred for younger, higher demand patients</td>
</tr>
<tr>
<td>• Avoid risks of surgery</td>
<td>• Increased surgical morbidity</td>
</tr>
<tr>
<td>• Lower hospital costs</td>
<td>• Increased hospital costs</td>
</tr>
<tr>
<td>• Lower ultimate tendon strength</td>
<td>• Superior ultimate tendon strength</td>
</tr>
<tr>
<td>• Increased chance of re-rupture: 10%</td>
<td>• Lower chance of re-rupture: 2%</td>
</tr>
</tbody>
</table>

Appropriate treatment often controversial, subject to patient preferences
Non-operative treatment

- Traditional recommendation is 8 weeks of immobilization in cast or fracture boot
- Immobilize in equinus
- Slowly dorsiflex to neutral by 8-10 weeks
- Long term heel lift
- Physical therapy
- Re-rupture rate 8-39% reported
Operative Treatment

- Several different surgical repair techniques described
  - End-to-end repair
  - V-Y advancement
  - FHL transfer
  - Percutaneous repair vs. open repair
- Brace or cast for 4-6 weeks
- Early PT and weight-bearing
Open vs. Percutaneous Repair

**Open:**
- Direct visualization of:
  - Sural nerve
  - Tendon quality

**Percutaneous**
- Decreased risk of wound problems?
- Increased risk of sural nerve injury?
- Quicker recovery?
## Signs and symptoms: Acute vs. Chronic

<table>
<thead>
<tr>
<th>Acute rupture</th>
<th>Chronic rupture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Palpable or audible pop</td>
<td>• Pain, swelling, warmth</td>
</tr>
<tr>
<td>• Weakness</td>
<td>• Weakness, fatigue</td>
</tr>
<tr>
<td>• Swelling, localized within sheath or generalized</td>
<td>• Deformity, shoe wear changes</td>
</tr>
<tr>
<td>• Pain with passive stretch</td>
<td>• Instability, gait abnormalities</td>
</tr>
<tr>
<td></td>
<td>• Can be asymptomatic</td>
</tr>
</tbody>
</table>
Case #1

55 yo male with chronic posterior heel pain

BMI 56

Non-smoker
Case #2

54 yo male with long history of posterior heel pain

Recent increase in pain

Insulin-dependent diabetic
Hgb A1C = 10.3

Non-smoker
Pre-injury MR and XR
Postoperative Rehabilitation Goals

- Week 1
- Weeks 1-3
- Weeks 3-6
- Weeks 6-9
- Weeks 9-12
- Months 3-6
- Months 6-12
Summary

• Multiple possible causes of posterior heel pain, many due to acute or chronic Achilles pathology

• Insertional Achilles tendinitis often associated with Haglund’s deformity or retrocalcaneal bursitis, high success rate with surgical debridement of calcified tendon
Summary

- Achilles tendinosis / tendinopathy is a spectrum of disease from inflammation to degradation to rupture, can often be treated non-operatively.
- Achilles tendon rupture most common in males performing athletic activities.
- Operative vs. non-operative treatment remains controversial, with operative treatment favored for younger, high-demand patients.
Thank you!