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ACHILLES TENDON RUPTURE

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ECHO SPORTS MEDICINE CLINIC JANUARY 25, 2018
HISTORY

- 23 year old female
- Long jumper, took off on the board at practice, felt like someone stepped on her heel. Turned around, no one there
- Trouble walking, seen at Student Health Center
- Palpable gap distal 1/3 of Achilles. Hypoechoic area seen on in office ultrasound
35 year old male

Moving furniture, jumped from a truck. Landed awkwardly on his left foot, felt a loud “pop” in his ankle like someone stepped on him. Turned around, no one there

Trouble walking, seen at Urgent Care the next day. Placed in a walking boot, crutches

Swelling, ecchymosis, Achilles felt to be intact

Told to follow-up in one week
- History is consistent with Achilles tendon rupture
- Evaluate for additional injuries
  - Check for bony tenderness
  - Palpate Achilles for defect (sometimes clot or tendon sheath can feel like intact tendon)
- Thompson test
DIAGNOSIS OF ACHILLES RUPTURE

- AAOS Guideline Consensus
- Recommend at least two physical findings
  - Thompson testing-sensitivity 96% and specificity 93%
  - Palpable defect-sensitivity 73% and specificity 83%
  - Decreased ankle plantar flexion strength-may be limited due to acute pain
  - Increased ankle dorsiflexion-may be limited due to acute pain
THOMPSON TEST

A
Negative Thompson test on the contralateral leg.

B
Positive Thompson test on the injured leg.
ACHILLES DEFECT

- Visible loss of Achilles definition on the left leg
IMAGING STUDIES

- X-ray if bony tenderness
- MRI or ultrasound can be used for evaluation if needed
- If two physical exam findings consistent with Achilles rupture are present, imaging does not have to be ordered
  - Can discuss with consultant
- AAOS Guideline for or against routine use of MRI or ultrasound is INCONCLUSIVE
TREATMENT

- Patient should be presented with both surgical and non-surgical options
- Non-surgical management has shown satisfactory results
  - Lower complication rates
- Surgical management has satisfactory results along with studies showing
  - Faster recovery time
  - Quicker return to sports
  - Lower re-rupture rate compared to non-operative management
SURGICAL REPAIR

- Wound complications and subsequent management of complications
- Surgical management should be approached with caution in
  - Diabetes
  - Neuropathy
  - Immune-compromise
  - Age >65 years
  - Peripheral vascular disease
  - Local/systemic dermatologic disorders
  - Sedentary lifestyle
  - Tobacco use
  - Obesity
PRE-OPERATIVE TREATMENT

- Studies inconclusive on pre-operative weight bearing or restricted weight bearing
- Surgical repair typically scheduled for 1-4 days after presentation
  - Many patients have been weight bearing for several days up presentation, may not need immobilization or restricted weight bearing if repair will be performed acutely
- If significant pain, unable to bear weight, apply equinus posterior splint
- If surgery is delayed, immobilize and restrict weight bearing to attempt to minimize retraction of tendon
SURGICAL REPAIR

- Open
- Limited open
- Percutaneous
- After surgery, placed in bulky cast
- Non-weight bearing for 7-10 days
- Anti-thrombotic recommendations inconclusive
  - ASA 325mg daily for 14 days after surgery
POSTOPERATIVE PROTOCOL

- Early protective weight bearing and use of protected device for mobilization
- First visit, cast removed. If wound not healing, re-casted for one week and re-check
- If healed, sutures removed and placed in brace with removable heel wedges
  - Progressively removed over 2-3 weeks then patient may ambulate without brace
- Physical therapy commonly used to address muscle atrophy and ankle stiffness from immobilization-inconclusive evidence
- Low impact activities as tolerated once patient weaned from brace
- Full recovery may be up to one year
  - Return to sports-weak recommendation for 3-6 months
NON-OPERATIVE TREATMENT

- Rehabilitation Progression (Ecker/Olsson)
  - 0-2 weeks
    - Ambulation in a boot with wedges
    - Use of two crutches
  - 2-6 weeks
    - Continued ambulation in boot, crutches as needed
    - Single leg Stance
    - Leg Press (Bilateral/Unilateral)
    - Stationary Bike
NON-OPERATIVE TREATMENT

- 6 weeks
  - Ankle ROM (static/ dynamic)
  - Knee in flexion
- No stretching Achilles for 6 months
- 8 weeks and beyond
  - Shoes with heel lift
  - Seated/ standing heel raise (50% weight bearing) progression
  - Plantar flexion/ Supination/ Pronation with Thera-band
  - Squats (fitness ball behind back)
  - Balance exercise: level surface
NON-OPERATIVE TREATMENT

- 10 weeks
  - Continue above program
  - Seated Heel Raises (HR) with weight
  - Standing HR on two legs: progress to one
  - HR in leg press
  - Balance exercises unsteady surface
  - Step, walk slowly
  - Cable machine standing leg lifts

- 12 weeks
  - Continue above program and walk 20 minutes per day
NON-OPERATIVE TREATMENT

- 16-18 weeks and beyond
  - Start with two-legged jumps and increase gradually
  - Double Leg Heel Raise at 3 months
  - Single Leg Heel Raise at 4 months
  - One Legged Hop at 5 months

- 6 months
  - Patient allowed unrestricted mobilization and participation in all sports and terrains permitted
    - Pending functional testing: Example: hop tests/isokinetic strength tests
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Elected for operative repair

Back to jumping at 9 months
HISTORY

- Did not follow-up as directed
- Presented to the office 4 weeks later
- Unable to raise up on his toes with left foot
- Swelling and scarring posteriorly, difficult exam to palpate for deformity
  - Thompson test positive
- MRI ordered-patient with full thickness Achilles tear with 6 cm retraction
- Opted for non-operative treatment due to finances
- If uncertain, they need early referral for evaluation or imaging
REFERENCES

1. The Diagnosis and Treatment of Acute Achilles Tendon Rupture Guideline and Evidence Report
   - Adopted by the American Academy of Orthopaedic Surgeons Board of Directors December 4, 2009


   Kevin Poplawski, DPT