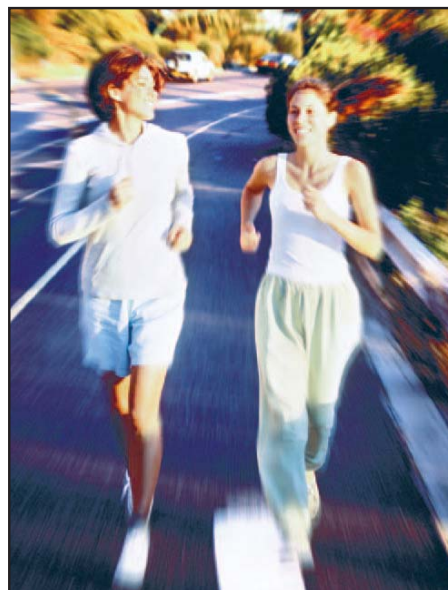


Ankle Troubles?

Commonly Missed Sports Injuries in the Achilles Tendon

By Ivy Cheng, MD, FRCP, Dip. Sports Medicine



Patient Case Studies

CASE 1

A 29-year-old female is playing ultimate frisbee. During the last play, she squats down to block another player and feels a pop in her ankle. She is unable to play afterwards and must limp home.

CASE 2

A 75-year-old female arrives in the emergency department after noticing swelling in her right ankle for two days. She is obviously limping, but not complaining of pain. The problem started after a slight twist while walking up the stairs.

What parts of the physical exam are important?

1. INSPECTION:

Inspect the entire leg and ankle - anterior and posterior. Is there swelling or ecchymoses? Examine the ankle while the patient is supine, prone, especially if you suspect an injury other than an ankle sprain or deep venous thrombosis (DVT), and standing. In the prone position, is the foot slightly plantar flexed? Symmetrical? Make note of the gait. Is there a limp?

Dr. Cheng is lecturer, department of emergency medicine, University of Toronto, and staff physician at Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario.

Practice Pointer

The physical exam:

1. Inspection
2. Palpation
3. Range of motion
4. Special tests
5. Neurovascular

2. PALPATION:

Palpate bony structures of the ankle, such as the fibular head, medial and lateral malleoli, and tibia. Palpate the ligaments, such as the deltoid and lateral ligaments. Palpate the Achilles tendon, peroneal tendons, posterior tibialis, gastrocnemius and retrocalcaneal bursa.

3. RANGE OF MOTION:

Make note of passive movements, such as eversion, inversion, dorsi- and plantar flexion. Is it limited? Stress the joint if possible. Make note of active movements. Can the patient do a calf raise? Can the peroneal tendons or posterior tibialis tendons be stressed? Is there a click or a pop?

4. SPECIAL TESTS:

Calf raise, Thompson's test (Figure 1), Ottawa ankle rules, Anterior drawer test.¹

5. NEUROVASCULAR:

Palpate the dorsalis pedis and posterior tibialis arteries. Check for sensation of L5 and S1. Check for motor functioning of L5 and S1.

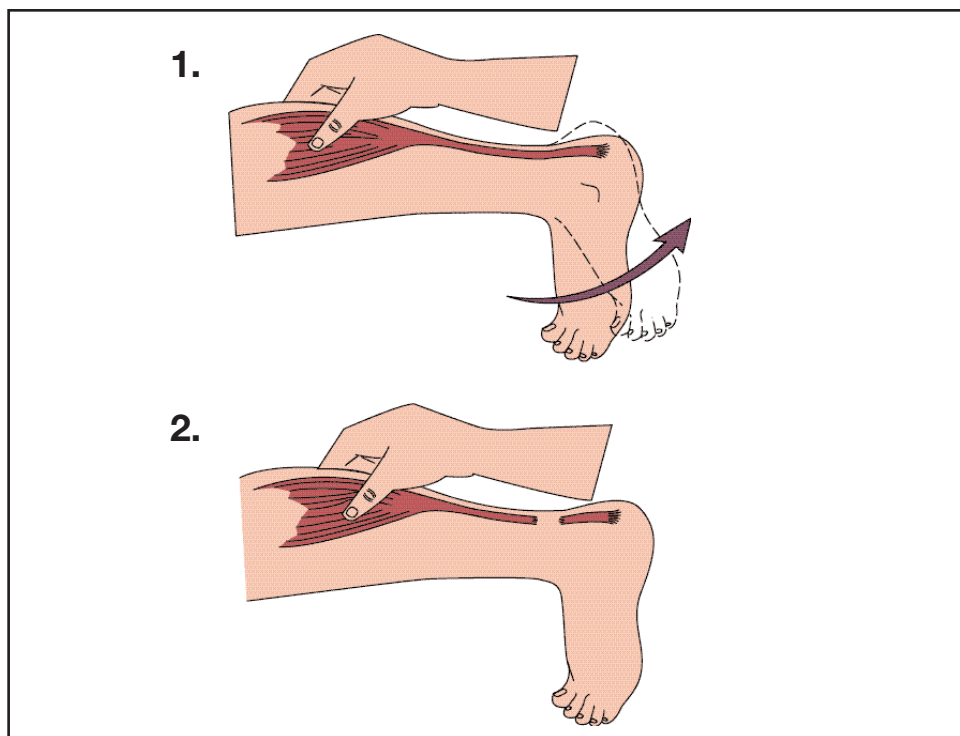


Figure 1. Thompson's test.

1. The gastrocnemius-soleus complex normally produces plantar flexion of the foot.
2. If the tendon is completely ruptured, then this will not occur.

Ankle Injuries

Patient Case Findings

CASE 1

The patient was walking with an obvious limp. There was no noticeable swelling anteriorly, but the contour of the posterior ankle was lost. In the prone position, the foot had lost its plantar flexion. Swelling was noticed over the Achilles tendon. Palpation of the tendon revealed a large deficit about 2 cm above the heel. The tendon was tender. Normal eversion, inversion, and dorsiflexion were noted. Passive dorsiflexion was excessive. Plantar flexion was weak. The patient was unable to do a calf raise. Neurovascular function was intact. Thompson's test was positive. Ottawa ankle rules were negative, therefore, an X-ray was not done. Anterior drawer test was negative.³

CASE 2

The patient's ankle was noted to be swollen anteriorly and posteriorly. The calf was also swollen. The patient had pain at the lateral malleolus. She also had a limp and needed to use a cane. There was no pain posteriorly. The Achilles tendon was not easily noted, however, plantar flexion was lost when prone. Decreased range of motion was noted throughout. The patient was unable to do a calf raise. Thompson's test was positive. The Anterior drawer sign was negative.

How should injuries be managed?

MANAGEMENT:

1. Immobilization: Splint or cast in plantar flexion
2. Referral: Orthopedic surgery is recommended. In young, athletic individuals, surgical repair within two days of rupture is recommended, however, a ruptured Achilles tendon can also be managed with casting for six weeks. Surgical repair guarantees maximum strength of the tendon and prevents overelongation of the tendon.² Surgical repair is also recommended for delayed diagnosis of a rupture. The ankle is still cast after surgical repair (for six weeks). Depending on the surgeon, the ankle may be recast after three weeks from plantar flexion to dorsiflexion.
3. Rehabilitation: Post cast-removal, the patient should be sent for physiotherapy. No rebounding activities are recommended until 12 weeks after the rupture repair.²

Achilles tendon rupture has a miss rate of 25%.³ 

Patient Case Diagnoses

CASE 1

Possible diagnoses: Achilles tendon rupture or ankle sprain.

Patient 1 can be diagnosed clinically. X-rays are not required. If necessary, an ultrasound can be performed to determine the extent of the rupture. The Achilles tendon can function with only 25% of its fibres intact, therefore, an ultrasound of the tendon should only be ordered if the patient is unable to do a calf raise.² (Thompson's test may be negative.)

CASE 2

Possible diagnoses: DVT? Ankle sprain? Ankle fracture? Arthritis? Achilles tendon rupture?

Patient 2 was a difficult diagnosis because of the history and the extent of positive physical findings. An X-ray of the ankle was done because the patient fulfilled the Ottawa ankle rules. The X-ray was negative. A vascular doppler of the calf was done to rule out a DVT (risk factors: age, calf swelling, immobility). It was negative. At this point, it would have been logical to assume the patient had suffered an ankle sprain, however, because of the positive Thompson's test and the inability to do a calf raise, the physician also asked the ultrasonographer to examine the Achilles tendon. It was ruptured.

An MRI can also be ordered for an Achilles tendon rupture, however, because of the amount of time and expense for an MRI to be arranged, an ultrasound, or even the clinical exam is adequate enough for diagnosis.

References

1. Brukner P and Khan K: Pain in the Achilles Region in Clinical Sports Medicine, 2nd Ed. McGraw Hill Co: Toronto, 2001. 535-50.
2. Reid, D: Achilles Tendon Rupture in Sports Injury Assessment and Rehabilitation. Churchill-Livingstone: New York, 1993. 208-9.
3. Knoop K, Stack L, Storrow A: Achilles Tendon Rupture in Atlas of Emergency Medicine. McGraw Hill Co: Toronto, 1997. 308-9.