

A practical approach to heel pain

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Finding the cause of heel pain can be difficult and frustrating. Moreover, a number of medical and paramedical specialists have interest in the problem without necessarily having the expertise to give consistent relief of symptoms. This article outlines a commonsense approach to diagnosis and management.

Clinical features

Heel pain can present in a variety of ways. It can be acute, severe and highly localised, or may be a transient manifestation of a systemic illness such as Reiter's syndrome or ankylosing spondylitis. More typically, however, the pain is a diffuse discomfort that is not well localised.

Patients tend to be middle-aged or older. They are often overweight (but not always), and pes planus with overpronation is typical (Figure 1). Specific questioning usually reveals that the pain is worse in the morning on first arising or when the patient stands from a sitting position and starts walking.

Examination

Examination reveals localised tenderness under the heel or at the insertion of the Achilles tendon or in an area 4 to 6 cm above its insertion, often with a localised swelling. If tibialis posterior tendonitis is present the pain is highly localised to the medial aspect of the arch of the foot below the medial malleolus – often there is a localised swelling when this tendon is involved.

Differential diagnosis

The vast majority of cases of heel pain are due to degeneration and dysfunction of the plantar fascia, Achilles tendon or the



Figure 1. Pes planus with overpronation is common in patients with heel pain.

tibialis posterior tendon. In some cases, fractures, avascular necrosis and inflammatory arthropathies may be causes.

Pathophysiology

The arch of the foot is maintained by soft tissues, particularly the plantar fascia; tendons such as the tibialis posterior (a potent invertor) also play a role in maintaining its integrity. With age, mechanical disadvantage (pes planus), obesity and overuse, the plantar fascia and tendon insertions begin to fail. The collagen becomes disorganised and attempts to differentiate into cartilage, perhaps because of the excessive strain or overuse. Surprisingly, there is little or no inflammation on histology when this occurs. Occasionally, there can be frank necrosis of the collagen.

The reasons for the pain are not clear from the histology. The findings in the soft tissues of the foot are exactly the same as those seen in rotator cuff disease of the shoulder or in lateral epicondylitis of the elbow. In other words, there appears to be a common pathophysiological mechanism for degeneration of tendons in various sites in the body.

Investigations

For a typical patient, no investigations are necessary to make a diagnosis of plantar fasciitis, tibialis posterior tendonitis or Achilles tendonitis. Plain radiographs may show a calcaneal spur, which is of no use in diagnosis or prognosis. A bone scan will often show increased uptake in the calcaneus (posterior for Achilles tendonitis and inferior for plantar fasciitis) or the navicular (tibialis posterior tendonitis). Ultrasonography is

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Stretching exercises for heel pain

We recommend two stretches for the plantar fascia and Achilles tendon. Each stretch should initially be performed for a short period (10 to 15 seconds), and then gradually increased to the duration suggested. The sitting stretch should be performed before the standing stretch.

Sitting position stretch

1. Sit on a bed with both legs straight out in front of you and your hands on your knees.
2. Using a rope towel or cord looped around the foot, pull the foot back and point your toes towards your head, bending the foot upwards at the ankle (Figure A). The more effort you put into the motion, the better the stretch will be.
3. Hold the position for as long as possible (at least 30 seconds).

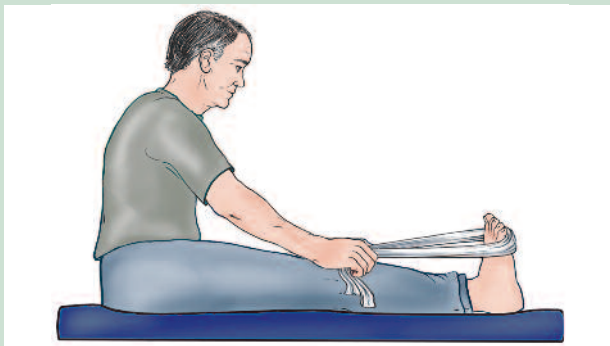


Figure A. Use a rope towel or cord to pull the foot back.

Standing position stretch

1. Stand on a stair, with the ball of your foot on the edge of the stair.
2. Holding the rails for balance, allow your heels to sink (Figure B). You should be relaxed, and no active muscle contraction should be necessary in your legs.
3. Hold the position for 4 to 5 minutes.



Figure B. Allow the heels to sink without actively contracting the leg muscles.

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useful in documenting tendon swelling and cystic degeneration; however, an MRI scan is usually required if symptoms persist and surgery is required.

Management

As far as I am aware, there are no large controlled trials assessing treatment for heel pain. The recommendations made here are those that are used in our multidisciplinary foot clinic.

In essence, we attempt to improve the mechanical disadvantage of the pes planus and overpronation by using orthotics and footwear that is strong enough in the heel to prevent overpronation and allow orthotic inserts to maintain the plantar arch. Combined with these measures, we encourage a series of stretching exercises for both plantar fascia and Achilles tendon pain to encourage development of mature scar tissue to replace the degenerating metaplastic collagen (see the patient handout above). So far, our results have been extremely pleasing. Although I am aware of no studies comparing custom-made orthotics with off-the-shelf models, we have obtained the best results in our clinic from podiatrists who are interested, experienced and enthusiastic in their approach.

We rarely inject the plantar fascia unless a patient is so incapacitated that walking is not possible. We never inject corticosteroid around the Achilles tendon because this procedure has been shown to be occasionally associated with rupture of the tendon – although a rupture may not be secondary to the injection, the resulting disability is so bad that any risk of this nature would appear unwarranted.

More severe cases of Achilles tendonitis and tibialis posterior tendonitis may require immobilisation in plaster or an orthopaedic immobilisation device such as the Cam walker (an orthopaedic boot that can be removed to allow washing). Failure to improve with these measures may lead to corrective surgery to the Achilles tendon to remove a degenerate central core of metaplastic collagen or, in the case of tibialis posterior tendonitis, a fusion procedure of the hindfoot to overcome the chronic strain within that tendon.

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Further reading

1. Crawford F, Atkins D, Edwards J. Interventions for treating plantar heel pain. *Cochrane Database Syst Rev* 2001; (3).