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# Diagnosis and Management of Heel Pain

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## Abstract

Although there are many potential causes of heel pain, mechanical causes are most frequently identified. The diagnosis may be aided by knowing the precise anatomical site of the discomfort. The most typical diagnosis is plantar fasciitis, which causes pain in the medial plantar heel, particularly with the initial weight-bearing steps following rest. The following conditions can also result in plantar heel pain: heel pad syndrome, which causes a deep, bruising-like pain in the middle of the heel; calcaneal stress fractures, which cause pain that gets worse over time after increasing activity or switching to a harder walking surface; nerve entrapment or neuromas; and plantar warts. Posterior heel discomfort is frequently brought on by achilles tendinopathy, although pain from other tendinopathies is restricted to the area where the afflicted tendon inserts. Haglund deformity, a protrusion of the calcaneus that may cause retrocalcaneal bursa inflammation, and Sever disease, a prevalent form of calcaneal apophysitis in children and adolescents, are other potential causes of posterior heel discomfort. Tarsal tunnel syndrome, which is brought on by compression of the posterior tibial nerve, may be the cause of medial midfoot heel pain, especially with extended weight bearing.

**Keywords:** Medial plantar heel; Calcaneal stress fractures; Posterior heel discomfort; Haglund deformity; Midfoot heel pain; Posterior tibial nerve

## Introduction

A common complaint to family doctors is heel pain, which has a wide range of potential diagnoses. The majority of diagnoses have mechanical causes. Making the right diagnosis and starting the right management requires a detailed patient history, physical examination of the foot and ankle, and the right imaging tests. The history should include details regarding the symptoms and causes of the pain, as well as any aggravating or mitigating variables, changes in activities, and other conditions that may be associated. A diagnosis can be made based on where the pain is anatomically located. The foot should be examined both at rest and when bearing weight, and the foot and ankle joints as well as bony prominences and tendon insertions should all be felt throughout the examination [1].

Active range of motion of the foot and ankle should be evaluated, and passive range of motion should also be checked if full range of motion is not present. The diagnosis will also be determined through particular testing, which is covered in depth throughout this article [2].

### Planter fasciitis

Every year, more than 2 million people seek treatment for plantar heel discomfort. The most frequent cause, with a lifetime frequency of 10% in the general population, is plantar fasciitis. The main sign is typically throbbing medial plantar heel pain that gets worse after resting. After more walking, the pain usually subsides, but it can come back if you keep putting weight on it. Sharp, stabbing pain is frequently felt when the plantar fascia and medial calcaneal tuberosity are palpated [3].

Additionally, passive dorsiflexion of the foot and toes frequently causes pain. Weight-bearing radiography, Magnetic Resonance Imaging (MRI), and ultrasonography can help rule out alternative causes of heel pain even though diagnostic imaging is not necessary. The first course of treatment is usually conservative and includes rest, activity moderation, stretching, strengthening exercises, ice massage, and the use of analgesic or anti-inflammatory drugs. Physical therapy, night splinting, arch taping, custom or prefabricated orthotics, and other successful methods can be used in conjunction with more conventional methods [4].

When conservative methods are ineffective or more immediate pain control is needed, corticosteroid and platelet-rich plasma injections are frequently utilized to give short-term pain relief. This is especially true when these injections are carried out under ultrasound guidance. Corticosteroid injections raise the possibility of a ruptured plantar fascia or atrophy of the fat pad [5].

### Heel pad syndrome

Heel discomfort can be brought on by plantar warts, which are elevated skin lesions brought on by an HPV infection. Increased body weight, previous corticosteroid injections, and aging-related decreased heel pad flexibility may potentially be factors. With rest, ice, taping, anti-inflammatory or analgesic drugs, heel cups, and the right footwear, treatment aims to lessen pain [6].

### Planter warts

Heel discomfort can be brought on by plantar warts, which are elevated skin lesions brought on by an HPV infection. They are often self-limiting, but patients frequently want them to go away faster. While successful treatments, over-the-counter drugs, cryotherapy, topical drugs, laser therapy, and shaving the wart may temporarily make the pain worse [7].

### Posterior heel pain

The soleus and gastrocnemius muscles combine to generate the Achilles tendon, which enters into the calcaneus. A tendinopathy that results in posterior heel discomfort can be brought on by excessive

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mechanical loading of the muscle, as that brought on by increased running. Achilles tendinopathy causes dull, occasionally intense discomfort that gets worse with exercise or pressure applied to the affected area. Use of fluoroquinolones has been linked to Achilles tendinopathy, especially in elderly people. Insertional or within the midsubstance of the tendon are two different categories for the diagnosis [8].

### Mid foot heel pain

### Tendinopathis

Other, less frequent tendinopathies can result in heel discomfort that is restricted to the area where the afflicted tendon inserts. The posterior tibialis, flexor digitorum longus, or flexor hallucis longus tendon may be the source of medial heel pain.The peroneal tendon may be the source of lateral heel pain. These tendons' ultrasonography could help with the diagnosis [9].

### Haglund deformaties

A Haglund deformity is a protrusion of the superior side of the posterior calcaneus, which is especially prevalent in middle-aged women. Retrocalcaneal bursitis can be brought on by repetitive pressure from improperly fitting footwear or the deformity itself. Retrocalcaneus bursitis patients experience erythema, edema, and discomfort to direct palpation over the bursa. Wearing open-heeled shoes and receiving corticosteroid injections are possible treatments that attempt to reduce pressure and inflammation.

### Sever disease

Children and teenagers who experience heel discomfort most frequently have Sever disease (calcaneal apophysitis). Patients typically suffer from activity-related heel pain between the ages of eight and twelve, notably when running or jumping, which is frequently greater at the start of a new sports season or during a growth spurt. Palpation near the Achilles insertion point, mediolateral calcaneal compression, and passive dorsiflexion can all result in pain. Though the majority of radiographic results are normal, the calcaneus apophysis may be fractured or sclerotic [10].

## Conclusion

MRI and radiography with stress images are examples of imaging. Ice, massage, taping, balance and proprioceptive training, muscular strengthening, corticosteroid injections, anti-inflammatory medication use, ankle braces, and orthotics are some of the treatment options. Surgery is typically necessary for patients whose rehabilitation has failed.

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