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Putting a Foot Down

Heel spurs and plantar fasciitis are similiaryet different

By Barbara F. Flicek, NP

Heel spurs and plantar fasciitis are often discussed together in the medical literature. It is difficult—and usually unnecessary—to distinguish between the two because the causes and treatment of each condition are the same.<sup>1</sup>

A heel spur is a bony projection on the sole or plantar region of the heel bone (calcaneous). This condition may accompany or result from severe inflammation of the plantar fascia.<sup>2</sup> The plantar fascia is a fibrous band of connective tissue on the sole of the foot, extending from the heel to the toes.

Plantar fasciitis is the most common cause of inferior heel pain.<sup>2</sup> The hallmark sign of plantar fasciitis is pain on the bottom of the heel that is most prominent with the first steps upon awakening.<sup>2</sup> Plantar fasciitis is common in runners and overweight people who have recently increased their activity level.

Plantar fasciitis is considered a chronic inflammatory syndrome rather than a posttraumatic disorder.<sup>2</sup> Typical morning pain results from a cycle that begins with the foot resting in plantar flexion during the night, allowing the fascia to contract. The first steps of the day stretch the fascia, resulting in pain. This stretching results in micro tears at the calcaneal origin of the plantar fascia band. The pain is dull and similar to that of a toothache, and may be noted at the beginning of exercise or when weight bearing is resumed after resting.

A frequent cause of heel spurs is an abnormal or excessive pronation of the foot during walking and athletic activities.<sup>3</sup> In some cases, the sole of the foot flattens and becomes unstable. The portion of the plantar fascia attached to the calcaneous stretches and pulls away from the heel bone. Heel spurs are deposits of calcium that result from repetitive stress and inflammation. They are the body's response to injury and inflammation.

#### Predisposing Factors

Predisposing factors to plantar fasciitis and heel spurs are obesity, sudden weight gain, tight Achilles tendon, change in walking or running habits, change in running surface, and use of shoes with poor cushioning and arch support.<sup>3</sup>

To identify these factors, the history of every patient should include questions about occupations with prolonged weight bearing (police officers, letter carriers, waiters and waitresses) and any history of excessive pronation, pes planus or pes cavus.

On examination, physical findings in a patient with heel spur syndrome or plantar fasciitis may include gait alteration such as supination of the foot to redistribute the load laterally or toe-walking to avoid pressure on the heel.<sup>2</sup>

The patient may also exhibit decreased dorsiflexion of the great toes and ankle. Mild edema may be present, and it may be possible to palpate a small granuloma along the medial fascial origin. No tenderness should be present with medial to lateral heel compression, and palpation alone should not produce tenderness. Foot motion that stretches the plantar fascia causes the pain.

#### Diagnostic Studies

If the patient does not have a history or finding of flat foot, highly-arched foot or excessively pronated foot, laboratory studies might be necessary to rule out arthritis or infection. Sedimentation rate, complete blood count and rheumatoid factor may be informative if bilateral symptoms exist or other joints are involved.

It is essential to rule out conditions such as Baxter's neuritis, diabetes mellitus and peripheral vascular disease, which can cause similar pain with walking.

#### Conservative Management

Appropriate pharmacologic therapy for heel spurs and plantar fasciitis consists of nonsteroidal anti-inflammatory drugs (NSAIDs) for 2 to 4 weeks.<sup>3</sup> Ibuprofen (Advil, Motrin) and naproxen (Naprosyn, Aleve) are recommended when there is no history of peptic ulcer disease, gastrointestinal bleeding or hypersensitivity.

Steroid injection with triamcinolone (Aristocort) or dexamethasone (Decadron) may be appropriate in severe or resistant cases.<sup>3</sup> Side effects of steroid injection include infection, fat pad atrophy or rupture of the plantar fascia.

The leading conservative therapy is rest, especially if increased activity or injury triggered the pain.<sup>1</sup> It is also beneficial to apply ice three times a day, especially after activity.<sup>1</sup> Stretching the calf muscles before getting out of bed and after extended periods of sitting helps prevent reinjury.

Taping, arch support, shoe orthotics and stretching exercises are helpful in conjunction with drug therapy and rest.<sup>1</sup> Taping the bottom of the foot can keep it in neutral position. The purpose of taping and wearing orthotics is to cushion and support the heel and arch. Strips of tape placed along the bottom of the foot prevent the toes from splaying out and causing pain. Most orthotics provide passive dorsiflexion, which can also reduce pain. These are available without a prescription in office settings and through various Web sites. Generic heel cups and arch supports are available at most drug stores.

Two helpful at-home exercises are massaging the fascia by rolling the foot over a cylinder-shaped item such as a rolling pin and bunching up a hand towel with the toes to strengthen the muscles that support the arch.

As a component of treatment, teach heel stretches to prevent shortening of the Achilles tendon. Educate about weight loss when obesity is an issue. Patients with severe heel spurs may require a night splint or walking cast. Advise all patients to avoid activities that irritate the condition, including walking barefoot on hard surfaces.

### Technologic Interventions

Over the years, many procedures have been used to treat chronic heel pain. Surgical options are plentiful, and most are minimally invasive, highly successful with few complications, and allow immediate full weight bearing.

Traditionally, patients who do not adequately respond to conservative therapy are referred to a podiatric surgeon for further evaluation and possible fasciotomy. One of the newest treatments for heel spur syndrome and plantar fasciitis is shock-wave therapy. Several shock-wave devices are now available for the treatment of plantar fasciitis and heel spurs. The first such device in the United States was approved by the FDA in 2000. Since then, several other manufacturers have introduced their own versions, and many more shock-wave devices are in development.

The aim of shock-wave therapy (formally called extracorporeal shock wave therapy or ESWT) is to break up scar tissue and stimulate the growth of new blood vessels so that the involved area will heal and become more flexible. When a shock-wave device is positioned over the heel (guided by ultrasound), it delivers repeated sound waves to the affected tissue. This procedure is typically performed by podiatrists or nurse practitioners who have received additional training.

Shock-wave therapy is a noninvasive, minimally risky procedure for chronic conditions such as heel spur syndrome and plantar fasciitis.<sup>4</sup> Shock-wave therapy allows patients to return to normal activities of daily living, and most occupations, within 1 to 2 days. They can also resume wearing normal footwear.

Research about ESWT is progressing due to widespread interest in this treatment approach.<sup>4</sup> Estimates of the success rate for shock-wave therapy vary from 64 percent to 88 percent. Current studies should more definitively indicate the technology's usefulness.

ESWT is not widely available in some areas of the country, insurance coverage is spotty, and the procedure is expensive. The cost of treatment is comparable to open surgery, ranging from \$1,000 to \$3,000 per application.

The benefits of shock-wave therapy in terms of social costs are significant, however. Patients can quickly return to activities of daily life and work. Lost work days are minimized. There are no risks such as postoperative infection or injury to branches of the plantar nerve, both of which are associated with any open surgical procedure.<sup>4</sup>

Understanding shock-wave therapy is still evolving. For example, the mechanism of action isn't well understood. The optimal treatment setting has not been conclusively determined. Therapeutic standards, such as type of shock-wave pulses, whether to use high-energy or low-energy waves, and the optimum number of treatments, have not been agreed upon.<sup>4</sup>

Because of the lack of definitive procedural protocol evaluation, the efficacy of ESWT has not been conclusively established, but research to date suggests that it is a promising application of this technology.

### Recommended Approach

The evolution of shock-wave therapy as a treatment for heel pain is an exciting clinical development. But until more definitive evidence is available, the best treatment course is to provide patients with adequate conservative management (e.g. NSAIDs, rest, taping, support) for at least six months. When a patient has chronic, unresponsive heel pain, refer him or her to a physician who is knowledgeable in both surgical and shock-wave therapy procedures.

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