

OH, MY ACHING FEET: HEEL PAIN

BY SCOTT SHAWEN, M.D.

Heel pain of one sort or another is the most common foot related symptom leading patients to seek evaluation and treatment by a health care professional. It can have many different characteristics as well as causes or etiologies, the most common being plantar fasciitis. This is an irritation or injury of the plantar fascia at its origin, which is located on the plantar/medial (bottom of the inside) aspect of the heel.

While plantar heel pain can present at any age, the most common age of presentation is between the ages of 40-60. It is more common, however, in middle-aged women and race and ethnicity do not correlate with incidence. Stress fractures can occur at any age, but are more common in women than men, and are highest in the military recruit population.

Multiple different conditions can lead to heel pain. These include trauma, disease (tumors), and the degenerative process of aging. This last cause, degenerative processes, is by far the most common cause of heel pain.

Evaluation of heel pain always begins with a thorough history and physical examination. Xrays and laboratory studies are usually of limited value, as heel spurs are common in the population and do not correlate well with heel pain. Pain at start up from bed in the morning and after sitting for prolonged periods and gradually worsens with activity is consistent with plantar fasciitis. Pain that gets worse throughout the day and has burning in the bottom of the foot can indicate nerve compression from tarsal tunnel syndrome.

In the differential diagnosis of heel pain, plantar fasciitis is by far this most common cause. On exam it presents with tenderness along the inside and bottom of the heel, and may be made worse by dorsiflexion of the toes. Other causes of pain can be central heel pain, stress fracture, nerve entrapment, infection, and tumors. If the exam is not consistent with plantar fasciitis, further examination with xrays, MRI, and nerve conduction testing may be warranted.

With plantar fasciitis being by far the most common cause of heel pain, certain characteristics are present in most cases. As indicated earlier, this tends to be a degenerative condition and is not related to occupational exposure unless trauma or prolonged weight-bearing is involved. Plantar fasciitis patients tend to have a tight Achilles tendon, obesity (body mass index >30), and prolonged weight-bearing. It is also associated with anatomic variations such as pes planus (flat foot), pes cavus (high-arched foot), or excessive femoral anteversion (pigeon-toed). As many as 50% of patients with plantar fasciitis have a plantar heel spur seen on xrays. However, these heel spurs are located within the muscle above the plantar fascia and are not believed to be the cause of heel pain in this patient population.

The basis for the heel pain is believed to be related to repetitive microtrauma to the plantar fascia causing microtears, inflammation, and irritation to the bone at the origin of the plantar fascia (periostitis). A traumatic tear of the plantar fascia can occur in the midfoot region, far from the heel, developing a tender knot.

Imaging and other studies may be necessary if the pain persists for several months. A lateral xray is the initial evaluation to assess for arthritis, structural abnormalities, or other pathology. If the pain persists, a bone scan or MRI may be utilized to evaluate the amount of inflammation in the area, especially if surgical intervention is being considered.

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ABOUT THE AUTHOR



Scott Shawen, M.D. completed his undergraduate studies at Brigham Young University in Provo, Utah and his medical education at Duke University School of Medicine in Durham, North Carolina. His internship and orthopaedic residency were completed at Walter Reed Army Medical Center in Washington, D.C. He obtained an orthopaedic foot and ankle fellowship at Miller Orthopaedic Clinic in Charlotte, North Carolina. He is certified by the American Board of Orthopaedic Surgery (ABOS) and maintains a full-time practice. Dr. Shawen is a Washington State Department of Labor and Industries approved examiner. He is able to address all musculoskeletal conditions in the IME setting, with a special interest in orthopaedic conditions of the foot and ankle.

Dr. Shawen will be available in our Spokane, WA clinic this Fall.

ALASKA

| Date | Physician | Specialty |
|------------------|------------|--|
| Anchorage | | |
| 7/8 | Youngblood | Orthopaedic Surgeon |
| | Rivera | Chiropractor |
| 7/9 | Youngblood | Orthopaedic Surgeon |
| 7/21 | Fraser Jr. | Orthopaedic Surgeon |
| | Rivera | Chiropractor |
| 7/27 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| | Wong | Neurologist |
| 7/28 | Chong | Physical Medicine and Rehab, Physiatrist |
| | Bauer | Orthopaedic Surgeon, Spine Surgery |

Fairbanks

| | | |
|------|------------|---------------------|
| 7/20 | Fraser Jr. | Orthopaedic Surgeon |
|------|------------|---------------------|

Juneau

| | | |
|------|--------|---------------------|
| 8/13 | Craven | Orthopaedic Surgeon |
|------|--------|---------------------|

IDAHO

| Date | Physician | Specialty |
|--------------|-----------|--|
| Boise | | |
| 7/6 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| 7/7 | Chong | Physical Medicine and Rehab, Physiatrist |
| 7/14 | Tallerico | Orthopaedic Surgeon, Osteopath |

Idaho Falls

| | | |
|------|-----------|--|
| 7/1 | Chong | Physical Medicine and Rehab, Physiatrist |
| 7/15 | Tallerico | Orthopaedic Surgeon, Osteopath |

Lewiston

| | | |
|------|-------|---------------------|
| 7/23 | Lynch | Orthopaedic Surgeon |
|------|-------|---------------------|

Twin Falls

| | | |
|------|--------|---------------------|
| 7/22 | Holley | Orthopaedic Surgeon |
|------|--------|---------------------|

MONTANA

| Date | Physician | Specialty |
|----------------|------------|--------------------------------------|
| Bozeman | | |
| 7/22 | Hofmeister | Orthopaedic Surgeon, Hand Specialist |

OREGON

| Date | Physician | Specialty |
|-------------|-----------|---------------------|
| Bend | | |
| 7/13 | Skrzynski | Orthopaedic Surgeon |
| 7/15 | Erkkila | Orthopaedic Surgeon |
| 7/19 | Wells | Orthopaedic Surgeon |
| 7/27 | Skrzynski | Orthopaedic Surgeon |

Eugene

| | | |
|-----|---------|---------------------|
| 7/5 | Erkkila | Orthopaedic Surgeon |
|-----|---------|---------------------|

Medford

| | | |
|------|----------|---------------------|
| 8/26 | Woodward | Orthopaedic Surgeon |
|------|----------|---------------------|

Newport

| | | |
|-----------------------|--|--|
| Call for availability | | |
|-----------------------|--|--|

Portland/Tigard

| | | |
|------|----------|--------------------------------------|
| 7/9 | Lynch | Orthopaedic Surgeon |
| 7/12 | Berselli | Orthopaedic Surgeon |
| 7/18 | Button | Orthopaedic Surgeon, Hand Specialist |
| 7/19 | Smith | Orthopaedic Surgeon |
| 7/20 | Arbeene | Orthopaedic Surgeon |
| 7/30 | Bauer | Orthopaedic Surgeon, Spine Surgery |

WASHINGTON

| Date | Physician | Specialty |
|-----------------------|-----------|-----------|
| Bellevue | | |
| Call for availability | | |

Everett

| | | |
|------|----------|--------------------------------------|
| 7/6 | Seligman | Orthopaedic Surgeon |
| | Hamilton | Chiropractor |
| 7/8 | Joe | Orthopaedic Surgeon |
| 7/12 | Joe | Orthopaedic Surgeon |
| 7/13 | Brobeck | Orthopaedic Surgeon |
| 7/15 | Olch | Orthopaedic Surgeon, Hand Specialist |
| 7/18 | Seligman | Orthopaedic Surgeon |
| 7/22 | Olch | Orthopaedic Surgeon, Hand Specialist |
| 7/25 | Reiss | Orthopaedic Surgeon |
| 7/28 | Brobeck | Orthopaedic Surgeon |
| | Koenen | Psychiatrist |
| 7/29 | Nanos | Orthopaedic Surgeon, Hand Specialist |

Mt. Vernon

| | | |
|------|---------|--------------------------------------|
| 7/14 | Brobeck | Orthopaedic Surgeon |
| 7/21 | Koenen | Psychiatrist |
| 7/26 | Wong | Neurologist |
| | Reiss | Orthopaedic Surgeon |
| 7/27 | Brobeck | Orthopaedic Surgeon |
| 7/28 | Nanos | Orthopaedic Surgeon, Hand Specialist |

Olympia

| | | |
|------|-----------|--------------------------------------|
| 7/6 | Schneider | Psychiatrist |
| 7/12 | Jones | Orthopaedic Surgeon, Hand Specialist |
| | Rivera | Chiropractor |
| | Valpey | Neurologist |
| 7/21 | McFarland | Orthopaedic Surgeon |
| 7/29 | Zoltani | Neurologist |
| | Olch | Orthopaedic Surgeon, Hand Specialist |
| | Ward | Psychiatrist |

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| Date | Physician | Specialty |
|--------------------------|------------|------------------------------------|
| Seattle Northgate | | |
| 7/7 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| | Stump | Neurologist |
| | Rivera | Chiropractor |
| 7/8 | Koenen | Psychiatrist |
| 7/11 | Seligman | Orthopaedic Surgeon |
| | McEvoy | Urologist |
| | Hamilton | Chiropractor |
| 7/13 | Wendt | Neurologist |
| | Joe | Orthopaedic Surgeon |
| | Augsburger | Psychiatrist |
| | Hou | Family Practice |
| 7/14 | McFarland | Orthopaedic Surgeon |
| 7/15 | Champoux | Orthopaedic Surgeon, Spine Surgery |
| 7/21 | Seligman | Orthopaedic Surgeon |
| | Brobeck | Orthopaedic Surgeon |
| 7/22 | Klock | Pulmonologist |
| 7/23 | Wong | Neurologist |
| | Grabill | Orthopaedic Surgeon, Osteopath |
| | Bodow | Occupational Medicine |
| 7/26 | Brobeck | Orthopaedic Surgeon |
| | Koenen | Psychiatrist |
| 7/27 | Seligman | Orthopaedic Surgeon |
| 7/29 | Friedman | Orthopaedic Surgeon |

| Silverdale | | |
|-------------------|--------|-----------------------|
| 7/5 | Harris | Orthopaedic Surgeon |
| | Stump | Neurologist |
| 7/14 | Harris | Orthopaedic Surgeon |
| | Smick | Occupational Medicine |
| 7/19 | Harris | Orthopaedic Surgeon |

| Spokane | | |
|----------------|------------|--|
| 7/9 | Wong | Neurologist |
| | Sylvia | Orthopaedic Surgeon |
| 7/15 | Chong | Physical Medicine and Rehab, Physiatrist |
| | Jukich | Chiropractor |
| 7/19 | Moss | Orthopaedic Surgeon, Hand Specialist |
| 7/20 | Zoltani | Neurologist |
| | Moss | Orthopaedic Surgeon, Hand Specialist |
| 7/23 | Hofmeister | Orthopaedic Surgeon, Hand Specialist |

| Date | Physician | Specialty |
|---------------|-----------|--|
| Tacoma | | |
| 7/6 | McFarland | Orthopaedic Surgeon |
| | Rivera | Chiropractor |
| 7/12 | McFarland | Orthopaedic Surgeon |
| 7/14 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| | Wong | Neurologist |
| 7/15 | Waltz | Orthopaedic Surgeon |
| | Ward | Psychiatrist |
| 7/16 | Olch | Orthopaedic Surgeon, Hand Specialist |
| 7/21 | Chong | Physical Medicine and Rehab, Physiatrist |
| 7/22 | Wong | Neurologist |
| | Grabill | Orthopaedic Surgeon, Osteopath |
| | Rivera | Chiropractor |
| 7/23 | Olch | Orthopaedic Surgeon, Hand Specialist |
| 7/25 | Schneider | Psychiatrist |
| 7/27 | Jones | Orthopaedic Surgeon, Hand Specialist |
| 7/29 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| | Stump | Neurologist |
| | Bodow | Occupational Medicine |
| | Rivera | Chiropractor |
| 7/30 | Nanos | Orthopaedic Surgeon, Hand Specialist |
| | Friedman | Orthopaedic Surgeon |

| Tri-Cities | | |
|-------------------|-----------|---------------------|
| 7/6 | Wong | Neurologist |
| | Reiss | Orthopaedic Surgeon |
| 7/15 | Fife | Orthopaedic Surgeon |
| 7/20 | Gillespie | Orthopaedic Surgeon |

| Date | Physician | Specialty |
|----------------------------|-----------|--------------------------------------|
| Tukwila/Southcenter | | |
| 7/1 | Champoux | Orthopaedic Surgeon, Spine Surgery |
| 7/9 | Joe | Orthopaedic Surgeon |
| | Wendt | Neurologist |
| 7/13 | Seligman | Orthopaedic Surgeon |
| 7/14 | Joe | Orthopaedic Surgeon |
| | Ward | Psychiatrist |
| 7/15 | Bauer | Orthopaedic Surgeon, Spine Surgery |
| | Wong | Neurologist |
| | Rivera | Chiropractor |
| 7/16 | Waltz | Orthopaedic Surgeon |
| 7/21 | Grabill | Orthopaedic Surgeon, Osteopath |
| | Wendt | Neurologist |
| 7/25 | Seligman | Orthopaedic Surgeon |
| | Hamilton | Chiropractor |
| 7/28 | McFarland | Orthopaedic Surgeon |
| | Rivera | Chiropractor |
| 7/30 | Wong | Neurologist |
| | Olch | Orthopaedic Surgeon, Hand Specialist |

| Vancouver | | |
|------------------|---------|--------------------------------------|
| 7/21 | Wong | Neurologist |
| | Moss | Orthopaedic Surgeon, Hand Specialist |
| 7/27 | Perez | Orthopaedic Surgeon, Osteopath |
| | Spector | Neurologist |
| 7/28 | Perez | Orthopaedic Surgeon, Osteopath |

| Yakima | | |
|---------------|-------|---------------------|
| 7/7 | Wong | Neurologist |
| | Reiss | Orthopaedic Surgeon |
| 7/14 | Fife | Orthopaedic Surgeon |

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There is no need for a CT scan and laboratory studies should be considered if other conditions are possible (rheumatoid arthritis, infection, etc.).

The primary treatment for plantar fasciitis consists of activity modification, night splints, stretching, over-the-counter heel cups or cushioned orthotics, and nonsteroidal anti-inflammatory medications. Plantar fascia stretches by extending the toes and dorsiflexing the foot can dramatically reduce start up pain. Corticosteroid injections should be used sparingly, as they can cause a plantar fascial rupture and are inferior to no injection after three months. More recent data suggests that steroid injections cause inferior results if surgical intervention is performed at a later date. Other treatments include high-intensity ultrasound, low level laser therapy, platelet rich plasma injections, amniotic membrane injections, and whole-blood injections.

If the condition has lasted for over nine months, surgical intervention should be considered. This consists of primarily a release of the medial 1/3 to 2/3 of the plantar fascia. This can be

performed through an incision or endoscopically (with a small camera and small incisions). Other techniques include Tenex, which uses an ultrasonic blade that removes the damaged plantar fascia under ultrasound guidance. If there are characteristics of tarsal tunnel compression, a release should be performed of the distal tarsal tunnel in addition to the partial plantar fascial release. Success rates range from 70% to 90% with these techniques.

As much as 10% of the population may present with heel pain over the course of their lives, and a familiarity with the diagnosis and risk factors for plantar fasciitis is important for both primary care and specialty practitioners. Obesity, decreased ankle dorsiflexion, a pronated foot, and increasing age are important intrinsic risk factors that have been associated with plantar fasciitis. The extrinsic risk factors include prolonged weightbearing, increasing activity levels, and inappropriate shoe wear. Approximately 80% of individuals with plantar fasciitis will resolve spontaneously. Of the 20% that remain, most will have a waxing and waning course over the years. Most will never have consistent pain that will last and require surgical intervention.

Article references available upon request.