

## Case Studies in Review

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### Case History

The patient is a 45-year-old female, employed for nine years as a sales representative of a large home improvement center. Her job required her to undergo prolonged standing on a concrete surface.

She had been treated conservatively and successfully for intermittent low back "sciatic" pain during hormonal changes, such as occurs during menses cycle. She had also had chiropractic treatment for left knee pain. The chronic knee pain was attributed to an injury dated back to high school days. She denied prescription medication use.

Difficulty performing activities of daily living at the time of the examination included: inability to tolerate prolonged walking accompanied by left ill-defined, stabbing, buttock pain that was nonradiating. The patient remarked that immediately upon arising from bed she noticed a deep left foot pain. Sleep habits were described as right lateral recumbent and undisturbed.

She had full active range of motion of the trunk and in all extremities. There was no gross neurologic deficit. There was no leg length inequality or unequal iliac crest height. She presented with a left pronation rollover disorder with left toe out on gait analysis. Supine examination revealed external rotation of the thigh on the affected side, accompanied by a somewhat limited active internal rotation. Sacral fixations were present. Exquisite left heel pain was palpable and contracture of the left plantar fascia was demonstrated. Her standing height was 66 inches; her weight was 82 kg. She estimated a recent weight gain of 15 pounds.

Lumbar weightbearing views demonstrated a mild left convex scoliosis and spondylosis. A lateral view of the left foot demonstrated the presence of a moderate calcaneal heel spur.

The most common heel problems encountered in a chiropractic practice are caused by a painful tearing of the fascia connecting the toes and calcaneus (heel). This may result in either a calcaneal spur or plantar fasciitis. If the foot flattens or becomes unstable during critical times during the gait cycle, the attachment of the plantar fascia onto the heel may begin to stretch and pull away from the calcaneus. A calcaneal (heel) spur develops; without the spur, the condition is called plantar fasciitis.

Heel spurs are visible on x-ray, most prominent on a lateral foot view. The heel pain is especially noticeable to the patient during the toe-off phase of gait. Many patients report onset of pain when getting out of bed and an acute inability to tolerate weightbearing on the affected heel. The patient may also report either a sudden increase in daily activities, an increase in weight or a change in footwear. The most frequent cause, however, is an abnormal motion of the foot known as hyperpronation. The hypermobility of the foot creates a serial distortion that can mechanically-induce future or co-exist problems involving the knee, hip, sacroiliac joint or the low back region.

### Associated Lower Extremity Conditions

Plantar Fasciitis - pain directly beneath or in front of the heel; chronic inflammations of the fascia as a result of excessive pronation disorder.

Achilles Tendonitis - inflammation of the sheath surrounding the Achilles tendon; pain behind the heel, ankle and lower calf. Counter-rotation of the tibia against the femur, the result of excessive pronation, causes two heads of the tendon to torque against each other and stretch the tendon.

Chondromalacia Patellae (bad knee) - a degeneration of the cartilage covering the underside of the patella; knee pain and medial soreness result. Excessive pronation counter-rotates the tibia against the femur creating undue stress that prevents the patellar from tracking properly. The femur condyles irritate and damage the retro surface of the patella.

Halux Valgus (bunions) - a sometimes-painful bump at the base of the great toe. Excessive pronation and hypermobility of first metatarsal ray causes toe-off to come off the medial (inside) portion instead of the planter surface of the great toe. This force stretches and distorts the joint.

Neuroma - intermetatarsal forefoot pain located at the ball of the foot and/or toe numbness. Generally located between the 3rd and 4th metatarsal bones.

#### Treatment

Planter fasciitis and calcaneal heel spurs are usually controlled with conservative chiropractic treatment. Once pain and inflammation has been resolved, a custom-made orthotic should be used to stabilize the foot and prevent a recurrence. The role of the orthotic in these conditions is to prevent excess pronation and excessive lengthening of the planter fascia and the resultant tearing of the fascia.

This patient has two conditions; heel spurs and piriformis syndrome as an unrecognized cause of sciatica by clinical history. The piriformis muscle bridges over the sacroiliac joint, and a part of its origin is intimately bound up with the capsule of the joint, and subject to reflex spasm from intraarticular irritation of the sacroiliac joint. The piriformis muscle is innervated by branches from the L5, S1, and S2 nerve roots. The piriformis rotates the extended thigh laterally and abducts the flexed thigh.

The two most common causes of piriformis syndrome are trauma to the sacroiliac joint and hormonal changes during menses (latter noted by Caillet.) Sacroiliac fixations were adjusted and stretching of the involved muscle prevented re-occurrence. In this case, to stretch the involved muscle, the knee on the affected side was stretched slowly toward the opposite shoulder.

The patient completed 18 sessions of chiropractic management over three-months with successful resolutions of her complaints.

The author welcomes your comments.

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