

# IN-STEP FASCIOTOMY

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It has been estimated that approximately 15% of patients presenting to the podiatrist's office complain of inferior heel pain. The vast majority of these cases are a mechanically induced periostitis-fasciitis of the calcaneus with or without the presence of a spur. These symptoms are variously referred to as heel spurs, plantar fasciitis, or more accurately, heel spur syndrome. The diagnosis is verified not by any specific clinical test or radiograph, but by a complexus of symptoms and clinical findings. The patient typically has pain upon rising in the morning, and after periods of rest. Following periods of prolonged ambulation, the pain may become constant and unremitting. On inspection, no edema or erythema is present. The plantar medial aspect of the calcaneus is quite tender to palpation, and frequently the tenderness extends distally to include the proximal half of the plantar fascia. Pain can often be reproduced by dorsiflexing the digits, which places tension on the plantar fascia. Heel pain may present in either a cavus or valgus foot, but in the author's experience the flexible forefoot valgus foot-type is the most common to develop chronic heel pain.

These signs and symptoms are consistent with inflammation of the plantar fascia and perifascial structures. Clinical experience has shown that the presence or absence of a radiographically-defined spur does not correlate with a patient's symptoms. One study of randomly selected radiographs showed only 39% of those with heel spurs as having a history of heel pain. It is now commonly accepted that tension on the plantar fascia by elongation of the medial arch, and dorsiflexion of the digits (windlass effect), are the pathomechanics associated with plantar fasciitis.

Treatment is designed to reduce the inflammation and eliminate its etiology. The majority of patients respond to various modalities including corticosteroids (both injectable and oral), NSAIDs, physical therapy, tapings, night splints, and orthotics, either individually or more commonly in combination. Unfortunately, a small subset of patients do not respond to conservative care and

require surgical intervention. Multiple surgeries through a variety of incisional approaches have been described. These can be divided into two classes of procedures: osseous and soft tissue.

Various types of osseous procedures have been described from osteotomy, drilling for decompression, excision of the tuberosity to simple exostectomy. For many years, denuding the calcaneus of its myofascial attachments and simple spur removal was the procedure of choice. Due to a prolonged recovery period and an estimated 50% success rate, this method was discounted by many surgeons, forcing patients to alter their lifestyles or continue to suffer with heel pain.

Soft tissue surgery is based on the belief that the calcaneal spur is a reactive process and not a causative one. Medial calcaneal neurectomy and plantar neurolysis are directed at a relatively questionable, small group of patients with neurogenic pain. Plantar fasciotomy/fasciectomy comprise the largest group of soft tissue procedures. If tension on the plantar fascia is the etiology of heel pain, then surgical release of the fascia should prove successful. Plantar fasciotomy for the relief of heel pain was described over half a century ago. However, it wasn't until Barrett and Day in 1991 reported on the technique of endoscopic fasciotomy that the profession has seen an explosion in the number of soft tissue procedures being performed for heel pain. The early results, while encouraging, should cause us to pause and reflect. Barrett and Day report a complication rate involving 12 of 65 patients, most of these apparently minor. Kinley, et al. reported serious complications in 11 of 66 patients, and an additional 16 patients with minor complications. The author has been performing a fasciotomy for the last 4 years and will describe the technique and postoperative results.

## TECHNIQUE

Following the administration of a local anesthetic nerve block, a pneumatic ankle tourniquet is

inflated. With the hallux held in forced dorsiflexion, the medial and lateral margins of the fascia are identified. A 1.5 to 2.0 cm transverse incision is centered over the fascial band just distal to the calcaneal fat pad. The incision is directly deepened by sharp dissection until the fascia is identified. A self-retaining retractor is inserted. The margins of the fascia are clearly visualized, and with the hallux held in dorsiflexion, the fascia is transected. The lateral band of the fascia is not identified, and no attempt at transection is made. Once severed, the fascia should immediately separate. If separation does not occur, the field is carefully palpated and any remaining deep or marginal fibers are cut. In the rare instance where separation does not occur, a small section of the fascia can be removed. The wound is closed with horizontal mattress retention 4-0 nylon sutures, and the skin is closed with several simple 4-0 nylon sutures. No buried absorbable sutures are employed. A dry dressing is applied (Figs. 1-4). The patient is instructed to limit weight bearing for the first 24 hours and keep the extremity elevated and iced. The next day the patient can ambulate to tolerance. On the third postoperative day, the patient removes the bandage and applies a sterile cloth bandage. The patient is allowed to get the wound wet, but soaking is discouraged. The sutures are removed on the 10th postoperative day.

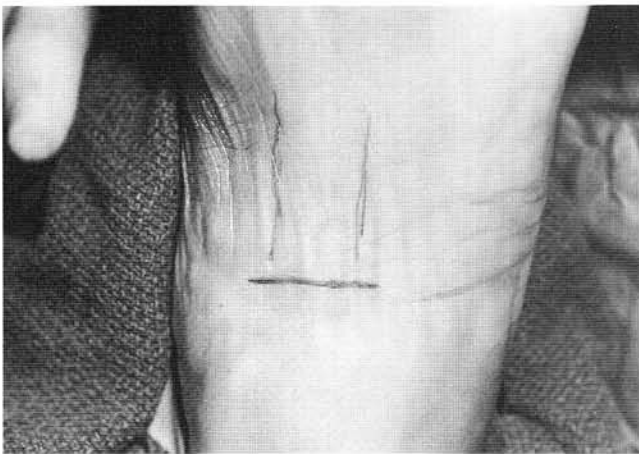


Figure 1. The fascial margins are identified and the skin incision placed.

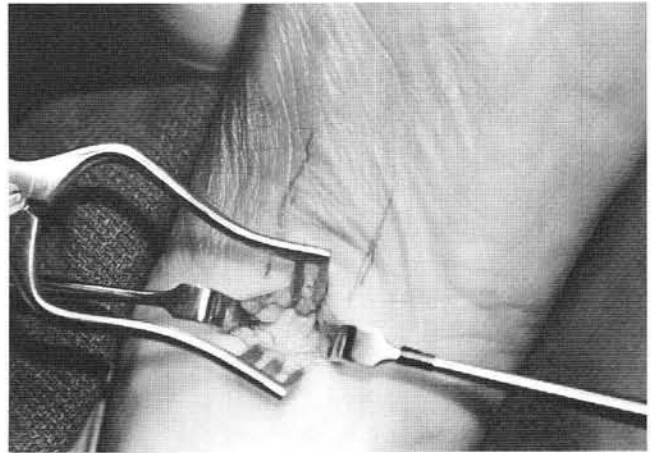


Figure 2. The fascial band is clearly identified.

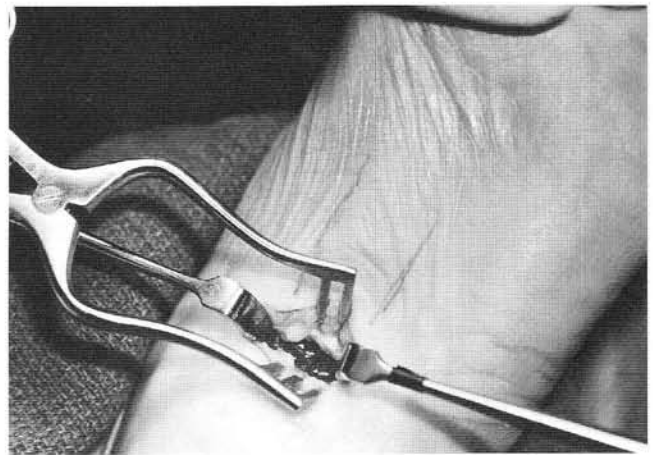


Figure 3. The fascia is severed and gaping is noted. Note the underlying muscle.



Figure 4. Postoperative scar is nearly invisible, supple, and without pain.

## RESULTS

At the time of this writing, thirty-seven questionnaires were mailed. These patients were at least 3 months postoperative. The longest postoperative patient was 3.5 years. Fifteen responses have been received to date. All patients with the exception of one, had pain existing for over one year prior to surgery. With pain rated on a scale of 0-5 (0-no pain, 5-severe pain) the average respondent had a pain level of 4.65 prior to surgery. Postoperative heel pain was 1.59. Postoperative foot pain was 2.0, with most patients experiencing either medial arch or lateral pain. The average time to full recovery with a minimum of pain was 3.4 weeks. Recurring heel pain or pain which develops in other parts of the foot tends to develop early in the postoperative period.

## DISCUSSION

The fasciotomy technique described appears to be comparable to results previously reported for the endoscopic technique. The instep fasciotomy is simple to perform, requires minimal time to become proficient, does not require any special instrumentation, and can easily be performed in the office in 10 to 15 minutes.

The location of the skin incision is important to the success of this procedure. Initially, the author chose a percutaneous incision in the medial arch, where the bowstringing of the fascia is most evident. Several of these patients developed a thickening of the subcutaneous tissue which was quite uncomfortable to walk on, although their heel pain was relieved. The ideal incision location appears to be just distal to the heel pad. This incision is in a non-weight-bearing part of the foot, and has enough overlying subcutaneous tissue so the fascial scar is not apparent.

Closer review of the postoperative results shows two distinct categories of results. The majority of patients are very satisfied with their surgery and would recommend it to a family member or friend. A small subset (three patients) showed absolutely no improvement. These patients were all extremely obese, and two had previous operations (heel spur resection, tarsal tunnel release).

Plantar fasciotomy for the relief of chronic heel pain is very effective in most individuals. However, no procedure is without risk. Until guidelines delineate which patients will not respond to conservative care and will be helped by surgery, all forms of conservative care should be exhausted prior to surgical intervention.