The Journal of Foot & Ankle Surgery 55 (2016) 655–658

Contents lists available at ScienceDirect

The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

# Endoscopic Debridement for Treatment of Chronic Plantar Fasciitis: An Innovative Surgical Technique

James M. Cottom, DPM, FACFAS [1], Jared M. Maker, DPM [2]

[1] Fellowship Director and Attending Physician, Florida Orthopedic Foot & Ankle Center, Sarasota, FL
[2] Fellow, Foot and Ankle Surgical Fellowship, Florida Orthopedic Foot & Ankle Center, Sarasota, FL

ARTICLE INFO

*Keywords:*
chronic plantar fasciitis
endoscopic debridement
heel pain
heel spur
plantar fasciitis

ABSTRACT

Plantar fasciitis is one the most common pathologies seen by foot and ankle surgeons. When nonoperative therapy fails, surgical intervention is warranted. Various surgical procedures are available for the treatment of recalcitrant plantar fasciitis. The most common surgical management typically consists of open versus endoscopic plantar fascia release. The documented comorbidities associated with the release of the plantar fascia include lateral column overload and metatarsalgia. We present a new technique for this painful condition that is minimally invasive, allows visualization of the plantar fascia, and maintains the integrity of this fascia. Our hypothesis was that the use of endoscopic debridement of the plantar fascia would provide a minimally invasive technique with acceptable patient outcomes.



Plantar heel pain, specifically plantar fasciitis, will be experienced by 10% of the general population at least once in their lifetime (1–4). The anatomy of the plantar fascia is divided into 3 bands: medial, central, and lateral. The central band attaches proximally at the medial tuberosity of the calcaneus, coursing distally into 5 separate divisions; those divisions attach to the sesamoids and to the plantar plate of toes 2 through 5 (5). The biomechanical stress on the plantar fascia and its insertion into the calcaneus are the most commonly cited reasons for this condition occurring (6–9). The plantar fascia provides 2 important functions: supporting the arch of the foot and aiding in the resupination of the foot during propulsion (1,10,11).

Conservative therapy is initially recommended and consists of nonsteroidal anti-inflammatory drugs, steroid injections, physical therapy, and posterior muscle group stretching. When conservative therapy fails to relieve the symptoms, surgical intervention is usually warranted. Various published studies have investigated the biomechanical effects of performing plantar fasciotomy. Daly et al (12) found a significant decrease in the arch height and a less efficient gate than with controls. Ward et al (13) performed an in vivo cadaveric study, sequentially releasing the plantar fascia from medially to laterally, and observing the forces from heel strike to toe off. The force, as well as the duration of the force, in the remaining fascia increased significantly. The force shifted later in propulsion and the subtalar joint was unable to resupinate as the amount of fascia released increased (13).

Some studies have shown that the plantar fascia is more of a fasciosis with histologic changes at the calcaneal enthesis (6,14,15). We present a new approach to the surgical treatment of plantar fasciitis. This technique addresses the pathology by debriding the plantar fascia at its insertion into the calcaneus and the surrounding inflammatory tissue, as well as excising the calcaneal exostosis, while maintaining the integrity of this band and its attachment.

## Surgical Technique

Each patient is brought to outpatient surgery, and a preoperative popliteal block is administered by the anesthesiologist. The patient is placed on the operating room table in a supine position with the surgical limb allowed to lay externally rotated. When necessary, a bump is placed under the contralateral hip to ensure full external rotation. The patient is placed under general anesthesia and a thigh tourniquet is applied and inflated to 300 mm Hg after exsanguination. Using a surgical marker, the medial malleolus is outlined, and a straight line is drawn from the posterior malleolus to the heel. The first portal is marked out along this line at the level of the plantar fascia. The second portal is placed 2 cm distal to the first portal (Fig. 1). Again, these portals should be placed at the level of the plantar fascia

**Financial Disclosure:** None reported.
**Conflict of Interest:** None reported.
Address correspondence to: James M. Cottom, DPM, FACFAS, Florida Orthopedic Foot & Ankle Center, 2030 Bee Ridge Road Suite B, Sarasota, FL 34239.
*E-mail address:* drcottom@flofac.com (J.M. Cottom).

1067-2516/$ - see front matter © 2016 by the American College of Foot and Ankle Surgeons. All rights reserved.
http://dx.doi.org/10.1053/j.jfas.2016.01.053

**Fig. 1.** Operative extremity in full external rotation. The first portal is made distal to the posterior aspect of the medial malleolus at the level of the plantar fascia with the second portal 2 cm distally.

**Fig. 2.** Positioning of the 4.0-mm camera within the distal portal and 3.5-mm shaver within the proximal portal.

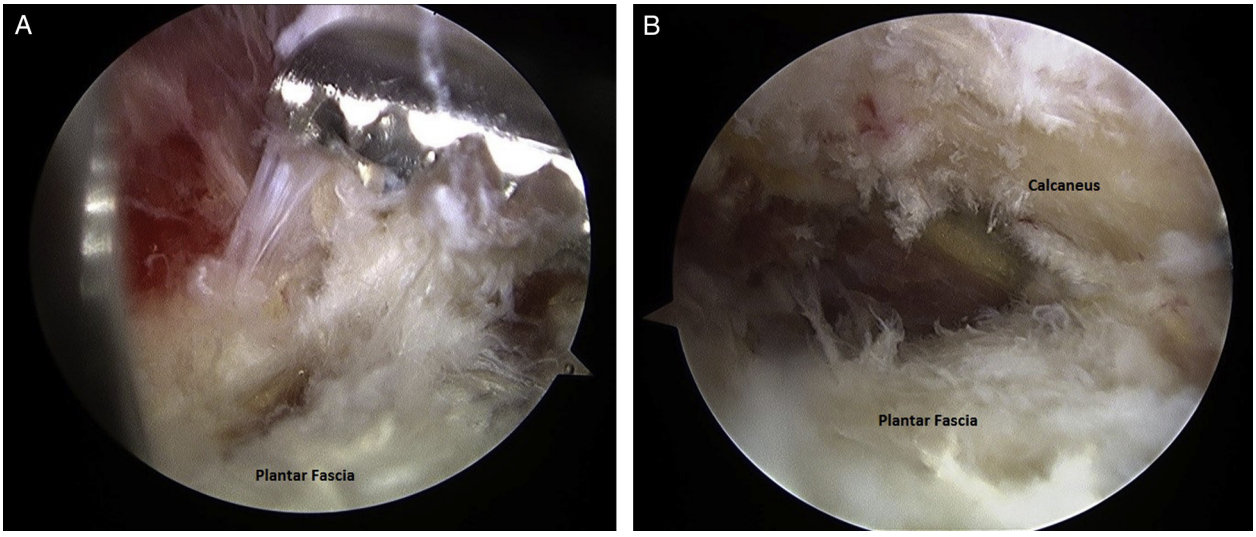


**Fig. 3.** (*A*) Inflammatory tissue encountered on initial debridement. Plantar fascia visualized at bottom. (*B*) Continued debridement of inflammatory tissue with visualization of the plantar fascia and calcaneus.

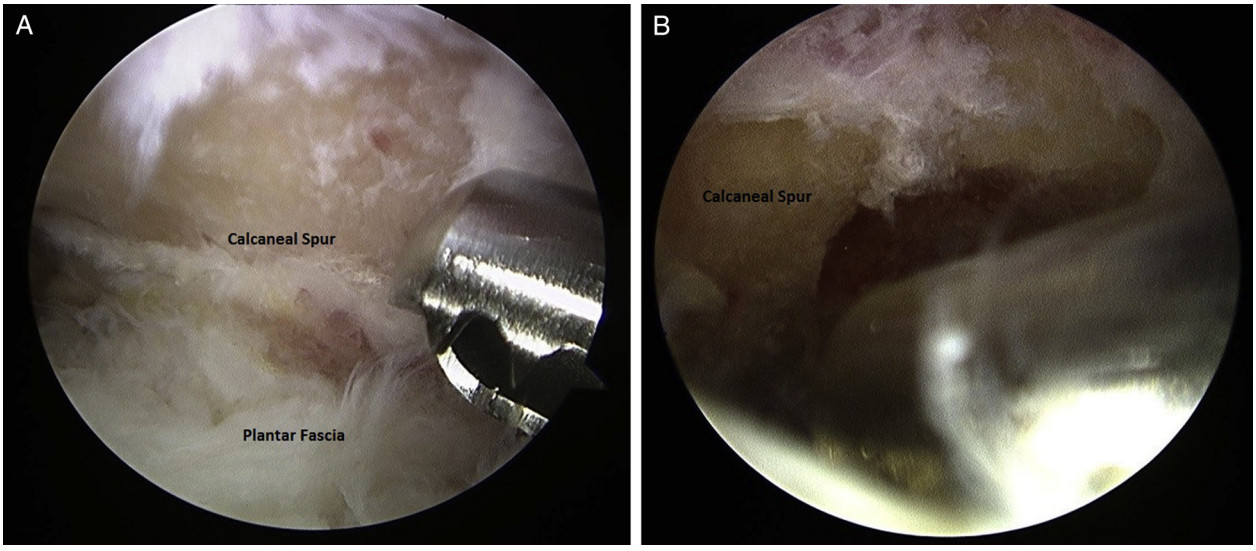


**Fig. 4.** (*A*) Direct visualization of the calcaneal spur with attachment of the plantar fascia. (*B*) Debridement of the calcaneal spur.