Fascia Plataris and beyond

Jens Erik Jørgensen. MScPT

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The Foot 48 (2021) 101829

Contents lists available at ScienceDirect

The Foot

journal homepage: www.elsevier.com/locate/foot

Original Article

Heel fat pad syndrome beyond acute plantar fascitis

Ramon Balius [a,b], Mireia Bossy [b,c], Carles Pedret [b,c], Carme Porcar [d], Xavier Valle [e], Hèctor Corominas [b,f,*]

To summarize, the present observational case series provides some light on a certainly common issue in clinics of different specialties.

The focus is to emphasize that, not all cases of heel pain are due to plantar fasciitis, being the major and principal cause though.

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Riel et al. BMC Musculoskeletal Disorders (2019) 20:239
https://doi.org/10.1186/s12891-019-2629-6

BMC Musculoskeletal Disorders

RESEARCH ARTICLE Open Access

Prevalence and incidence rate of lower-extremity tendinopathies in a Danish general practice: a registry-based study

Henrik Riel[1*], Cassandra Frydendal Lindstrøm[2], Michael Skovdal Rathleff[1,3], Martin Bach Jensen[1] and Jens Lykkegaard Olesen[1]

Table 2 Distribution Of Tendinopathies

	Prevalent cases (%)	Prevalence (/1000 registered patients)	Incident cases (%)	Incidence (/1000 registered patients)
Plantar heel pain	57 (39)	6.5	33 (47)	3.7
Achilles tendinopathy	46 (31)	5.2	15 (21)	1.7
Patellar tendinopathy	10 (7)	1.1	4 (6)	0.5
Greater trochanteric pain syndrome	26 (18)	2.9	14 (20)	1.6
Adductor tendinopathy	0 (0)	0.0	0 (0)	0.0
Unspecified	8 (5)	0.9	4 (6)	0.5

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The Journal of Foot & Ankle Surgery 49 (2010) S1–S19

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The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

Clinical Practice Guideline

The Diagnosis and Treatment of Heel Pain: A Clinical Practice Guideline–Revision 2010

James L. Thomas, DPM [1], Jeffrey C. Christensen, DPM [2], Steven R. Kravitz, DPM [3], Robert W. Mendicino, DPM [4], John M. Schuberth, DPM [5], John V. Vanore, DPM [6], Lowell Scott Weil Sr, DPM [7], Howard J. Zlotoff, DPM [8], Richard Bouché, DPM [9], Jeffrey Baker, DPM [10]

Heel pain, whether plantar or posterior, is predominantly a mechanical pathology although an array of diverse pathologies including neurologic, arthritic, traumatic, neoplastic, infectious, or vascular etiologies must be considered.

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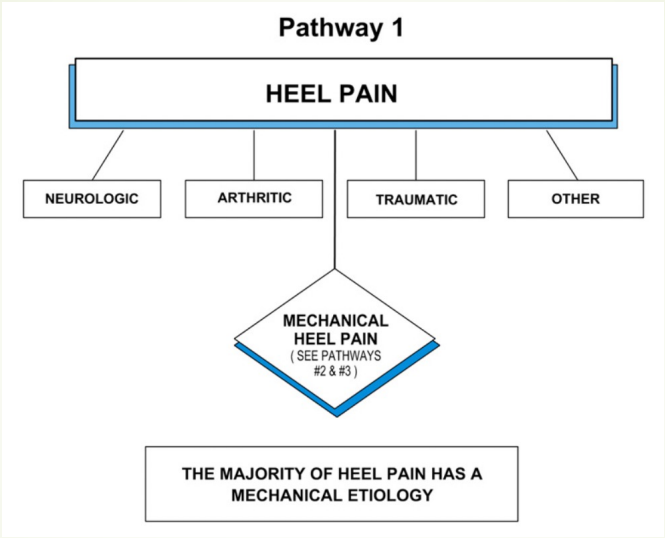

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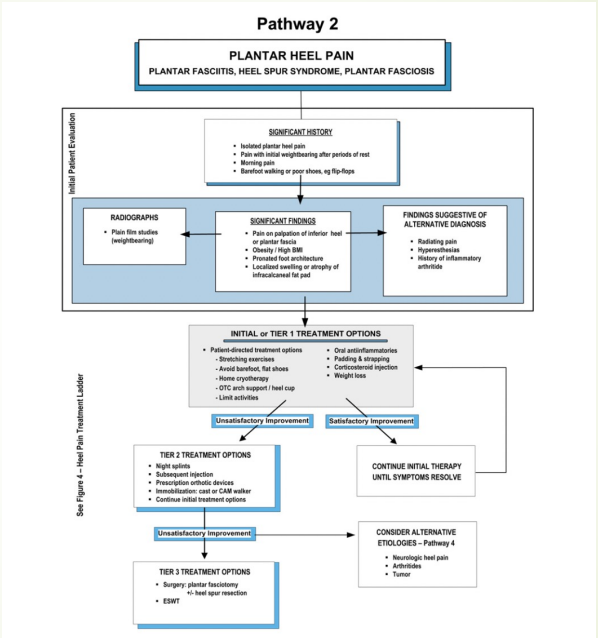

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A problem-based approach in musculoskeletal ultrasonography: heel pain in adults

Yong Hee Kim[1], Jee Won Chai[1,2], Dong Hyun Kim[1,2], Hyo Jin Kim[1,2], Jiwoon Seo[1,2]

[1]Department of Radiology, SMG-SNU Boramae Medical Center, Seoul; [2]Department of Radiology, Seoul National University College of Medicine, Seoul, Korea

ULTRA SONO GRAPHY

REVIEW ARTICLE

https://doi.org/10.14366/usg.21969
pISSN: 2288-5919 • eISSN: 2288-5943
Ultrasonography 2022;41:34-52

Ultrasonography of heel pain

ULTRASONOGRAPHY

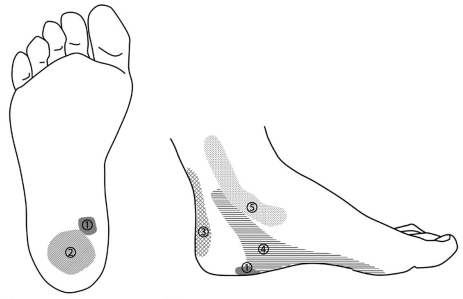

Fig. 1. Anatomic locations of pain corresponding to common etiologies are illustrated on plantar surface (A) and medial surface (B) of the heel. 1, plantar fasciitis; 2, heel fat pad atrophy; 3, achilles tendinopathy; 4, tarsal tunnel syndrome; 5, tibialis posterior tendinopathy.

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Table 1. Possible causes of heel pain listed according to the location of pain with a suggested checklist of structures to evaluate during ultrasonography

Location of pain	Cause of pain	Checklist
Plantar	Plantar fasciitis Plantar fascia tear Heel fat pad atrophy Baxter neuropathy	Plantar fascia Heel fat pad Plantar muscle
Posterior	Achilles tendinopathy Bursitis Haglund's syndrome Sural neuropathy	Achilles tendon Deep/superficial Retrocalcaneal bursae Sural nerve
Medial	Tendinopathies/ tenosynovitis Tarsal tunnel syndrome	Flexor tendons Tarsal tunnel Plantar muscle
Lateral	Peroneal tendinopathy/ tenosynovitis Sinus tarsi syndrome Sural neuropathy	Peroneal tendons Sinus tarsi Sural nerve
Deep and vague	Calcaneal stress fracture	Calcaneus

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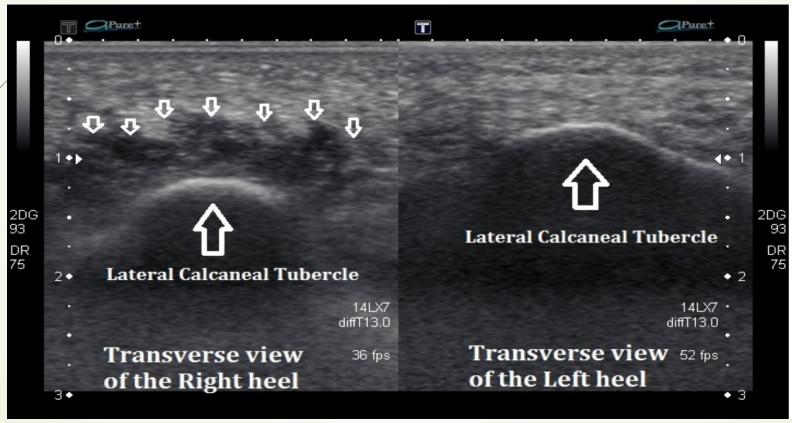
Location of pain	Cause of pain	Checklist
Plantar	Plantar fasciitis Plantar fascia tear Heel fat pad atrophy Baxter neuropathy	Plantar fascia Heel fat pad Plantar muscle



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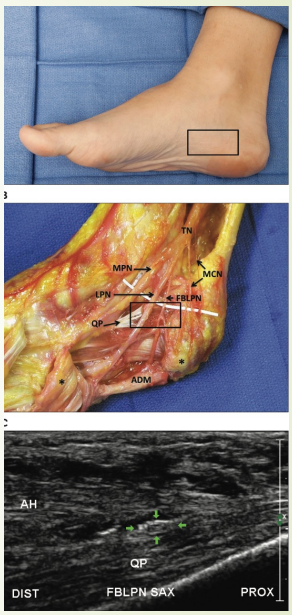
Sonographic Visualization of the First Branch of the Lateral Plantar Nerve (Baxter Nerve)

Presley et al. J Ultrasound Med 2013; 32:1643–1652

Entrapment of the first branch of the lateral plantar nerve (FBLPN), also known as the Baxter nerve, has been implicated in up to 20% of chronic heel pain cases.

Patients may present with generalized heel pain symptoms often overlapping with more common clinical entities such as plantar fasciitis.
A sharp, radiating pain along the course of the FBLPN, a focal Tinel sign, and maximal tenderness at the point of nerve entrapment suggest FBLPN involvement,



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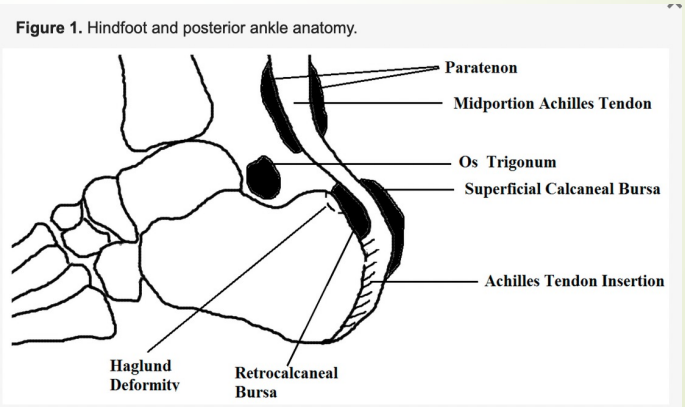
Location of pain	Cause of pain	Checklist
Posterior	Achilles tendinopathy Bursitis Haglund's syndrome Sural neuropathy	Achilles tendon Deep/superficial Retrocalcaneal bursae Sural nerve



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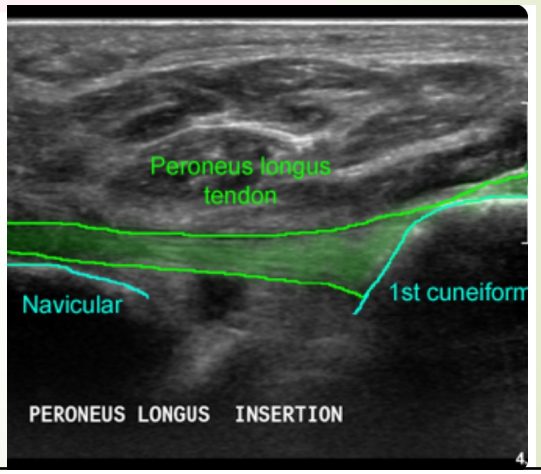
Location of pain	Cause of pain	Checklist
Lateral	Peroneal tendinopathy/ tenosynovitis Sinus tarsi syndrome Sural neuropathy	Peroneal tendons Sinus tarsi Sural nerve



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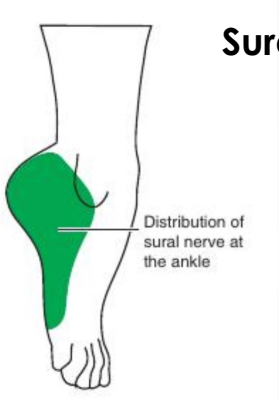
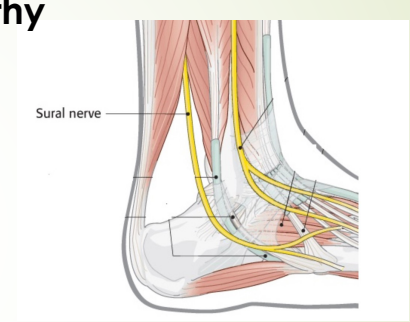
Sural Nerve Neuropathy





Diagnosis is generally made with specific signs and symptoms – when the pain occurs and the location. Burning, electrical sensations, and tingling around the outside of the ankle are common

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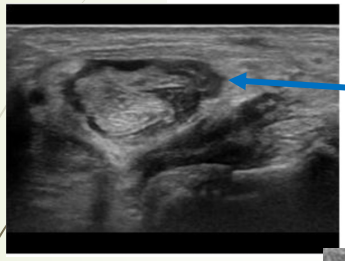
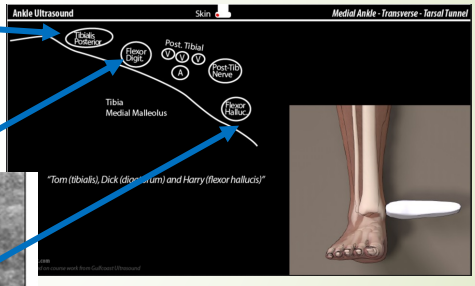
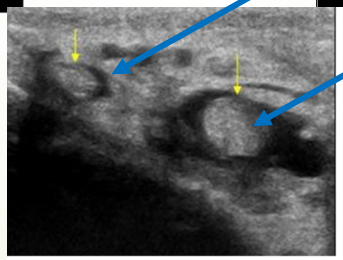
Location of pain	Cause of pain	Checklist
Medial	Tendinopathies/ tenosynovitis Tarsal tunnel syndrome	Flexor tendons Tarsal tunnel Plantar muscle







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Journal of Clinical Medicine

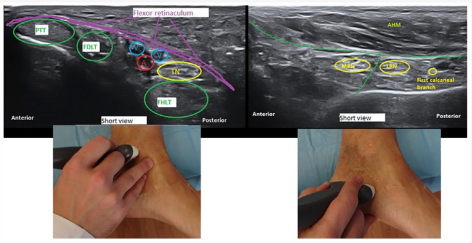
MDPI

Article

Ultrasound-Guided Near-Nerve Needle Sensory Technique for the Diagnosis of Tarsal Tunnel Syndrome

Lorena Vega-Zelaya [1,2,*], Álvaro Iborra [1,3], Manuel Villanueva [1,3], Jesús Pastor [2] and Concepción Noriega [4]

Figure 1. Ultrasound delineation of the anatomy of the tarsal tunnel: transverse or short-axis view (cross section) at the proximal and distal tarsal tunnel. A indicates posterior tibial artery; FDLT, flexor digitorum longus tendon; FHLT, flexor hallucis longus ten don; PTT, posterior tibial tendon; AHM, abductor hallucis muscle; V, posterior tibial vein; TN, tibial nerve; MPN, medial tibial nerve; and LPN, lateral plantar nerve.



The symptoms described include a variety of alterations ranging from posteromedial pain and numbness in the sole of the foot, tightness, and cramps that are initially intermittent but can be accentuated by prolonged standing or walking .
Pain at night is common and often severe enough to awaken the patient.

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Location of pain	Cause of pain	Checklist
Deep and vague	Calcaneal stress fracture	Calcaneus

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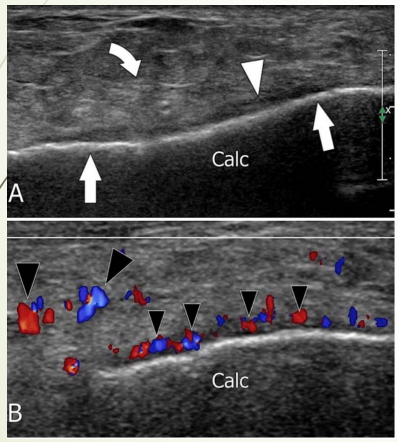
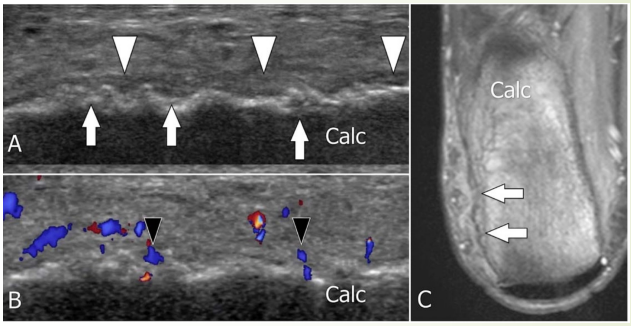
Stress Fractures of the Calcaneus Diagnosed by Sonography

Report of 8 Cases

Stefano Bianchi, MD, Dien Hung Luong, MD

JUltrasoundMed2018;37:521–529 | 0278-4297





The main clinical symptom of a stress fracture is localized mechanical pain, which is increased by local loading and relived by rest. Typically, night pain is absent. Physical examination shows swelling of the adjacent soft tissues and tenderness on local bone palpation.

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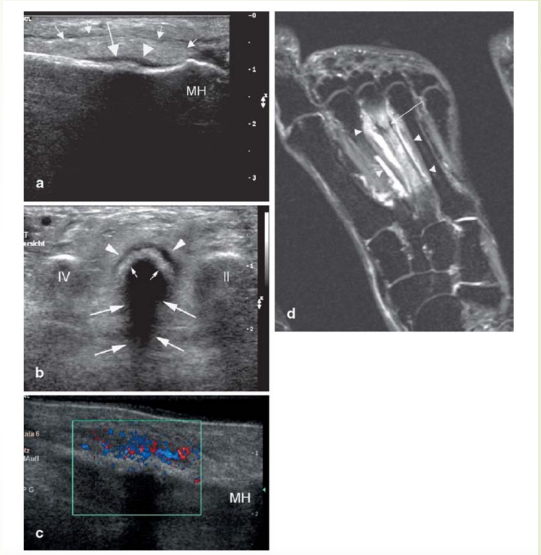
Eur Radiol (2005) 15:356–359
DOI 10.1007/s00330-004-2525-8

MUSCULOSKELETAL

Gerd Bodner
Bernhard Stöckl
Anke Fierlinger
Michael Schocke
Maria Bernathova

Sonographic findings in stress fractures of the lower limb: preliminary findings



Longitudinal scan obtained over the dorsal aspect of the right foot, parallel to long axis of the third metatarsal bone,

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International Journal of Surgery 24 (2015) 195–200

Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.journal-surgery.net

Review

Current concepts of shockwave therapy in stress fractures

Carlos Leal [a, *], Cristina D'Agostino [b], Santiago Gomez Garcia [c], Arnold Fernandez [a]

[a] Fenway Medical Shockwave Medicine Center, Universidad El Bosque, Bogotá, Colombia
[b] Instituto Humanitas, Milan, Italy
[c] Unidad Medica Deportiva, Policia Nacional de Colombia, Bogota, Colombia

HIGHLIGHTS

- Extracorporeal shockwave treatments (ESWT) stimulate bone turnover and neovascularization in delayed unions and avascular necrosis.
- ESWT is a safe and effective non-invasive outpatient procedure.
- Medium and high energy focused ESWT has shown excellent results in treating stress fractures, with faster return to competition and athletic activity.

No x-ray ?

Go for ULS

Fig. 2. The treatment is done placing the ESWT unit over the stress fracture area. The use of membrane applicators with focused energy has the better results. The treatment area is marked previously under X-rays.

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- All protocols reported have used focused mid and high-energy shockwave devices. The use of radial or pressure waves have been very successful in treating tendinopathies, but they do not have evidence in the current literature for the treatment of stress fractures.

- The general consensus and the best results have been obtained using one or two sessions of minimum 2000 shockwaves of 0.2 mJ/mm2 with a focused device over the fracture site.
- high energy of 0.29 - 0.40 mJ/ mm2, 2000 - 4000 shots in one session, and was able to significantly reduce the recovery time to 3-6 months.
- 3- 4 sessions of mid energy ESWT 4000 shockwaves of 0.09-0.17 mJ/mm2. 100% healing rate at 8 weeks post treatment
- 2000 focused shockwaves in two sessions one week apart, at medium - high range energy of 0.1 - 0.27 mJ/mm2.

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