Department of Radiology
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Musculoskeletal Imaging and Intervention Section Procedures
Plantar Fascia Corticosteroid Injection

PREAMBLE
• The plantar fascia consists of longitudinally-oriented fibers extending anteriorly from the medial process of the calcaneal tuberosity, blending as an aponeurosis with the flexor digitorum brevis tendon.
• Plantar fasciitis is the most common cause of heel pain in the adult population. It is usually secondary to tensile forces/microtrauma, resulting in microtears and chronic degeneration, usually at the fascial enthesis at the medial process of the calcaneal tuberosity.
• Common symptoms include heel pain +/- swelling.

RISKS
• Bleeding
• Infection
• Pain

MODALITY
• Ultrasound

PRE-OPERATIVE WORKUP
• Informed consent

MATERIALS

- Alcohol, ChloraPrep applicator, sterile drape
- 10 mL syringes for skin anesthetic and steroid/anesthetic mixture
- 1% lidocaine (for skin numbing); buffered with 8.4% sodium bicarbonate
- 1% lidocaine HCL for injectate
- 1 mL dexamethasone sodium phosphate (10 mg/mL)
- 27G 1.5” needle

TECHNIQUE

1. The patient is positioned prone with legs extended, with the feet hanging off the edge of the table. The ultrasound transducer is oriented in the long axis parallel to the plantar fascia.
2. Mark the skin proximal to the transducer.
3. Prep and drape as per usual and perform local anesthesia.
4. Guide a 27G 1.5” needle along the superficial aspect of the plantar fascia. Confirm proper needle tip position with a small volume of 1% lidocaine, which should be injected just superficial to the plantar fascia to create a plane of separation under the fat pad.
5. Inject 2 mL of a solution containing 1 mL dexamethasone and 1 mL 1% lidocaine. The needle tip should be placed on the superficial surface of the plantar fascia with medication spreading along the tissue plane, with the above-mentioned lidocaine-filled pocket serving to reduce the risk of fat pad atrophy.

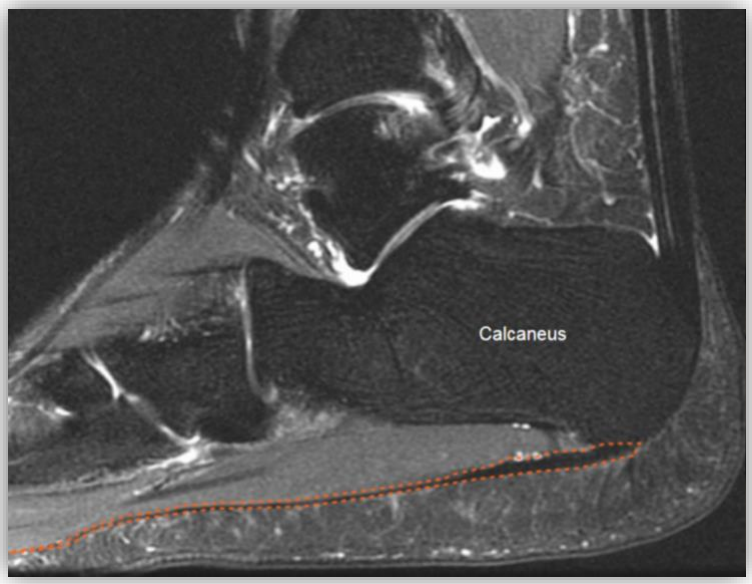

Fig 1. Typical plantar fascia anatomy. Sagittal T2-weighted fat-saturated MR image demonstrates the plantar fascia (orange dashed outline) attaching posteriorly to the medial process of the calcaneal tuberosity. Anteriorly, the fascia blends with the flexor digitorum brevis tendon fibers.

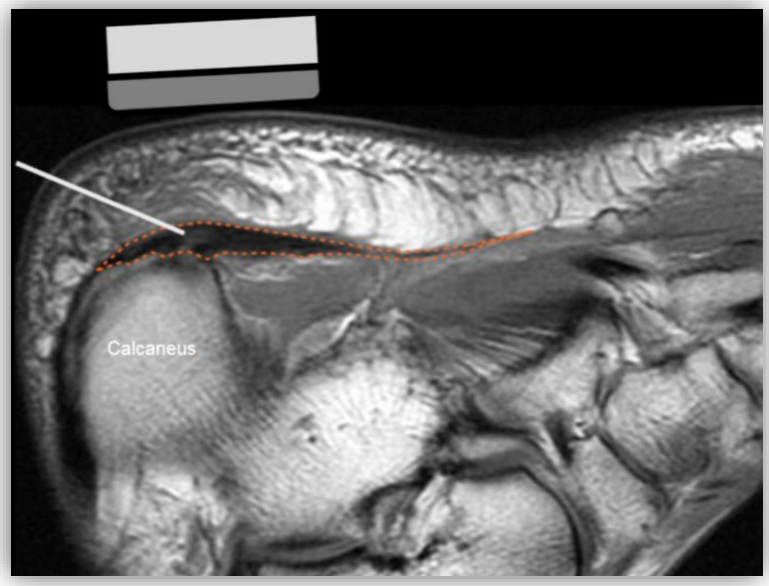

Fig 2. Sagittal T1-weighted MR image demonstrates proper transducer positioning and needle trajectory for injection at the plantar fascia (orange dashed outline).

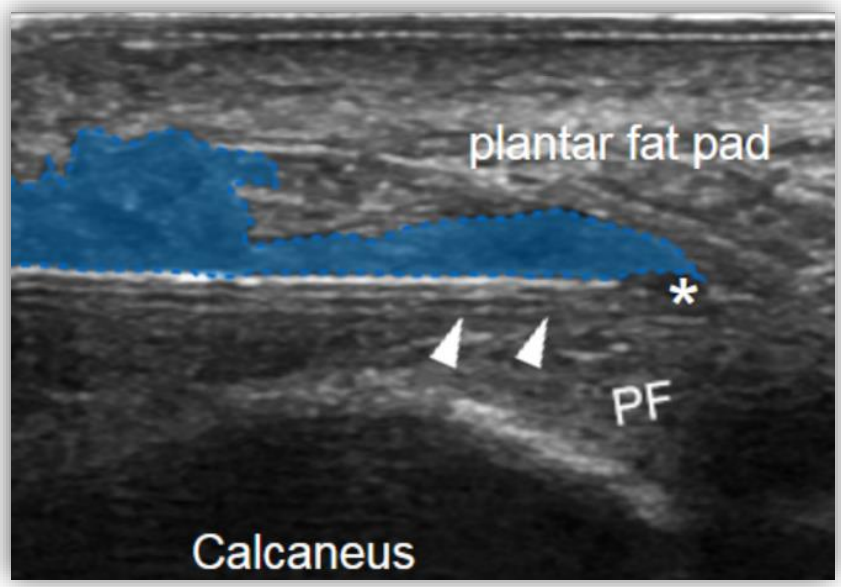

Fig 3. Corresponding long-axis US image demonstrates needle position (arrowheads) for a plantar fascia steroid injection. Lidocaine (blue) is injected just superficial to the plantar fascia to create separation between the fat pad. The needle tip is placed on the surface of the plantar fascia with medication spread (*) along the separation plane, with the lidocaine-filled pocket serving to reduce the risk of fat pad atrophy.

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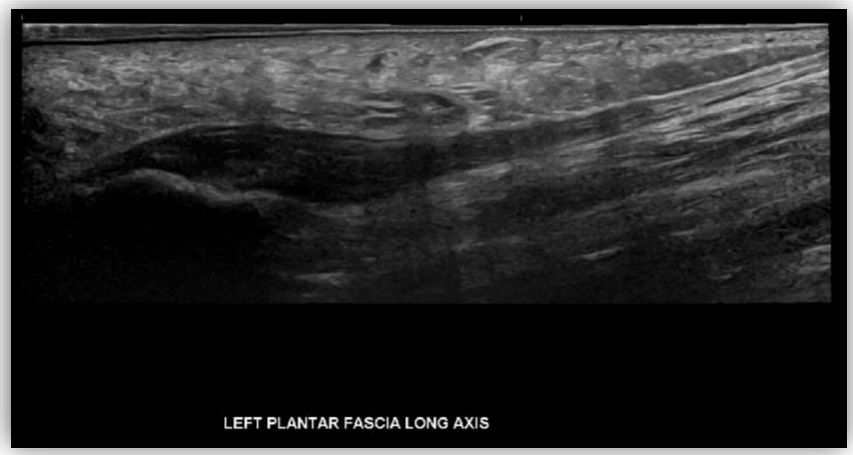

Fig 4. Long-axis US image demonstrates significant thickening of the proximal left plantar fascia with substantial heterogeneous hypo-echogenicity, consistent with plantar fasciopathy.

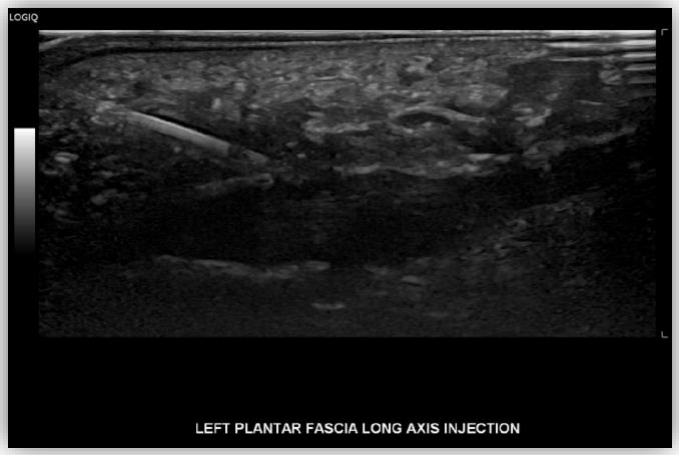

Fig 5. Long-axis US image demonstrates appropriate needle tip placement just superficial to the proximal plantar fascia.

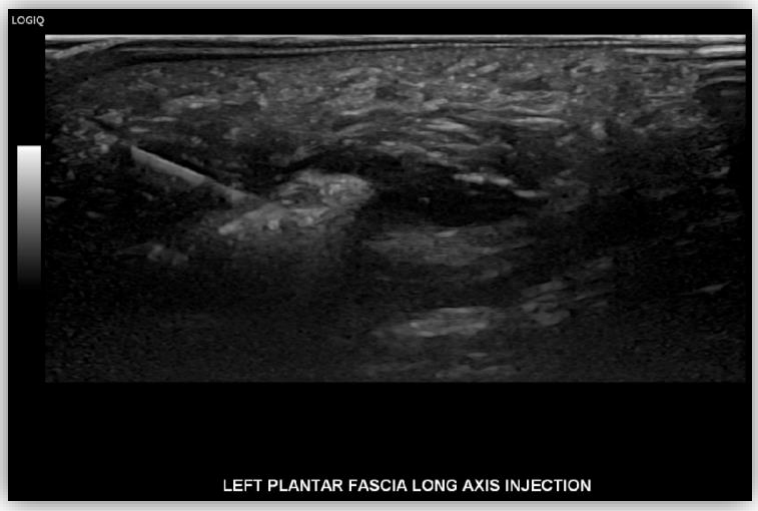

Fig 6. Long-axis US image demonstrates injection of corticosteroid mixture with a small amount of air.

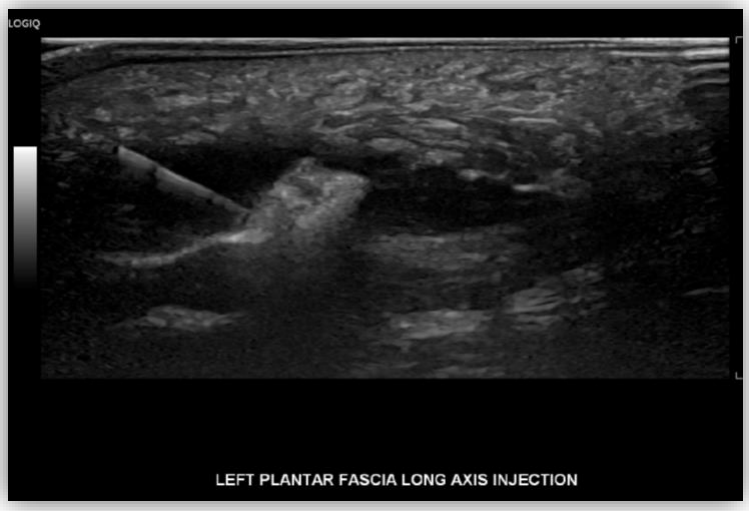

Fig 7. Long-axis US image demonstrates further injection of corticosteroid mixture with uplifting of the plantar fat pad.

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