

SPECIAL SONO-CASE

Sports Medicine MSK Ultrasound: Acute Achilles Injury

Dynamic evaluation of a partial-thickness tear in a recreational runner

CLINICAL CHALLENGE A 39-year-old recreational runner develops sudden posterior ankle pain during acceleration and reports feeling as though someone kicked the heel.

Clinical context

Key element	Finding
Clinical detail 1	Acute sports injury
Clinical detail 2	Posterior ankle swelling
Clinical detail 3	Weak plantar flexion
Clinical detail 4	Equivocal Thompson test

Learning objectives

- Perform a safe, focused examination adapted to the altered anatomy or clinical context.
- Recognize the principal diagnostic pattern and its most important mimics.
- Document limitations and communicate a clinically actionable impression.

Scanning protocol

- Use a high-frequency linear transducer with the patient prone and feet beyond the table edge.
- Scan the Achilles tendon longitudinally and transversely from myotendinous junction to calcaneal insertion.
- Compare the contralateral side and perform gentle dynamic dorsiflexion/plantar flexion.
- Document tear location, length, cross-sectional involvement, gap, retraction, hematoma, and plantaris tendon when visible.

Sonographic findings

- At 4 cm proximal to the calcaneal insertion, approximately 55% of tendon thickness is disrupted over 1.8 cm.

- Residual deep fibers remain continuous; dynamic imaging shows incomplete gapping.
- Peritendinous hyperemia and a small hematoma are present.

Diagnostic reasoning

The preserved residual fibers and incomplete dynamic gap support a high-grade partial-thickness tear rather than complete rupture.

Suggested report

IMPRESSION High-grade partial-thickness Achilles tendon tear centered 4 cm proximal to the calcaneal insertion, involving approximately 55% of tendon thickness over 1.8 cm. Residual deep fibers remain intact. Small adjacent hematoma and reactive hyperemia.

Pitfalls and quality checks

- Anisotropy mimicking a tear—heel-toe the probe.
- Failing to assess dynamically.
- Reporting percentage involvement from a single plane.

ARDMS-style review questions

Anisotropy is reduced by:

- A. Heel-toe transducer adjustment
- B. Increasing wall filter
- C. Lowering PRF only
- D. Turning off grayscale

Answer: A

Residual fibers with incomplete dynamic gap indicate:

- A. Partial tear
- B. Complete rupture
- C. Normal tendon
- D. Bone fracture

Answer: A

Teaching takeaway

KEY POINT The preserved residual fibers and incomplete dynamic gap support a high-grade partial-thickness tear rather than complete rupture.

References and guidance

- AIUM Practice Parameter for the Performance of a Musculoskeletal Ultrasound Examination.
- European Society of Musculoskeletal Radiology technical guidance for tendon ultrasound.

This fictional, de-identified composite case is intended for professional education. It does not replace local protocols, qualified interpretation, specialist consultation, or patient-specific medical care. Rare procedures and research settings require institution-specific guidance.