APTA Journal of Clinical Electrophysiology & Wound Management

Sachdeva S, Rao V. Missed Fractures of the Proximal Second and Third Metatarsal Bones: Relevance of Point of Care Musculoskeletal Ultrasound Imaging. *JCEWM*. 2026;4(1). doi:10.55566/JCEWM-D-25-00003

Neuromusculoskeletal Ultrasonography

Missed Fractures of the Proximal Second and Third Metatarsal Bones: Relevance of Point of Care Musculoskeletal Ultrasound Imaging

Shirish Sachdeva, PT, DPT, MS, RMSK, DipACLM, FOR, DipDN, PgD-PPHC, BPT[1][a], Victor Rao, MBBS, DMRD, RDMS[2]

[1] ATI Physical Therapy, [2] Point of Care Ultrasound Certification Academy

Keywords: POCUS, Point of care ultrasound, Diagnostic imaging, Musculoskeletal ultrasound, Musculoskeletal physical therapy, Physical therapy, Rehabilitation, Medical Imaging, Diagnostic Ultrasound, MSKUS

https://doi.org/10.55566/JCEWM-D-25-00003

Journal of Clinical Electrophysiology and Wound Management

Vol. 4, Issue 1, 2026

CASE PRESENTATION

A 65-year-old male presented to outpatient physical therapy from his primary care provider with right foot pain of insidious onset persisting one month. No traumatic event was reported. Radiographs taken two weeks prior noted "no evidence of acute osseous injury" (Figs. 3a, 3b). At evaluation, pain was 7/10 with weightbearing, FAAM-ADL (Foot and Ankle Ability Measure – Activities of Daily Living) was 91%. The right ankle showed limited dorsiflexion (1°), inversion (12°), eversion (8°), and mild weakness (4+/5) in plantarflexion and eversion. Antalgic gait, dorsal forefoot swelling, warmth, and point tenderness were noted.

A six-week PT program was initiated. Due to persistent pain, a POCUS MSK (point-of-care ultrasound-musculoskeletal) certified physical therapist with 10 years' MSK ultrasound (MSK-US) experience performed ultrasound at the third visit (seven days post-evaluation). Ultrasound showed raised cortical irregularities with posterior acoustic shadowing on the dorsal shaft of the second and third metatarsals, raising concern for callus from healing fractures (Figs. 1a, 1b, 2a, 2b). A 2019 cross-sectional study reported sensitivity 96.7% (95% CI 0.83-0.99), specificity 84.5% (95% CI 0.73-0.92), positive likelihood ratio 73.1% (95% CI 0.57-0.85), and negative likelihood ratio 98.3% (95% CI 0.91–0.99) for metatarsal fracture detection with ultrasound.[1] The patient was referred to orthopedics for repeat X-ray/CT despite the prior negative report. Repeat X-ray confirmed minimally displaced healing fractures of proximal second and third metatarsals (Figs. 4a, 4b).

Treatment was modified to reduce weightbearing, control edema, and restore strength/ROM. At visit 11, FAAM-ADL declined to 76% (15-point drop). Conservative management was continued. After 18 sessions, discharge showed ROM improvements (15° dorsiflexion, 21° inversion, 17° eversion), full strength, FAAM-ADL of 83% (+7 points), and pain 1/10 with weightbearing. Three-week post-discharge CT confirmed progressive fracture healing with increased periosteal new bone (Figs. 5a, 5b).

LEARNING POINTS

Therapist-performed MSK-US can identify occult fractures missed on X-ray (up to 50%),[2] expedite referral, and provide a cost-effective alternative to CT/MRI. Larger studies are needed to confirm diagnostic accuracy and cost-effectiveness.

Submitted: June 03, 2025 EDT. Accepted: October 03, 2025 EDT.

[a] Corresponding Author
shirishdpt@gmail.com