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CHIEF COMPLAINT

- Anterior Foot Pain

HPI

- 83-year-old woman previously generally well - presents with 2-day history of pain on the top of her right foot.
- Pain is very severe and started without obvious precipitant. Now unable to walk due to pain.
- Taking ibuprofen and acetaminophen without relief.
- Denies fevers, chills, nausea, vomiting or other systemic symptoms. No other areas of her body are hurting. No history of similar pain.

PHYSICAL EXAM

- Vitals signs are unremarkable.
- The physical exam is unremarkable except for mild erythema on the dorsum of the right mid-foot (Photo 1).



Photo 1: Right foot

- Slightly warm to touch, exquisitely tender to palpation.
- Pain with any movement of the foot.
- The rest of the right lower extremity is unremarkable including ankle and knee. There are good DP and PT pulses and there is brisk capillary refill.

WORK-UP / IMAGES

- Ultrasound of the painful area is performed and a transverse image is saved (Photo 2). Using ultrasound guidance, straw-colored fluid is aspirated (Photo 3).

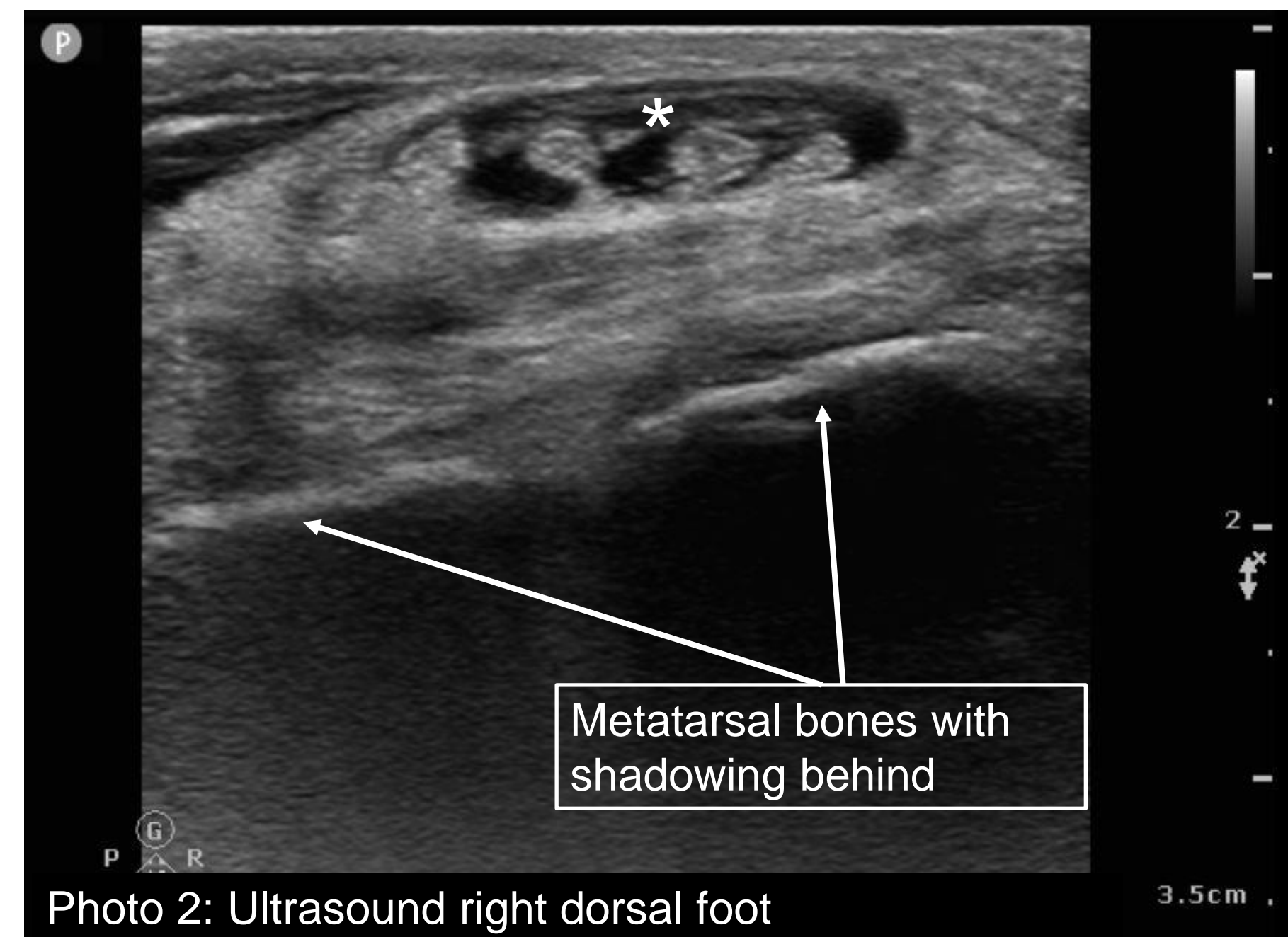


Photo 2: Ultrasound right dorsal foot



Photo 3: Fluid

CLINICAL QUESTIONS

Clinical Question 1: What is the differential diagnosis for this case?

Answer: Cellulitis, abscess, fracture, osteomyelitis, DVT, vascular insufficiency/ischemia, tenosynovitis

Clinical Question 2: What diagnoses could point-of-care ultrasound help identify and/or rule out?

Answer: DVT, ankle joint effusion/septic joint, cellulitis, abscess, synovial fluid collection/tenosynovitis, metatarsal fracture

Clinical Question 3: What is seen in the ultrasound image (Photo 2)?

Answer: This is a transverse image across the tendons and tendon sheath of the midfoot. A black fluid collection surrounding the hyperechoic anterior foot tendons is seen (see asterisk in image).

WORK-UP (cont'd)

- CBC wnl. Chem 8 wnl. CRP 10 mg/L. Fluid analysis: 200 white blood cells; no organisms; + intracellular calcium pyrophosphate crystals noted.

DISCUSSION

- This is an interesting case of pseudogout tenosynovitis of the midfoot. Pseudogout much more commonly affects joints with the knee being the most affected joint. The incidence of this pathology increases with increasing age. The average age at diagnosis is 72 years. Plain radiography will usually show no findings in cases of pseudogout. Ultrasound will usually show fluid collections of the affected joints or tendon sheaths. It was very tempting in this case to diagnose simple cellulitis and discharge the patient with antibiotics and pain medication (there were no systemic symptoms of sepsis). However, the patient was particularly tender on exam and the redness/warmth was quite mild relative to the pain. In this situation, point-of-care ultrasound not only helped focus the differential but ultimately was critical in making the correct diagnosis.

• Pearl 1: Point-of-care ultrasound has proven utility in evaluating soft-tissue and musculoskeletal complaints. Because these structures are often superficial and because there is nearly always a contralateral 'normal' side, this is not a particularly difficult exam to learn and perform.

• Pearl 2: When evaluating soft-tissues, bones or joints with ultrasound, place the probe distant from the area of interest. Locate normal bony cortex, normal striated muscle and normal adipose/soft tissue. Slide the probe towards the area of interest. Use very gentle pressure to avoid compressing collections of fluid.