

Lytic Bone Lesions: Osteomyelitis or Intraosseous Gout?

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Dual-energy computed tomography (DECT) is a relatively new imaging technique that differentiates and color codes calcium (high attenuating) from urate (low attenuating) deposits in bone. Our report shows DECT distinguishing between tophaceous gout and other osteolytic lesions.

A 56-year-old woman presented with 2 weeks of acute chronic pain, redness, and swelling of the left foot, fifth metatarsal base at a site of a remote fracture. She had a presumed history of gout never confirmed with joint

aspiration and a history of cardiorenal transplant, for which she was receiving immunosuppression therapy. Plain radiograph showed an aggressive mixed sclerotic and lucent lesion at the left fifth metatarsal base, appearing on gallium scan as nonspecific inflammation suspicious for osteomyelitis. DECT was performed, which revealed a large intraosseous tophaceous deposit within the base of the left fifth metatarsal (Figure 1). Aspiration produced a white crème-like fluid, negative gram stain and culture,

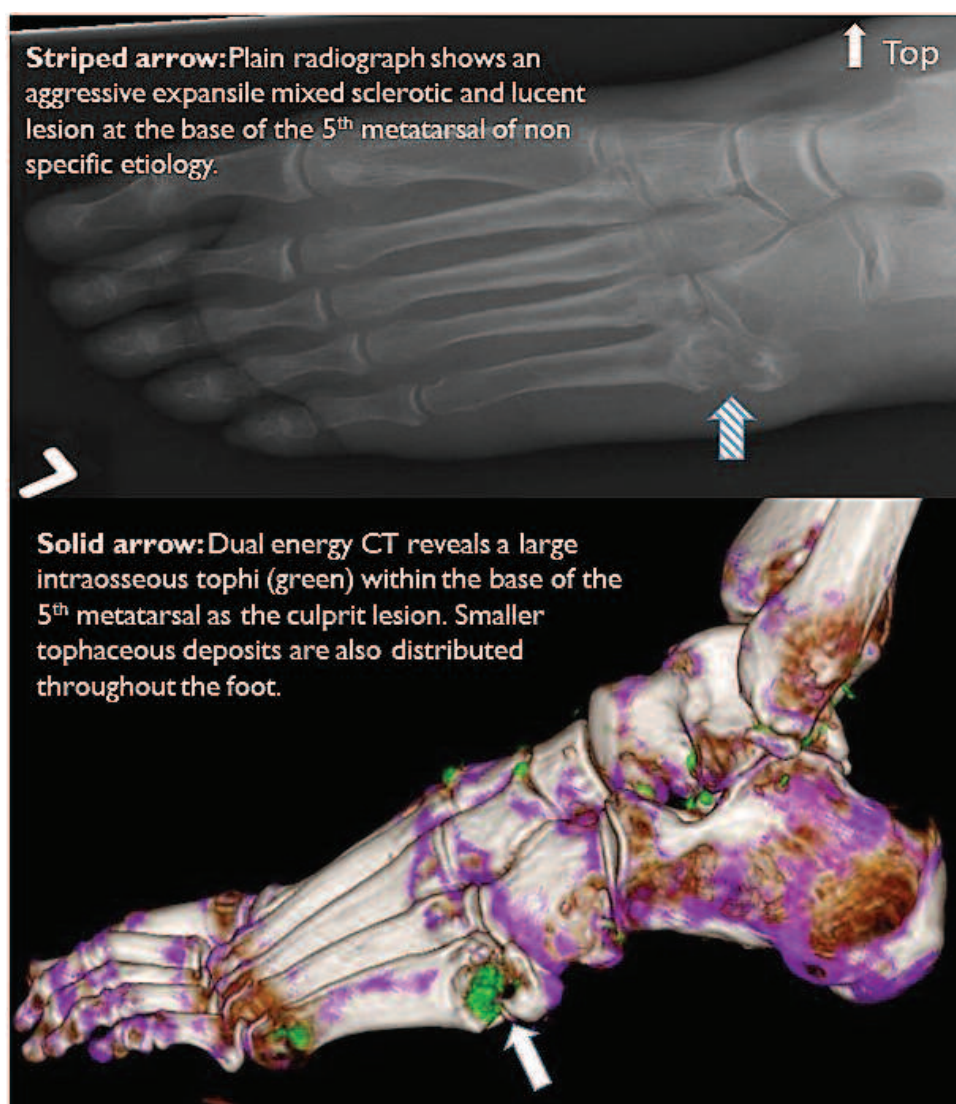


Figure 1. Radiograph shows lesion (top panel) and dual-energy CT shows tophi (bottom panel) in a left foot, fifth metatarsal base. CT: computed tomography.

$4667 \times 10^6/l$ white blood cells, and negatively birefringent crystals within acute inflammatory cells. The patient was diagnosed with gout complicated by intraosseous tophus invasion. Empiric antibiotics were discontinued and she was treated with prednisone and topical diclofenac with clinical improvement.

DECT has a sensitivity for urate crystals of up to 85% and a specificity of 93%¹. In a study, DECT identified 4× the quantity of tophaceous deposits compared with physical examination¹, and in another was helpful in detecting intraosseous tophi, which cannot be seen on ultrasound².

Our report highlights the involvement of a DECT scan in differentiating between tophaceous gout and other osteolytic lesions such as osteomyelitis in the appropriate clinical context.

REFERENCES

1. Hoi HK, Al-Arfaj AM, Eftekhari A, Munk PL, Shojania K, Reid G, et al. Dual energy computed tomography in tophaceous gout. *Ann Rheum Dis* 2009;68:1609–12.
2. Araujo EG, Manger B, Perez-Ruiz F, Thiele RG. Imaging of gout: new tools and biomarkers? *Best Pract Res Clin Rheumatol* 2016;30:638–52.