

Extra-articular tophaceous gout of the Achilles tendon mimicking infection

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DESCRIPTION

A 49-year-old man with remote history of traumatic right Achilles tendon rupture from a sports injury treated with primary repair using non-absorbable suture material and flexor hallucis longus tendon transfer presented with several weeks of pain, warmth and swelling of the right posterior ankle. He underwent two prior irrigation and debridement (I&D) procedures in the past year at a different institution. In both instances, he was treated with empiric oral antibiotics despite negative bacterial cultures due to concern for infection. His medical history was notable for alcohol use, red meat consumption and history of nephrolithiasis, but no history of gout attacks. On clinical evaluation, the patient was afebrile with erythema, swelling and white discharge noted from a punctate opening along a previous incision over the Achilles tendon. Laboratory evaluation included an erythrocyte sedimentation rate of 36 mm/hour (normal 0–20 mm/hour) and a C reactive protein of 3.0 mg/dL (normal <0.5 mg/dL). He underwent I&D of the right Achilles tendon due to concern for surgical site infection. Caseous-appearing material, grossly consistent with tophi, was encountered within the distal Achilles tendon and was sent for bacterial, mycobacterial and fungal cultures, as well as histopathological analysis (figure 1A). He was empirically started on cefazolin postoperatively. Given this tophaceous material noted intraoperatively, dual-energy CT scan of the right ankle was performed postoperatively and demonstrated monosodium urate crystal deposition within the Achilles tendon (figure 1B). Histopathological analysis of the tissue confirmed urate-positive material consistent with gouty tophus (figure 2). Antibiotics were discontinued once bacterial cultures were finalised with



Figure 1 (A) Right Achilles tendon surgical incision with caseous-appearing white material. (B) Dual-energy CT scan of the right ankle with colour coding (green) demonstrating monosodium urate crystal deposition within the Achilles tendon on sagittal view.

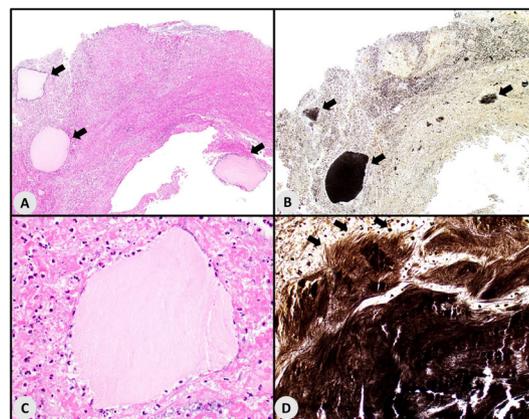


Figure 2 (A, B) Tophi (arrows) are seen in a background of debris (H&E and urate stains, respectively; original magnification $\times 40$). (C) Aggregates of amorphous, fluffy, eosinophilic urate crystals float in fibrinous debris with associated neutrophils and histiocytes (H&E stain; original magnification $\times 400$). (D) A corresponding urate stain highlights the slender, long, needle-like nature (arrows) of the urate crystals (urate stain; original magnification $\times 400$).

no growth. He was treated with non-steroidal anti-inflammatory drugs and was referred to a rheumatologist for further treatment. At 6-week follow-up with his orthopaedic surgeon he continued to do well.

Gout is an inflammatory arthritis caused by the deposition of monosodium urate crystals within joints and soft tissue. Symptoms of this disease include acute flares of pain, swelling and erythema of the skin, with eventual development of chronic joint erosions and tophi.¹ The gold standard for diagnosis remains joint or tophus aspiration with demonstration of monosodium urate crystals on microscopy; however, an aspiration may not always be performed. Multiple imaging modalities, including radiography, ultrasound and CT, can assist with the diagnosis of gout, although only dual-energy CT specifically identifies the chemical composition of uric acid on imaging.^{2,3} Surgery is an uncommon and under-recognised risk factor for the development of gout. Acute gout attacks in the immediate postsurgical period can be attributed to systemic acidosis and microtrauma in distal tissue that trigger uric acid precipitation in predisposed individuals.⁴ A single-institution retrospective study of 302 postoperative patients identified 52 patients with a postsurgical gout attack, occurring at 1–17 days postoperatively; of these, only 7 patients reported this as their first gout attack and the other



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45 patients had a prior diagnosis of gout.⁵ Surgical site gout is exceedingly uncommon years after the index surgery in patients without a history of gout. One other case exists in the literature of a woman with no history of gout who developed tophaceous gout within the Achilles tendon 12 years after a surgical repair. It is postulated that retained suture material acted as a nidus for tophus formation.⁶ A high degree of suspicion is necessary to recognise surgical site gout, especially years after the index surgery. A prompt diagnosis of gout can aid in the judicious use of antimicrobials, as acute gout and surgical site infection share several clinical and laboratory findings. Dual-energy CT is a non-invasive and increasingly available diagnostic modality that is validated in identifying gout in challenging circumstances where the clinical picture is not clear.

Learning points

- ▶ Acute gout can clinically mimic infection and should also be considered when patients present with pain, erythema and swelling at previously injured tendons.
- ▶ Isolated, extra-articular gout of the Achilles tendon is rare and a high index of suspicion is needed to make the diagnosis.
- ▶ Dual-energy CT is a validated and highly specific imaging modality that can diagnose gout in clinically ambiguous scenarios.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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