

Multiple Superficial White Nodules on the Bilateral Helical Rims

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A 40-year-old man presented for evaluation of multiple small nodules on the bilateral auricles primarily involving the helices of 1 year's duration. The lesions were nontender with no associated bleeding, burning, or pruritus. He denied any trauma to these sites and denied any systemic symptoms including fever, chills, joint pain, or weight loss. His medical history was remarkable for type 2 diabetes mellitus. He had no history of similar skin lesions or renal disease and denied any alcohol intake. He also denied taking any over-the-counter or prescription medications. Physical examination revealed several 1- to 4-mm superficial white dermal nodules located on the bilateral helical rims. The lesions were firm and well circumscribed and the surrounding skin showed mild erythema. Shave biopsies of the nodules were performed.

What's the diagnosis?

- a. bilateral auricular tophaceous gout
- b. chondrodermatitis nodularis helicis
- c. osteoma cutis
- d. pilomatricomas
- e. weathering nodules

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The Diagnosis: Bilateral Auricular Tophaceous Gout

Histopathologic evaluation with hematoxylin and eosin staining demonstrated clusters of abundant granular amorphous material within the subcutaneous tissue (Figure 1). The overlying epidermis and dermis were unremarkable. The granular amorphous material demonstrated numerous monosodium urate crystals under polarized light (Figure 2). At a return visit following the biopsy results, the patient reported a history of a single episode of monoarticular gouty arthritis involving the right hallux approximately 6 months after the onset of the skin lesions. With the added clinical history and the biopsy results, his serum uric acid level was obtained and was found to be elevated at 9.2 mg/dL (reference range, 3.5–8 mg/dL).

In our patient, the clinical differential diagnosis included calcium deposits, weathering nodules, and tophaceous gout. The differential diagnosis of auricular lesions is broad, and benign lesions may mimic cancerous entities such as basal cell carcinoma and squamous cell carcinoma.¹ Therefore a detailed history, thorough physical examination, and tissue sampling are key to establishing the correct diagnosis. Our patient's history of monoarticular gouty arthritis was only elucidated after a diagnosis of bilateral auricular tophaceous gout was made based on the biopsy results.

Subcutaneous tophi represent a chronic state of hyperuricemia and tend to manifest after long-standing polyarthritis and repeated acute gout attacks.²⁻⁵ These lesions develop in approximately 50% of gout patients and usually occur an average of 11.6 years after the onset of disease.² There is a subset of individuals that are at higher risk for developing tophi, including elderly and female patients, diuretic and chronic nonsteroidal anti-inflammatory drug users, patients with a history of cyclosporine therapy, and patients with underlying chronic renal insufficiency.^{2,6,7} The most commonly affected tissues are those with poor blood supply and lower temperatures, such as the ear helix and first metacarpal joint.⁴ The auricle is the most common site of tophi on the head and neck. Tophi of the helices are generally asymptomatic and nontender; however, tophi can become large, inflamed, and ulcerated, causing pressure and discomfort.² Combination treatment with dietary modification and antihyperuricemic therapy (eg, allopurinol) has been shown to reduce the size of lesions and prevent future tophi formation.

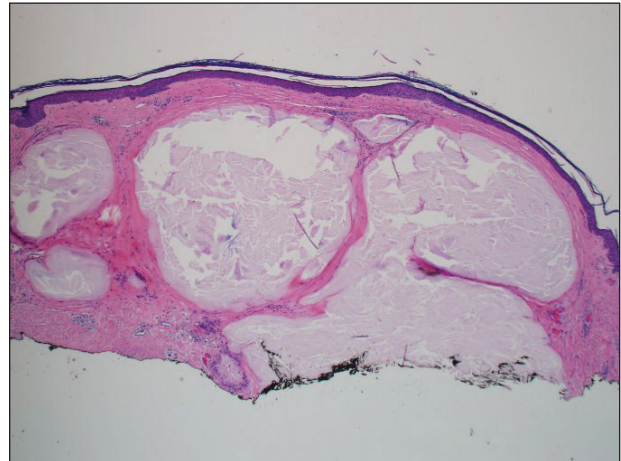


Figure 1. Formalin-fixed specimen demonstrates clusters of granular amorphous pink material in the dermis and subcutaneous tissue (H&E, original magnification $\times 4$).

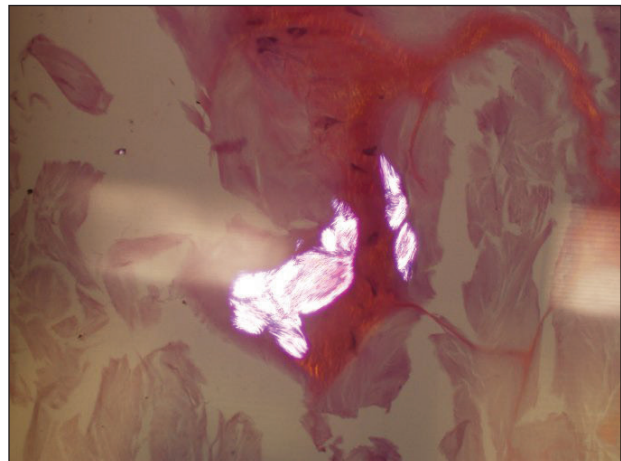


Figure 2. Monosodium urate crystals demonstrated birefringence under polarized light.

However, these results may take months, warranting excision of large and symptomatic lesions.^{4,8}

Our case is unusual in that the onset of the auricular lesions predated the articular gout by 6 months. Gouty tophi as the initial presentation of hyperuricemia is rare; however, tophi formation without concomitant arthritis has been reported.^{2,3,7,9} Wernick et al⁷ described 6 patients presenting with tophi before the onset of inflammatory arthritis that they attributed to changes in active inflammation by age (eg, elderly patients were more commonly immunosuppressed), chronic illnesses, and anti-inflammatory

medications (eg, nonsteroidal anti-inflammatory drugs). Another possible explanation for this atypical presentation is misdiagnosis caused by other forms of arthritis (eg, rheumatoid arthritis, osteoarthritis) masking acute gout episodes. It also has been reported that monosodium urate crystals can be found in synovial fluid with no inflammation and therefore no symptoms.⁷

Tophi, although rare, may be the sole clinical manifestation of underlying gouty disease. It is important to be aware of this atypical presentation to prevent misdiagnosis and provide appropriate treatment.

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