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Photo vignette

Perforating gout of the ear

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Abstract

Gout is the most common cause of inflammatory arthritis in men over 40 [1]. The prevalence of gout in the US is approximately 3.9%. Tophus is a characteristic sign of gout and results when monosodium urate deposits at the joint, skin, or cartilage. Tophi develop in 12-35% of patients who are diagnosed with gout [2]. We report a case of a 70-year-old man who was diagnosed with squamous cell carcinoma of the helix via shave biopsy. During Mohs micrographic surgery, a vigorous foreign-body reaction was noted. Review of the initial biopsy slides identified crystals with pseudoepitheliomatous hyperplasia (PEH) rendering a diagnosis of gout. This case emphasizes the importance of recognizing causes of PEH and the predilection for tophi to form on the ear.

Key-words: gout; pseudoepitheliomatous hyperplasia

Introduction

Gout occurs when monosodium urate deposits in the synovial fluid and other tissues [3]. The dermatologist is most likely to diagnose gout by the clinical or pathological identification of tophus that results when monosodium urate crystals deposit in the skin or cartilage. In this case, a 70-year-old man was diagnosed with squamous cell carcinoma and underwent Mohs surgery. Upon review of the initial slides, crystals were present with secondary hyperplasia of the epidermis. We present this case to increase the awareness of PEH related to the presence of monosodium urate crystal deposition in the skin.

Case synopsis

A 70-year-old man with a history of multiple sunburns as a young adult presented to dermatology clinic with a new 5 mm firm flesh-colored papule on his left helix (Figure 1).



Figure 1. One solitary papule on the left ear, within the black circle.

The papule had been present for the past three to four months. Prior to presenting to clinic, he had been applying triamcinolone 0.1% cream to the area without improvement. He had no history of skin cancer. Clinically, the differential diagnosis included squamous cell carcinoma, hypertrophic actinic keratosis, and verruca vulgaris.

A shave biopsy of the suspicious papule was performed. On histopathology examination, there was marked epidermal hyperplasia with glassy atypia (Figure 2) and the biopsy was interpreted as well-differentiated squamous cell carcinoma (SCC).

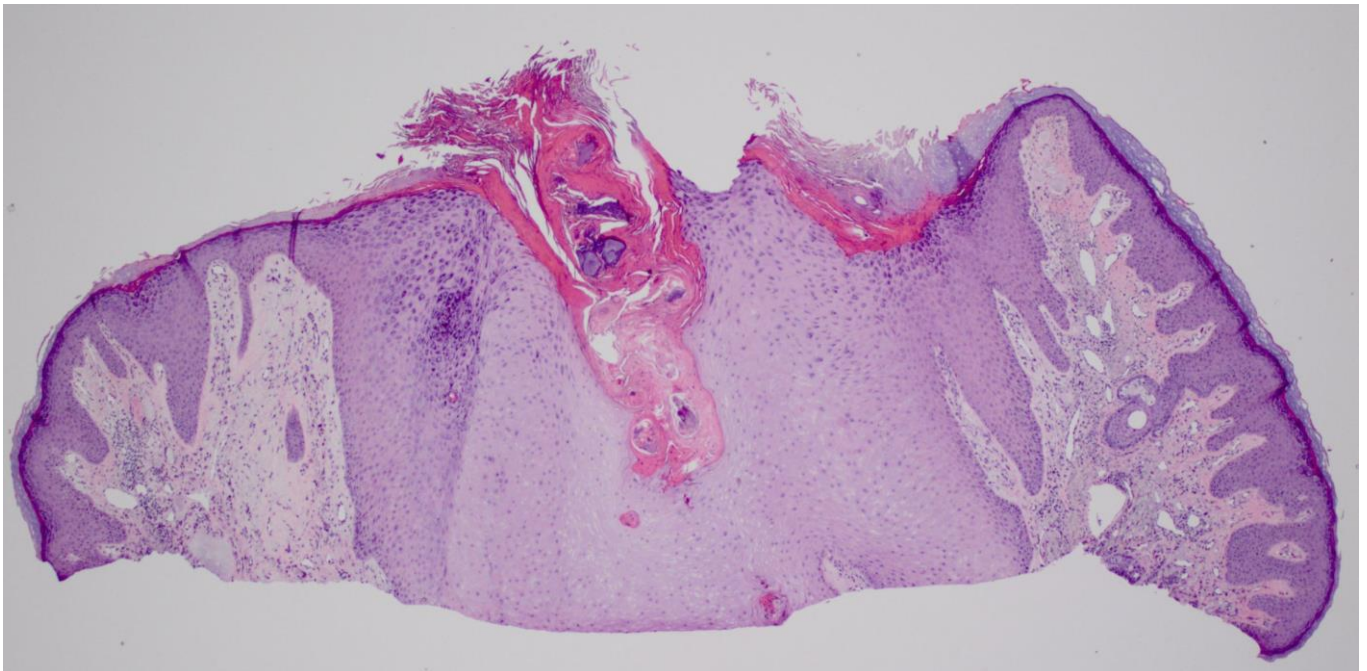


Figure 2. Papule with hyperplastic epidermis and glassy atypia (hematoxylin and eosin, x 2).

Treatment options were discussed with the patient and two months later, he presented for Mohs micrographic surgery. On the first stage of Mohs surgery, the Mohs surgeon noted an exuberant foreign body reaction, which prompted review of the initial histopathology. Careful review of the initial biopsy specimen revealed aggregates of amorphous granular material in the dermis (Figure 3).

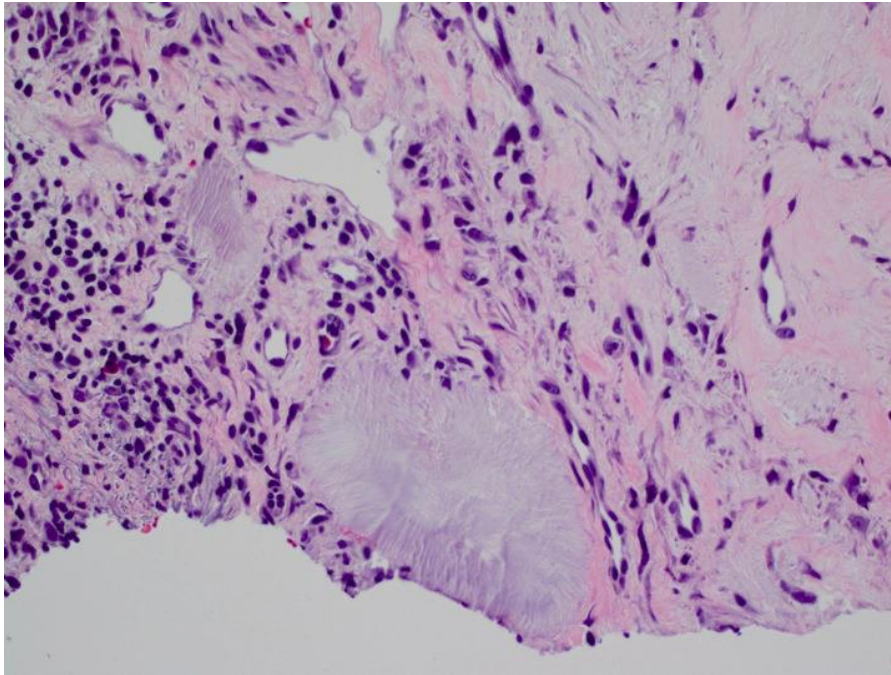


Figure 3. Amorphous material with needle-shaped clefts in the dermis at base of biopsy specimen (hematoxylin and eosin, x 10).

Closer inspection of the crust identified crystalline material (Figure 4) with the histological findings most consistent with perforating gout with marked pseudoepitheliomatous hyperplasia (PEH). Upon chart review, the patient indeed had a long-standing history of gout for which he was taking indomethacin on an intermittent basis.

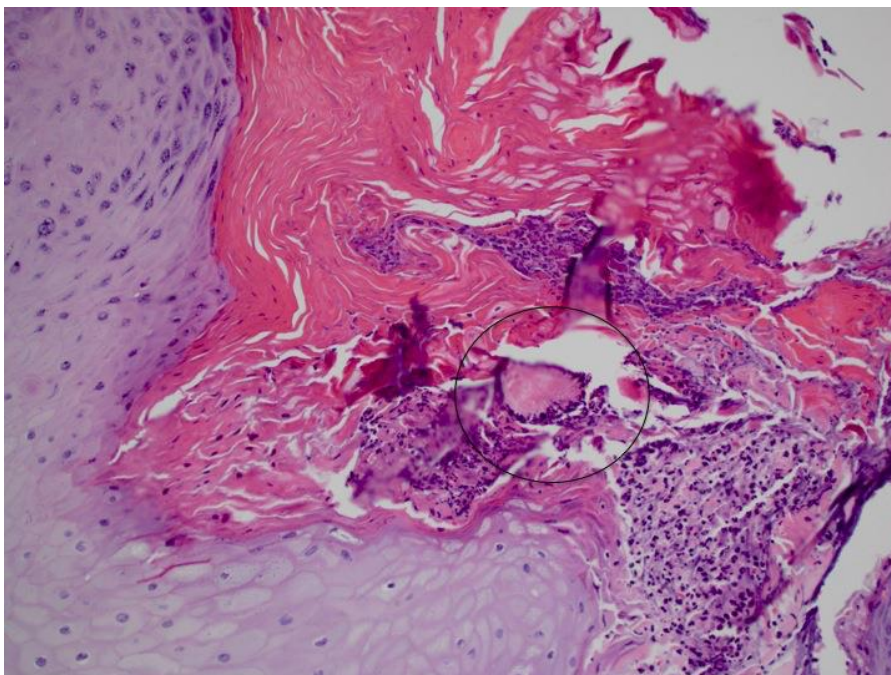


Figure 4. Granular material with a crystalline appearance in the crust identified within the black circle (hematoxylin and eosin x 40).

Discussion

Gout is an inflammatory arthritis that episodically affects joints resulting in severe pain and swelling [3]. The incidence of gout is increasing and it is now the most common type of inflammatory arthritis in males. Hyperuricemia is the primary risk factor for developing gout [3,4]. Gout attacks occur when monosodium urate crystals form deposits in the joints. However, deposition isn't limited to the synovial tissue. Monosodium urate crystals form tophi when they deposit in the cartilage, bone, or skin [4]. Gouty tophi most frequently involve the helix of the ear and the skin overlying joints. Tophi occur most commonly in patients who have been diagnosed with gout for over a decade. There are a number of urate lowering medications available that can prevent the formation of tophaceous disease including allopurinol, febuxostat, probenecid, lesinurad, and pegloticase [2]. A few cases of tophi being the presenting sign of gout have been reported [5].

In the case presented, the PEH surrounding the gout crystals led to the erroneous diagnosis of well-differentiated squamous cell carcinoma and the unnecessary subsequent Mohs micrographic surgery. The histopathologic differentiation between SCC and benign lesions with PEH is often difficult at initial evaluation. PEH is most often a secondary disorder and is believed to be a hyperplasia of adnexal epithelium, eccrine ducts, and the epidermis [6]. It has been associated with granular cell tumor, chronic irritation, and desmoplastic trichoepithelioma [6]. There have been only a few prior case reports that noted PEH in association with gouty tophi [7].

In 2002, Dacko *et al.* described a case of gout on the finger with accompanying PEH and in 2014, three cases of gout tophi of the ear with histology revealing PEH were reported [8]. The perforating nature of the gouty tophus in our case may have led to even more exaggerated PEH, likely further challenging histological diagnosis.

Owing to the relative rarity of gouty tophi compared to SCC on the helix, this diagnosis clinically and histopathologically can be overlooked. In addition, both the incidence of gout and the incidence of SCC increase with age [3]. We report this case to alert practitioners and dermatologic surgeons of the possibility of perforating gout masquerading as SCC so as to prevent misdiagnosis and unnecessary surgical procedures that may have accompanying functional and cosmetic implications.

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