Verruciform Plaques Within a Tattoo of an HIV-Positive Patient

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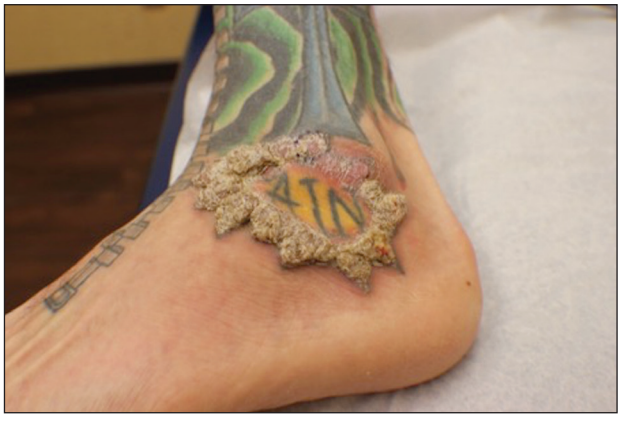

A 40-year-old man with a medical history of human immunodeficiency virus infection managed with highly active antiretroviral therapy (CD4 count, 888 cells/mm^3 and an undetectable viral load), psoriasis, and recurrent condyloma acuminatum presented with exophytic, annular, hyperkeratotic, verrucous plaques on the left lateral malleolus with multiple erythematous hyperkeratotic papules on the pretibial shin of the left leg of 6 months' duration. These plaques and papules were localized to areas where red dye was used in a tattoo the patient had received 2 years prior to presentation. There was no associated fluctuance or drainage. The patient reported paroxysmal pruritus and burning pain.

WHAT'S THE **DIAGNOSIS?**

a. atypical *Mycobacterium* infection
b. disseminated blastomycosis
c. keratoacanthoma/well-differentiated squamous cell carcinoma
d. lichenoid reaction with pseudoepitheliomatous hyperplasia
e. verruca vulgaris in the setting of epidermodysplasia verruciformis

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The authors report no conflict of interest.

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THE **DIAGNOSIS:** Lichenoid Reaction With Pseudoepitheliomatous Hyperplasia

A shave biopsy of the left ankle and a punch biopsy of the left medial calf were performed and sent for histologic examination and acid-fast stain. Bacterial, fungal, and mycobacterial tissue cultures also were sent for testing. The findings from direct examination were negative, and tissue cultures exhibited no growth. The shave and punch biopsies and histology revealed pseudoepitheliomatous hyperplasia (PEH) with keratinocyte necrosis, satellitosis, and areas of acute folliculitis (Figure 1). A lichenoid hypersensitivity mixed infiltrate that included histiocytes admixed with anthracotic and red-orange pigment, lymphocytes, plasma cells, neutrophils, and rare eosinophils was noted in the dermis. Given these clinical and histopathologic findings, the patient was diagnosed with red-pigment tattoo lichenoid reaction with PEH.

Tattoo-related inflammatory reactions can manifest clinically as allergic contact dermatitis, photodermatitis, infection, malignancy, foreign body granulomas, and delayed hypersensitivity reactions with myriad associated histopathologic patterns including spongiotic, psoriasiform, granulomatous, and lichenoid (as seen in our patient). Lichenoid tattoo reactions are the most common histopathologic variants of delayed hypersensitivity seen, mostly with cinnabar or red dye.[1] However, there is a paucity of cases in the literature of PEH following tattooing with red dye. Interestingly, lichenoid tissue reaction accompanies PEH in all reported cases.[2]

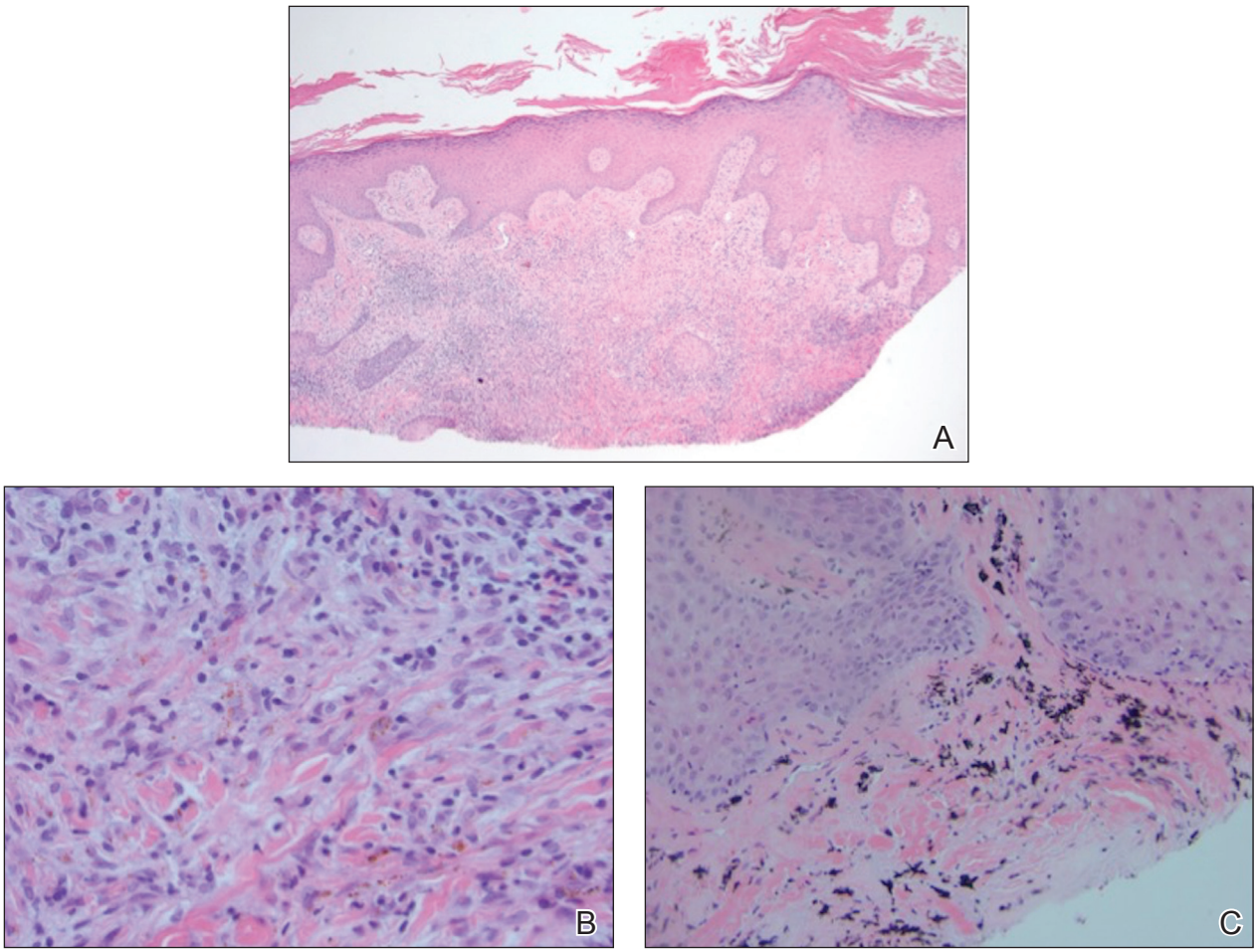

FIGURE 1. A–C, Pseudoepitheliomatous hyperplasia with keratinocyte necrosis, satellitosis, red and anthracotic tattoo pigment, and areas of acute folliculitis (H&E, original magnifications ×20, ×400, and ×200).

FIGURE 2. Clinical improvement after treatment with clobetasol ointment 0.05% followed by intralesional triamcinolone acetonide.

Pseudoepitheliomatous hyperplasia can mimic squamous cell carcinoma and keratoacanthoma (KA) both clinically and histologically. All 3 conditions may exhibit epithelial hyperplasia with prominent dilated hyperplastic infundibula. In a case series of 11 presumed KAs within tattoos, Fraga and Prossick[2] reported 82% (9/11) of the lesions were located strictly in areas with red pigment, and many were associated with a lichenoid tissue reaction. Kazlouskaya and Junkins-Hopkins[3] previously described cases of KAs in tattoos that may represent PEH.

When treating lesions with this histologic appearance, consider the clinical and histologic overlap between KAs and PEH. Our patient was managed with clobetasol ointment 0.05% under occlusion followed by intralesional triamcinolone acetonide with notable improvement of the verrucous plaques on the left lateral malleolus (Figure 2). He also noted near resolution of the papules on the pretibial shin and complete resolution of all associated pruritus and burning. Calcineurin inhibitors, photochemotherapy, CO_2 laser, excimer laser, and surgical removal with interval grafting also were considered.

It is important to recognize PEH in the differential of eruptions occurring within tattoos to avoid unnecessary invasive surgical procedures such as complete surgical excision of a KA to avoid malignant transformation.

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