

A Case of Squamous Cell Carcinoma In Situ Arising in Granuloma Annulare

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Background

Cutaneous squamous cell carcinoma (SCC) is a malignant proliferation of keratinocytes and represents the second most common nonmelanoma skin cancer.¹ Squamous cell carcinoma in situ (SCCis) is an intraepidermal keratinocyte malignancy confined to the epidermis; however, an estimated 3%–8% of cases may progress to invasive SCC.² Although SCC most commonly develops on sun-exposed skin, it may also arise in areas of chronic inflammation or tissue injury.¹ Chronic inflammatory dermatoses associated with SCC include discoid lupus erythematosus, lichen planus, hidradenitis suppurativa, nonhealing wounds, and burn scars.³

Granuloma annulare (GA) is a benign granulomatous inflammatory dermatosis with an incompletely understood pathogenesis. Histologically, GA is characterized by granulomatous inflammation with palisading histiocytes and dermal mucin deposition.⁴ GA has been associated with systemic and autoimmune conditions, metabolic disorders, infections, and malignancy.^{4, 5} Although typically benign and self-limited, GA may mimic other dermatologic conditions clinically and histologically, including SCC.⁶

The development of SCC within GA is exceedingly rare. Only one previously reported case of SCC arising within a lesion of GA was identified in the literature reviewed for this project.⁷ We present a case of an 87-year-old man with erythematous plaques with overlying scale and crust whose biopsy demonstrated SCCis with underlying granulomatous dermatitis and features consistent with GA, highlighting the importance of biopsy when lesions presumed to represent a benign inflammatory process demonstrate atypical clinical features.

Case Presentation

An 87-year-old man with a history of atopic dermatitis treated with dupilumab and basal cell carcinoma presented for a routine above-the-waist skin examination. Multiple erythematous plaques with overlying scale and crust were identified on the right posterior shoulder and left mid-upper back.

A partial shave biopsy of the 2 cm right posterior shoulder lesion demonstrated squamous cell carcinoma in situ with a background of granulomatous dermatitis and features of granuloma annulare. The patient subsequently returned for shave biopsies of the residual right posterior shoulder lesion and the entire left mid-upper back lesion.

Pathologic examination demonstrated scar and granulomatous dermatitis consistent with granuloma annulare, with no evidence of squamous cell carcinoma.

The patient subsequently underwent shave biopsies of the residual right posterior shoulder lesion and the entire left mid-upper back lesion. Histopathologic examination demonstrated scar and granulomatous dermatitis consistent with GA, with no evidence of residual SCC.

Clinical Images



1. Initial biopsy photos



2. Subsequent biopsy photos

Discussion

SCC most commonly arises in sun-exposed skin, with established risk factors including ultraviolet exposure, fair skin, advanced age, and immunosuppression.¹ However, SCC may also arise in regions of chronic inflammation or injury.¹ The relationship between chronic inflammation and SCC is clinically important because persistent inflammatory signaling and repeated tissue repair may create an environment that favors malignant transformation.³

The association between SCC and chronic inflammation is thought to involve persistent release of proinflammatory cytokines with repeated tissue damage and repair, ultimately promoting dysregulated keratinocyte proliferation and malignant transformation.³ SCC arising in chronically inflamed or injured tissue may demonstrate more aggressive behavior and greater metastatic potential.¹ Histopathologic examination following biopsy remains essential for confirmation of SCC.⁸

GA is generally a benign, self-limited inflammatory dermatosis, but it may resemble SCC both clinically and histologically.^{4, 6} Only one other case of SCC arising within GA was identified in the literature reviewed for this report.⁷ In the previously reported case, SCC was diagnosed several months after the initial GA presentation following changes within the original lesion.⁷ Our case further emphasizes the importance of maintaining a broad differential diagnosis and performing prompt biopsy when lesions presumed to represent GA demonstrate atypical or evolving clinical features.

Conclusion

GA is typically a benign and self-limited dermatosis; however, atypical or evolving lesions warrant careful reassessment. SCC may arise in sites of chronic inflammation, and the development of SCC within GA appears to be exceedingly rare.^{1, 3, 7} This case emphasizes the importance of maintaining a broad differential diagnosis and obtaining prompt histopathologic evaluation when presumed GA lesions deviate from their expected clinical course.

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