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Basal cell carcinoma associated with erythema ab igne

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Abstract

Erythema ab igne is a skin condition mainly caused by heat exposure. Erythema ab igne usually follows a favorable prognosis. However, it may increase the risk of developing cutaneous malignancy in the involved skin. Being familiar with the type of cutaneous malignancies that may arise in the site of erythema ab igne is considerably important. To our knowledge, this letter presents the first case that shows the association between erythema ab igne and basal cell carcinoma.

Keywords: erythema ab igne, malignancy, basal cell carcinoma.

Introduction

Erythema ab igne manifests as a reticulated erythematous hyperpigmented patches. It is mainly the consequence of repeated heat exposure to the skin. Although erythema ab igne has generally a benign course, an increased risk of cutaneous squamous cell carcinoma and Merkel cell carcinoma have been reported. This letter introduces a case of erythema ab igne in which basal cell carcinoma developed after a decade [1, 2].

Case Synopsis

A 60-year-old man complained of a 4-month history of a non-healing erosion localized within an asymptomatic hyperpigmented patch on his left thigh. He noted a reticulated erythematous hyperpigmented patch on his left thigh for more than 10 years. On physical examination, an erythematous, non-blanchable, hyperpigmented reticulated patch was localized to the anterior of his left thigh. A small (1-2cm) thin, erythematous eroded plaque was notable in the upper part of the reticulated patch of the left thigh (**Figure 1**). No bullae or keratotic lesions were found.

The patient was a fruit seller. He used a heater very close to the anterior of his thighs to warm his lower extremities in the winter. He denied any trauma to the involved area or recent medication. Past medical

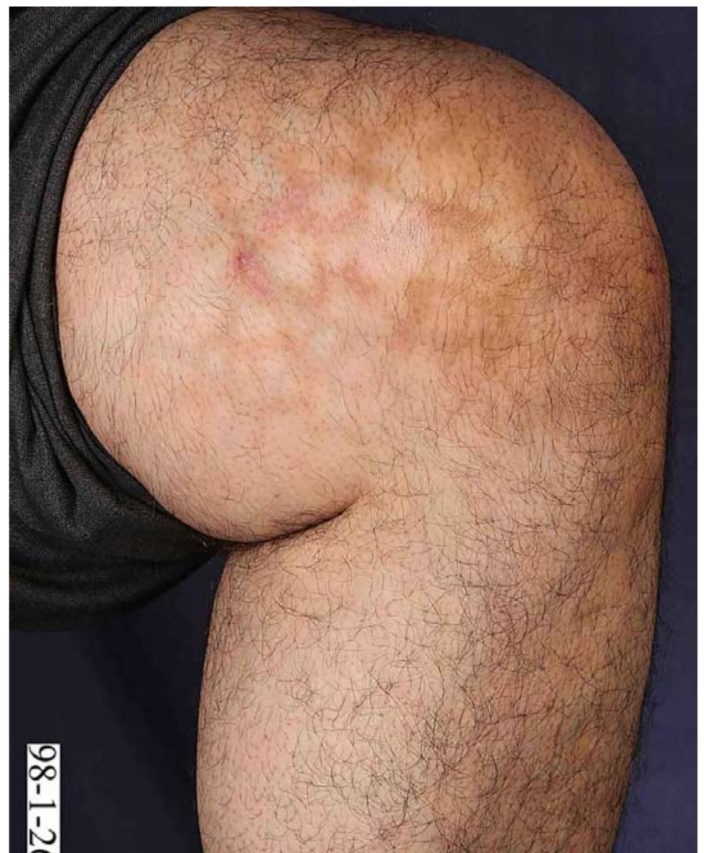

Figure 1. *A reticulated erythematous-hyperpigmented patch on the left thigh, an erosive thin plaque in the upper part of the mentioned reticulated patch is seen.*

history was not significant. The clinical diagnosis of erythema ab igne was made.

A punch biopsy from the erosive lesion was performed with the differential diagnosis of erythema ab igne, squamous cell carcinoma, Merkel cell carcinoma, basal cell carcinoma, and melanoma. Histopathological findings revealed some basaloid nests in the dermis with peripheral palisading and peritumoral clefting were conspicuous. The presence of vasodilation of dermal vessels, pigment deposition in the dermis in addition to epidermal atrophy and flattening of the rete ridge are in favor of the background erythema ab igne (**Figure 2**). The final diagnosis of basal cell carcinoma in association with erythema ab igne was confirmed. The patient was advised to avoid the offending heat source. Surgical excision of the basal cell carcinoma with 4mm margins was performed.

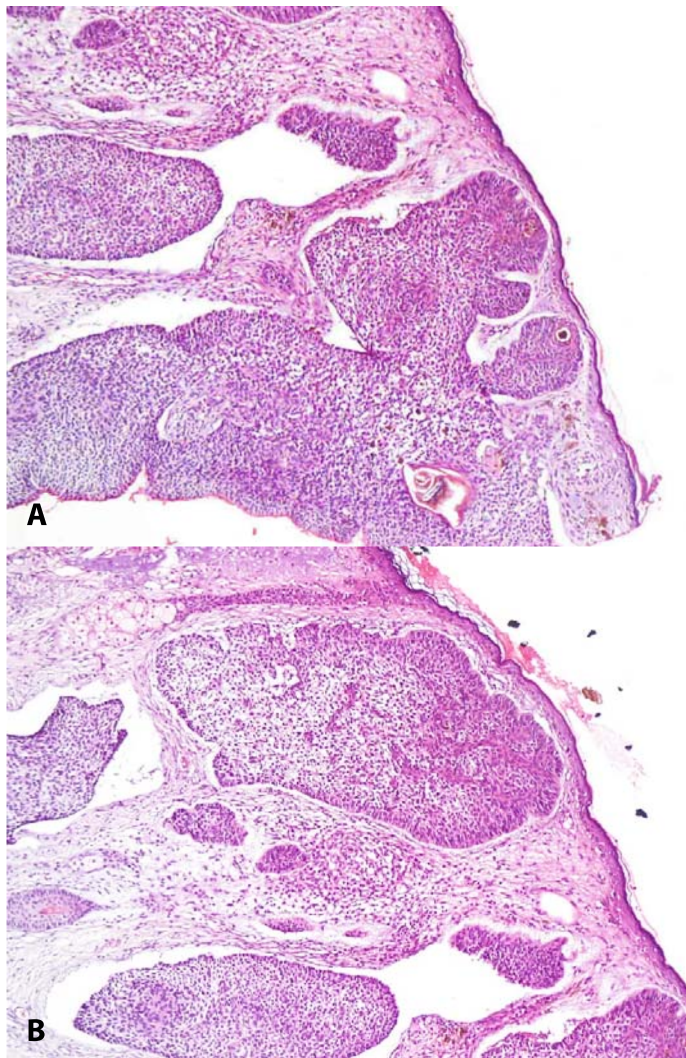

Figure 2. *Oval aggregations of basaloid nests are seen in the dermis. Peripheral palisading and peritumoral cleft are remarkable. Epidermal atrophy, flattening of the rete ridge, vasodilation of dermal vessels and pigment deposition in the dermis are also noted. H&E,* ***A)*** *10×;* ***B)*** *40×.*

Case Discussion

Erythema ab igne presents initially as a transient, reticulated blanchable erythematous patch. After recurrent heat exposure, progression to dusky-hyperpigmented reticular patches, epidermal atrophy, and telangiectasia may occur. Occasionally, bullae or cutaneous ulceration may appear. Lesions are asymptomatic but slight pruritus or burning sensation have been reported [1, 2].

Erythema ab igne primarily results from prolonged heat exposure that is not sufficient to cause a burn. The temperature is usually from 43 to 47ºC. The precise pathophysiology is not known. Repetitive long-term heat exposure may induce dermal venous plexus and dermal elastic fiber changes, resulting in the reticulated appearance [2, 3].

The diagnosis is based on clinical findings and a compatible history of heat exposure to the involved skin. Histological findings are epidermal atrophy, vasodilation, dermal hemosiderin, and melanin deposition. In later stages, flattening of the rete ridges, hyperkeratosis, dyskeratosis, thinning of the dermis with abnormal homogenized elastotic tissue, and ecstatic blood vessels are demonstrated. Because histological findings are not specific, lesional biopsy is helpful to rule out other conditions in the differential diagnosis such as vasculitis and livedo reticularis [1, 3].

Erythema ab igne generally carries a good prognosis. However, it may increase the risk of developing cutaneous malignancy in the involved skin. Squamous cell carcinoma and Merkel cell carcinoma have been reported. The highest risk has been reported with hydrocarbon heat exposure, such as coal or peat fires. The latency period may be decades [1, 4].

The main treatment is to stop the responsible heating source. Regression of early lesions after

discontinuation of heating source occurs. Chronic hyperpigmented patches may fade after several years. Topical application of 5-fluorouracil may successfully clear squamous atypia within the erythema ab igne lesion. Considering the long-term malignancy potential, regular follow up and skin biopsy from any sign of cutaneous malignancy such as ulceration is strongly recommended [3].

Conclusion

Erythema ab igne is an unusual cutaneous manifestation of chronic heat exposure. Although it usually has a benign course, the development of squamous cell carcinoma and Merkel cell carcinoma has been reported even after decades. This letter presents a case of erythema ab igne localized to the anterior of the thigh in which basal cell carcinoma developed. To our knowledge, this is the first case that shows the association between erythema ab igne and basal cell carcinoma.

Potential conflicts of interest

The authors declare no conflicts of interest

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