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LETTER TO THE EDITOR

Dermoscopic findings of psoralen and ultraviolet A therapy lentigines resembling melanoma in a patient with mycosis fungoides

Dear Editor,

Psoralen and ultraviolet A therapy (PUVA) lentigines are defined as pigmented macules that arise after long-term psoralen photochemotherapy.[1] Histopathologically, the melanocytes are increased in number and may have nuclear atypia. Ultrastructural studies have revealed melanocytes with longer and more numerous dendrites.[2] Analysis of 1380 psoriasis patients treated with PUVA therapy showed a relative risk of melanoma of 1.1 compared with the overall population, with the risk of melanoma increasing after more than 250 radiation sessions.[3] The association between PUVA lentigines and melanoma, however, is unclear. Several studies have reported the occurrence of atypical lentigines or malignant melanoma *in situ* in patients treated with PUVA,[4,5] but there are no reports on the malignant transformation of PUVA lentigines. Although the dermoscopic features of PUVA lentigines are thought to resemble solar lentigines, they have not been described in detail.

Here, we report a case of PUVA lentigines exhibiting dermoscopic findings resembling those of malignant melanoma. A 72-year-old woman was diagnosed with mycosis fungoides and was referred to our department. She received 276 bath-PUVA therapy

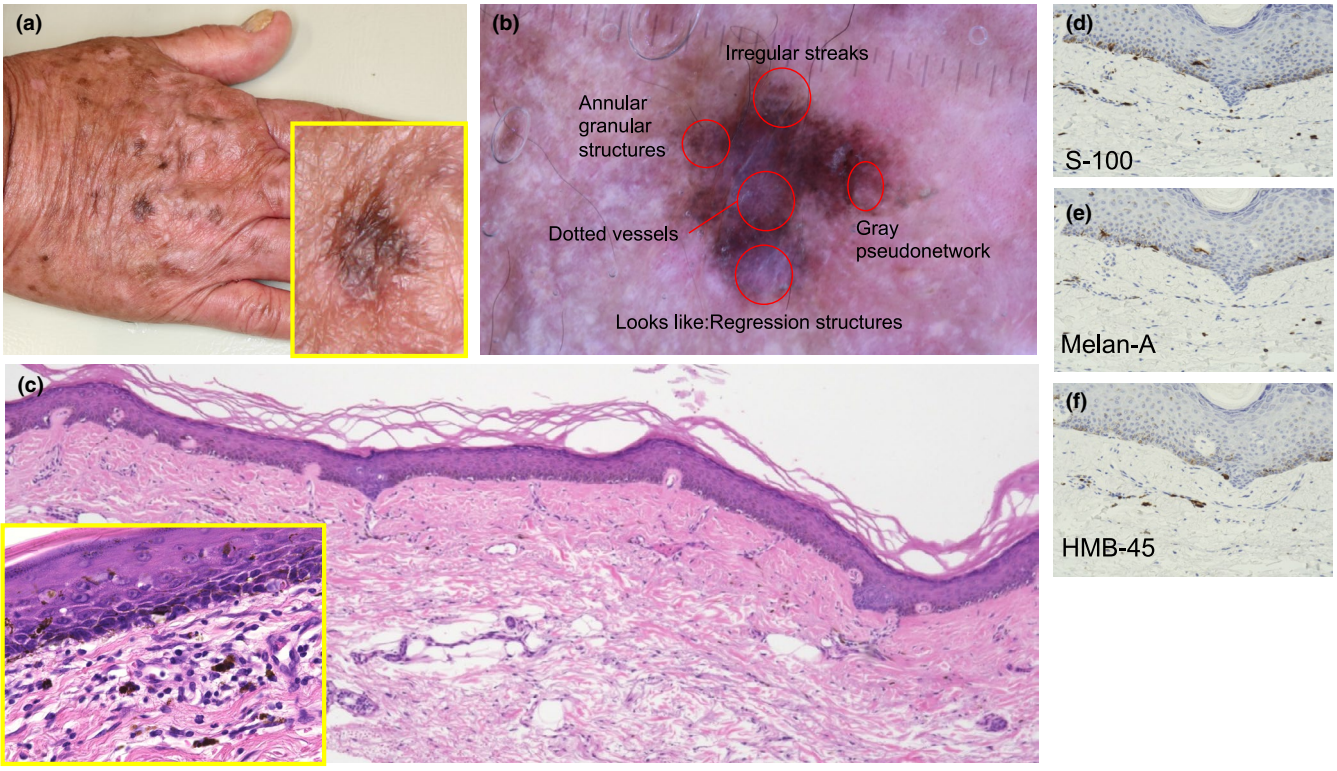

FIGURE 1 Clinical and pathological features. (a) The lesion on the dorsum of the right hand. (b) Dermoscopic findings. (c) Hematoxylin–eosin staining (original magnification ×40). Immunohistological staining: (d) S-100 (×100), (e) Melan-A (×100), and (f) HMB-45 (×100)

sessions (659.5 J/cm^2 in total). We focused on the lesion on the dorsum of the right hand, which was relatively large and irregular among the brown spots that appeared approximately 5 years after the patient started PUVA therapy (Figure 1a). Dermoscopy revealed an asymmetrical lesion with a varied color tone. Irregular streaks, a gray pseudonetwork, annular granular structures, and a white and blue area appearing as a regression pattern were observed in the marginal region. In the center of the lesion, we observed uniform dotted vessels (Figure 1b). We performed a total resection of the lesion to differentiate it from malignant melanoma. Pathological analysis revealed an increased number of melanins and melanocytes in the basal layer, and flattened rete ridges. Melanophages and solar elastosis were observed in the dermis (Figure 1c-f). We diagnosed this pigmented spot as PUVA lentigines. One year after surgery to remove the lesion, we observed no recurrence. The other pigmented spots were also assessed by dermoscopy (Figure S1). The findings of two spots were similar to those of PUVA lentigines and findings of another spot were typical for solar lentigo.

In the present case, the dermoscopic findings seemed similar to those of malignant melanoma, but uniform dotted vessels were observed in the center of the lesion. Various vascular features are observed in malignant melanoma, including dotted vessels, linear irregular vessels, comma-like vessels, and hairpin vessels, or their combinations, referred to as polymorphous vessels. The blood vessel findings are uniform in PUVA lentigines, in which the loss of rete ridges interferes with the pigment network, and fibrosis due to solar elastosis and melanophages in the dermis results in a white and blue area that appears to be a regression pattern. Although dermoscopic findings of PUVA lentigines are similar to those of malignant melanoma, the uniform vascular pattern of PUVA lentigines and the surrounding healthy tissue may be useful for differential diagnosis. Further accumulation of similar cases will help to elucidate the typical findings of PUVA lentigines.

CONFLICT OF INTEREST

None declared.

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REFERENCES

1. Rhodes AR, Stern RS, Melski JW. The PUVA lentigo: an analysis of predisposing factors. *J Invest Dermatol*. 1983;81:459–63.
2. Nakagawa H, Rhodes AR, Momtaz-T K, Fitzpatrick TB. Morphologic alterations of epidermal melanocytes and melanosomes in PUVA lentigines: a comparative ultrastructural investigation of lentigines induced by PUVA and sunlight. *J Invest Dermatol*. 1984;82:101–7.
3. Stern RS, Nichols KT, Väkevä LH. Malignant melanoma in patients treated for psoriasis with methoxsalen (psoralen) and ultraviolet A radiation (PUVA). The PUVA Follow-Up Study. *N Engl J Med*. 1997;336:1041–5.
4. Marx JL, Auerbach R, Possick P, Myrow R, Gladstein AH, Kopf AW. Malignant melanoma in situ in two patients treated with psoralens and ultraviolet A. *J Am Acad Dermatol*. 1983;9:904–11.
5. Basarab T, Millard TP, McGregor JM, Barker JN. Atypical pigmented lesions following extensive PUVA therapy. *Clin Exp Dermatol*. 2000;25:135–7.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.