A Case of Syringotropic Melanoma Presenting as a Dark Brown Patch around the Toenail

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Dear Editor:

The superficial acrosyringium may sometimes be involved in melanomas. However, very rarely, melanomas spread *in situ* within the eccrine apparatus and invade the deep dermis^{1,2}. Syringotropic melanoma is defined as melanoma that spreads within the eccrine apparatus into the reticular dermis and/or subcutaneous tissue, deeper than any (if present) associated invasive melanoma². Here, we report a case of syringotropic melanoma presenting as a dark brown patch.

A 79-year-old man presented with a pigmented lesion on the toe, which persisted for 5 years. Skin examination showed a dark brown patch around the right 1st toenail (Fig. 1A). Under suspicion of melanoma *in situ*, an incisional biopsy was performed after a nail extraction. Histopathology from the incision showed proliferation of atypical melanocytes along the basal layer (Fig. 1B). Additionally, atypical cells containing melanin pigments were observed within the eccrine ducts. Immunohistochemical staining for human melanoma black 45 (HMB-45) was positive in the atypical melanocytes along the basal layer and in the eccrine ducts (data not shown). Therefore, a diagnosis of acral lentiginous melanoma *in situ*, spreading to the eccrine ducts, without dermal invasion was made. Total excision was performed and

histopathology showed melanoma cells along the basal layer. In addition to melanoma cells within the eccrine ducts, dermal invasion of melanoma cells from the eccrine ducts was noted (Fig. 1C). Immunohistochemical staining for HMB-45 was positive in cells of eccrine ducts and around the eccrine ducts (Fig. 1D). Finally, the condition was diagnosed as melanoma *in situ* with microinvasion from coiled eccrine ducts.

Thus far, 8 cases of syringotropic melanoma have been reported in the English literature^{1,2}. Seven of them showed dermal invasion of melanoma cells from the epidermis, suggesting that syringotropic melanoma is associated with invasive melanoma rather than melanoma *in situ*. Syringocentric invasion was noted in 4 cases. Two patients had acral lentiginous melanoma; one patient with acral lentiginous melanoma showed dermal invasion from the epidermis without dermal invasion from the eccrine ducts; and the other patient showed dermal invasion of melanoma cells from the epidermis and eccrine ducts. Our current patient showed acral lentiginous melanoma *in situ* and dermal invasion of melanoma cells from the eccrine ducts. It is difficult to distinguish between syringotropic melanoma *in situ* localized to the eccrine ducts and syringotropic invasion to the surrounding tissue.

Previously, a patient presented with a macule despite the presence of dermal syringocentric invasion, which was identified later on biopsy². Similarly, our patient presented with a patch around the toenail, suggesting melanoma *in situ*, despite the presence of dermal syringocentric invasion, which was identified later on excisional biopsy. These 2 cases suggest that although clinically, melanoma lesions look superficial, they may have a deep syringotropic component.

In our case, the incisional biopsy showed acral lentiginous melanoma *in situ* spreading to the eccrine ducts without dermal invasion, but the excision showed dermal invasion

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Fig. 1. (A) Skin examination shows a dark brown patch on the right 1st toe. (B) Histopathology from the incision shows proliferation of atypical melanocytes along the basal layer. Further, atypical cells containing melanin pigments are seen within the eccrine ducts in high-power view of the boxed portion (H&E; right: $\times 200$, left: $\times 40$). (C) Histopathology from the excision shows dermal microinvasion (arrows) of melanoma cells from the eccrine ducts (H&E, $\times 200$). (D) Immunohistochemical staining for human melanoma black 45 (HMB-45) is positive in the cells of and around the eccrine ducts (arrows) ($\times 400$).

of melanoma cells from the eccrine ducts. Our case suggests that serial sections in cases of syringotropic melanoma may show syringocentric invasion.

Barnhill et al.³ reported a case of melanoma invading from within skin adnexa. They concluded that Breslow thickness (depth of invasion) should not be measured from the granular layer of the epidermis because this value would overestimates tumor depth. Instead, tumor thickness should be measured from the granular layer equivalent of the skin adnexa. Although measurement from the innermost layer of the eccrine duct may be ideal, it may

not be possible because eccrine ducts are coiled.

In conclusion, our findings suggest that in cases of syringotropic melanoma *in situ*, the eccrine apparatus may be involved. Further studies on eccrine involvement in melanoma and the significance of the presence of melanoma cells in and outside the eccrine apparatus are required.

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Expression of Antimicrobial Peptides and Proteins in Epidermis Equivalents Exposed to Salt Water and Narrowband Ultraviolet B Radiation

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Dear Editor:

The influence of salt water and ultraviolet (UV) radiation on the expression of antimicrobial peptides and proteins (AMPs) has not yet been established. AMPs play an important role in the pathogenesis of inflammatory skin conditions such as psoriasis and atopic dermatitis. Patients with these conditions have been shown to benefit from combined therapy using salt-water baths and UVB exposure. Nevertheless, the mechanisms of action of this combination therapy are still unclear, and standardized treatment regimens using specific salt concentrations and solutions with specific salt composition are lacking¹⁻³. In the present pilot study, we investigated the effect of salt water soaks and narrowband UVB (NB-UVB) radiation on the expression of AMPs in human epidermis equivalents. EpiDerm-200 tissue models (one lot of medium: EPI-100-NMM-AFAB) were purchased from MatTek Corporation (Ashland, MA, USA). The EpiDerm-200 model has recently

been described in detail³. Epidermis equivalents were cultured under sterile conditions at the air-liquid interface using antibiotic-free, anti-fungal-free, and hydrocortisone-free EPI-100-NMM Medium from the same supplier. Following a 6-day period in culture medium, including a 3-day treatment period, the epidermis equivalents (n=9 per group) were detached from the inserts with a 15-min incubation with 1 U/ml dispase (Worthington, Lakewood, NJ, USA) at 37°C. The upper side (horny layer) of the epidermis equivalents was treated for 20 min with 3% NaCl and 30% NaCl solutions. NB-UVB irradiations were performed using a Waldmann (Villingen-Schwenningen, Germany) UV 236 B therapy system. After soaking, the epidermis equivalents were immediately exposed to radiations at 130 mJ/cm² (irradiance: 7 mW/cm²). Following the aforementioned treatments, relative gene expression analyses of epidermis equivalents were performed, as previously described in detail for human β -defensin-2

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