Unmasking amelanotic melanoma: A diagnostic challenge

Yazan Al-Absi

CASE

A woman aged 40 years presents with a slowly growing asymptomatic erythematous skin lesion of 5 months duration on her left forearm (Figure 1). She is of South African background and has no personal or family history of skin cancer. She has no history of previous skin disease, and she is well otherwise.

On examination the patient has fair skin with blue eyes and blonde hair. She has tens of lightly coloured naevi and significant freckling. The lesion of concern is flat, pink and slightly scaly (Figure 2). There are no other similar lesions.

QUESTION 1

What are the differential diagnoses?

ANSWER 1

The differential diagnoses for this solitary erythematous skin lesion include contact dermatitis, psoriasis, fungal infection, Spitz nevus, and non-melanoma skin cancer including superficial basal cell carcinoma (sBCC), intraepidermal carcinoma (IEC) and amelanotic and hypomelanotic melanoma (AHM).

CASE CONTINUED

Figure 3 shows a polarised dermoscopic view of the skin lesion.

QUESTION 2

What are the dermoscopic features of AHM?

QUESTION 3

Could this be a melanoma?

QUESTION 4

How would you manage this lesion?

ANSWER 2

Dermoscopic diagnosis of AHM is frequently complicated by the absence of melanin pigmentation that characterises most melanomas.

The ‘Prediction without Pigment (PWP)’ algorithm, as described by Rosendahl et al,[1] provides a structured framework for evaluating non-pigmented cutaneous lesions. This algorithm prioritises the exclusion of benign entities identifiable through pattern recognition, including nevi, verrucae, seborrheic keratoses, hemangiomas, dermatofibromas and sebaceous gland hyperplasia. Subsequently, the observation of ulceration, polarising-specific white lines (PSWLs) or, in elevated lesions, white clues suggestive of a squamoproliferative neoplasia mandates histological assessment via biopsy.

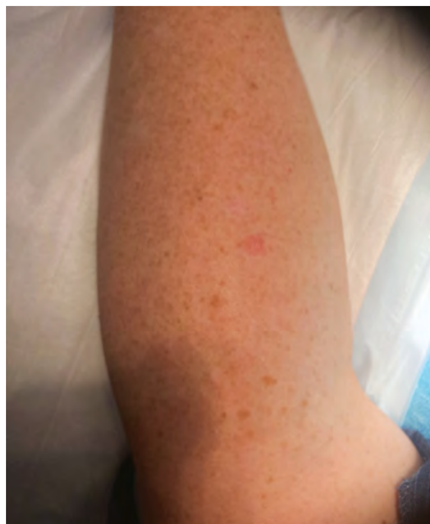

Figure 1. Overview of the skin lesion on the back of the left forearm.

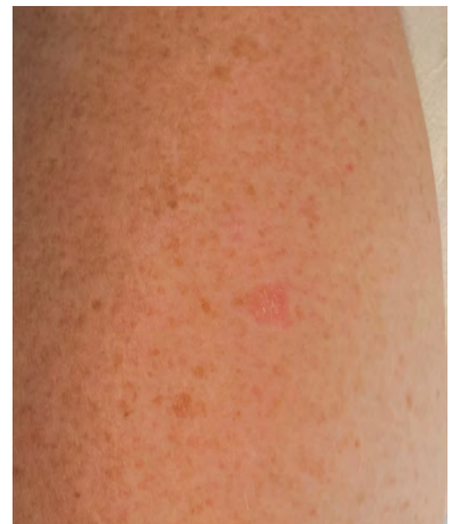

Figure 2. A close-up view; 8×7-mm solitary erythematous skin lesion.

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In the current scenario, the identification of PSWLs, despite the absence of ulceration, warrants biopsy. In instances where these specific clues are absent, classification of the lesion may be achieved through the analysis of its vascular patterns.

AHM is likely to exhibit polymorphic vessel patterns. These commonly include comma, dotted, linear irregular and helical vessels.[2]

Pressure from the dermoscope footplate can obliterate vascular structures, omitting important clues (Figure 4). Using a clear immersion fluid such as ultrasound gel or hand sanitiser and applying minimal pressure improve visualisation of vessels.[3]

For thoroughness, a range of dermoscopic features commonly seen in lesions that can mimic AHM is also discussed:

- sBCC – Fine branching telangiectasia and multiple erosions. PSWLs are common. Pigmented variants show blue and grey clods and leaf-like structures.[4]
- IEC – Coiled vessels; pigmented variants may show pigmented dots arranged in lines.[5]
- Inflammatory skin diseases – Always consider the full clinical picture given the insufficient evidence for highly specific dermoscopic markers for dermatoses. However, psoriasis generally shows uniformly distributed dotted blood vessels on a red-pink background with white scales. In contrast, eczema often presents with patchily distributed vessels and yellow crusts.[6]
- Lichen planus – White Wickham's striae without many vascular structures.[7]
- Amelanotic Spitz naevus – Pink background, PSWLs and regularly distributed dotted vessels. There are no described specific reliable dermoscopic criteria to accurately differentiate Spitz naevi from AHM. Therefore, excision of all Spitzoid lesions is generally recommended.[8]
- Non-pigmented dermal naevi – Presence of terminal hair and regularly distributed curved vessels.[8]
- Non-pigmented junctional naevi (red Clark naevi) – Well circumscribed and shows loosely arranged dotted and few curved vessels. In fair-skinned individuals, evaluation of all these lesions is needed to detect any deviation from the signature pattern to identify AHM.[8]

ANSWER 3

The lack of history of dermatoses, absence of other skin lesions, milky-red appearance, PSWLs and polymorphic vascular pattern (dots, coils and linear vessels in this case) help classify this non-pigmented skin lesion as a tumour clinically and raise the suspicion of AHM. Following the PWP algorithm mentioned earlier mandates excising this skin lesion to identify its true nature.

ANSWER 4

In addition to a comprehensive skin examination, a thorough systemic inquiry is needed to identify any underlying systemic conditions, as with any dermatological presentation.

Given the findings in this case, AHM cannot be ruled out without histopathological examination. Thus, an excisional biopsy with 2-mm margins will be the gold standard for diagnosis.[9]

CASE CONTINUED

Histopathology reveals lentiginous proliferation of atypical melanocytes showing confluent growth, pagetoid spread (highlighted with SOX10) and overt cytological atypia. Features of regression are not seen in this specimen. The diagnosis is consistent with in-situ melanoma of superficial spreading type.

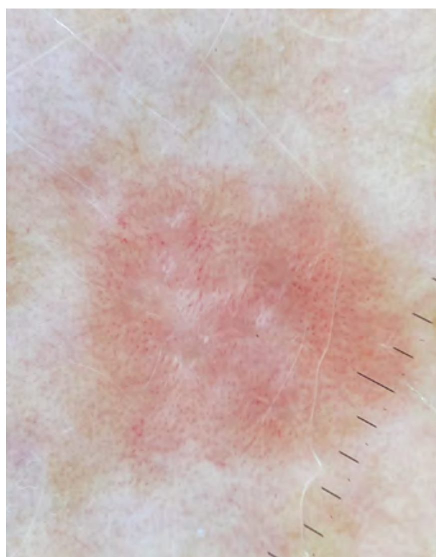

Figure 3. Polarised dermoscopic image with minor pressure and using hand sanitiser gel shows polarising-specific white lines (white lines oriented orthogonally, parallel or perpendicularly to each other[10]).

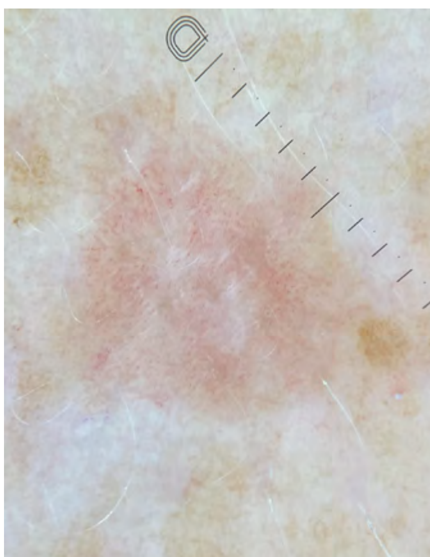

Figure 4. Polarised dermoscopic image with more pressure.

QUESTION 5

How would you proceed with your management?

ANSWER 5

Wide local excision with 5-mm margins is the mainstay treatment for melanoma in-situ as per the Australian guidelines.[9]

Patient education, emphasizing the importance of sun protection and regular self-skin examinations, is important. The patient should be encouraged to have a regular skin check every 6–12 months.

Conclusion

AHM is a rare subtype of cutaneous melanoma with minimal or no visible pigment. Literature reviews estimate AHM comprises 2–8% of melanomas. Although hypomelanotic melanoma shows some melanin, true amelanotic melanoma shows no pigmentation and is uncommon.[2]

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Key points

- Melanoma diagnosis should not be overlooked when assessing solitary non-pigmented skin lesions.
- Pressing the dermoscope against the skin obliterates important vascular clues.
- The presence of polymorphic blood vessels and PSWLs on a milky-red lesion raises the suspicion of AHM.

Author

Yazan Al-Absi MD, FRACGP, General Practitioner (Skin Cancer), The Bridge Family Practice and Skin Clinic, Mandurah, WA

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Correspondence to:
y.alabsi@uq.net.au

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correspondence **ajgp@racgp.org.au**

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