Dermoscopic features of amelanotic and hypomelanotic melanoma

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Melanomas that lack significant pigment are a diagnostic challenge. Dermoscopy, although less accurate for diagnosing these lesions than for pigmented lesions, is still superior to clinical examination.

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CASE PRESENTATIONS

Case 1

A 34-year-old woman was referred by her GP for review of an asymptomatic pink lesion on her thigh. The main concern was that the lesion had grown slightly. She had no history of significant sun exposure. Clinical examination revealed a slightly elevated pink plaque (7 x 4 mm), which appeared relatively symmetrical (Figure 1a).

On dermoscopy, the lesion was a homogeneous pink colour with a central white area, most probably caused by the pressure of the non-polarised contact dermatoscope. Numerous dotted and linear irregular vessels were visible throughout the lesion (Figure 1b).

The lesion was excised with a 2 mm margin. Histopathological examination showed a 0.3 mm level II melanoma.

Case 2

A 40-year-old man presented for assessment of a pink–brown lesion on his leg. The lesion was asymptomatic but gradually enlarging. He had a history of nonmelanoma skin cancer. Examination revealed a non-tender pink–brown plaque (6 x 4 mm) with slightly irregular borders (Figure 2a).

On dermoscopy, the lesion showed asymmetry of both colour and dermoscopic structures. There was more than one shade of pink, and a brown rim and irregular border to one half of the lesion. Dermoscopy also revealed numerous dotted vessels throughout the lesion and a so-called negative pigment network pattern (where relatively light areas make up the 'cords' of the network, and darker areas fill the 'holes'). Several irregular streaks and a few brownish dots were noted in the right half of the lesion (Figure 2b).

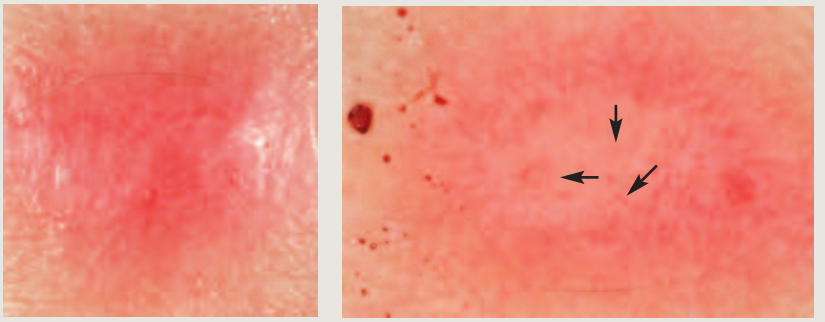
Based on clinical and dermoscopic features in conjunction with the history of growth, a diagnostic excisional biopsy was performed. Histopathological examination confirmed a 0.5 mm level II melanoma.

DISCUSSION

Amelanotic melanoma is a type of melanoma that shows little or no pigment on examination. The estimated incidence is 2 to 8% of all melanomas.[1] Despite research and educational efforts, early diagnosis of amelanotic and hypomelanotic melanoma (AHM) remains a challenge.[2-4]

Recent genetic studies have shown

CASE 1



Figures 1a and b. a (left). Slightly elevated, relatively symmetrical pink plaque (7 x 4 mm) on the patient's thigh. b (right). On dermoscopy, the lesion appeared homogeneously pink. Numerous dotted and linear irregular vessels (arrows) suggested amelanotic melanoma.

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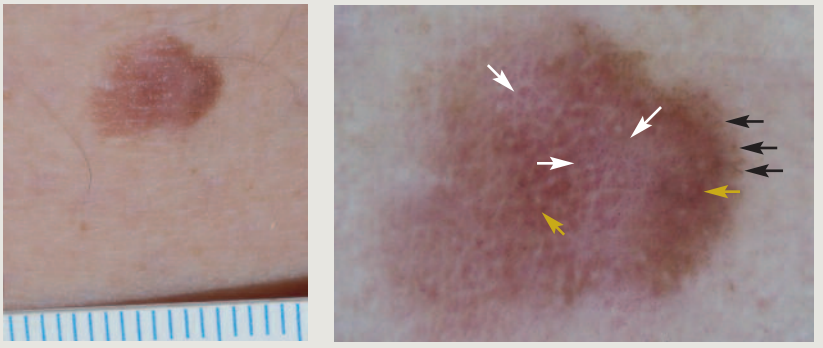
CASE 2



Figures 2a and b. a (left). Non-tender pink–brown plaque (6 x 4 mm) with slightly irregular borders on the patient's leg. b (right). Dermoscopy showed the lesion's asymmetry, with multiple shades of pink, a brown rim and irregular border to one half. Numerous dotted vessels (yellow arrows), a negative pigment network (white arrows) and irregular streaks and brown dots (black arrows) all suggested a hypomelanotic melanoma.

that melanoma predisposition is influenced by genes such as *CDKN2A, CDK4* and *MC1R*. The *MC1R* (melanocortin-1 receptor) gene is responsible for much of the diversity in human pigmentation and plays an important role in determining the ratio of eumelanin and phaeomelanin produced. Some polymorphisms in the *MC1R* gene (such as D84E, R151C, R160W and D294H) result in increased production of phaeomelanin, which is less sun protective and largely responsible for red hair colour, pale skin and poor tanning ability. It is well known that, in conditions where melanocytes produce predominantly red and yellow phaeomelanin, such as in people with red hair, melanocytic lesions can be less pigmented and more difficult to identify.[5] Recent case reports further support the genetic research findings, such as a case of completely amelanotic melanoma in an individual heterozygous for *MC1R* and tyrosinase alleles.[6]

AHM may resemble a range of other skin conditions, including superficial basal cell carcinoma (BCC), actinic keratosis, Paget's or Bowen's disease and pyogenic granuloma. It can even be interpreted as eczema or psoriasis.[7,8] Although dermoscopy has lower diagnostic accuracy for melanoma lacking significant pigment than for more pigmented lesions, it is still superior to clinical examination alone for the diagnosis of AHM.[9,10]

Dermoscopic features shown to be more prevalent in completely amelanotic melanomas are predominantly vascular structures, such as milky red areas (also described as a pink–white veil[11]), linear irregular vessels or the combination of dotted and linear irregular vessels. In hypomelanotic melanomas, features that reflect pigmentation, such as irregular pigmentation, irregular dots and globules, regression structures and a blue–white veil, are also helpful in making the diagnosis.[9] Menzies and colleagues designed a simple dermoscopic model for diagnosis of AHM which is outlined in the box on this page.[10] This model has a sensitivity of 70 to 75% and a specificity of 56 to 66%.

Data conflict as to whether AHM has a worse prognosis than its pigmented counterparts. Many patients present in the later stages and have lower survival rates. This could be due to greater aggression of amelanotic tumours, with a larger proportion metastasising, or it could equally be due to treatment delay secondary to late presentation and delayed diagnosis.[12,13]

Although AHM tends to occur more often in sun-exposed skin, especially in older people with photodamage, it can affect people at any age and with varying degrees of sun exposure, and it can occur anywhere on the body.[1,8,9]

SIMPLE DERMOSCOPIC MODEL FOR DIAGNOSING AMELANOTIC AND HYPOMELANOTIC MELANOMA*[10]

Negative features (if present, suggests nonmelanoma)

- Multiple (> 3) milia-like cysts

Positive features (if any one present, suggests melanoma)

- Irregularly sized or distributed brown dots or globules
- Multiple blue–grey dots
- Irregularly shaped depigmentation
- Blue–white veil
- More than one shade of pink
- Predominant central vessels
- Dotted and linear irregular vessels

* Model developed by Menzies and colleagues.[10] It has a sensitivity of 70 to 75% and specificity of 56 to 66%.

KEY POINTS

- Common dermoscopic features of amelanotic and hypomelanotic melanoma are dotted and linear irregular vessels, usually associated with a central pink–white veil.
- Patients with a history of skin cancer or significant sun exposure need regular skin checks by a dermatologist or experienced GP.
- Medical practitioners should have a low threshold for biopsy of unusual amelanotic or hypomelanotic lesions.
- The dermoscopic model developed by Menzies and colleagues is a useful guide for diagnosing amelanotic and hypomelanotic melanoma (see box on this page). MT

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References are included in the pdf version of this article available at www.medicinetoday.com.au.

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