Correlation of the clinical, dermatoscopic, confocal images and histolopathology features of a hypomelanotic invasive melanoma with a maximum in vivo diameter of 4.0mm

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INTRODUCTION

- Amelanotic and quite hypomelanotic melanoma are known to be more difficult to identify at the bedside compared to pigmented melanomas[1]. They are also often diagnosed at a more advanced stage. At present, there have been no studies which have focussed on the concurrent use of dermatoscopic and reflectance confocal microscopy (RCM) features of melanotic and hypomelanotic melanomas with in vivo diameters of less than 6.0mm.

CASE STUDY

- A 32 year old female presented with a personal history of a single melanoma in-situ excised from the left upper back two years prior. Over the past six months, the patient noticed a long-standing brown macule on the left calf had acquired a prominent pink colour. The patient denied any macule tenderness, irritation or bleeding. She did not recall a trigger for this colour change.

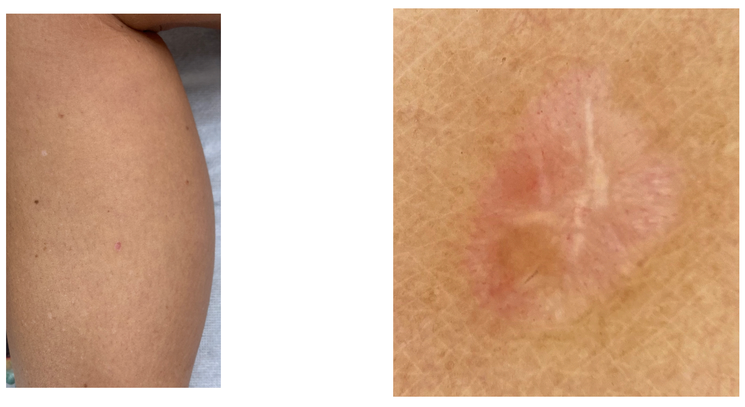

Figure 1: Clinical and dermatoscopic images

- On dermatoscopy (Dermlite DL4), the macule was predominantly pink with an area of light brown (<20% of the total lesion) with central polarised white lines. Polarised white lines are typically associated with basal cell carcinomas and melanomas. The dermatoscopic image also displayed homogeneous, monomorphic dot blood vessels scattered throughout the lesion. This vascular pattern can be seen during dermatoscopic examination in several entities including thin melanomas (Breslow thickness <1mm), dermatofibroma, psoriasis, spongiosis and irritated naevi. Additional diagnostic information was sought by examination of the macule using a Vivascope 1500 confocal microscopy.
- RCM examination of the macule found live in vivo increased velocity blood flow in dilated vessels in a horizontal orientation. The increased blood velocity in the dilated vessels with an atypical morphology compared to normal background skin are three clues to malignancy and not expected in benign entities

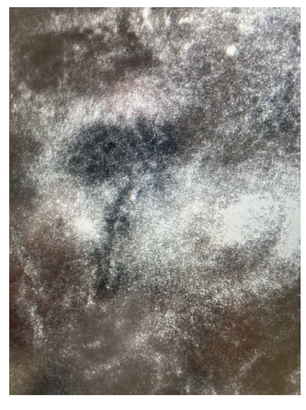

Figure 2: Confocal image demonstrating dilated blood vessels

- The information collated provided a compelling justification for a full excisional biopsy. The tissue was initially examined with haematoxylin and eosin staining followed by SOX 10 and PRAME stains. Histopathology confirmed a superficial spreading melanoma with a Breslow thickness of 0.3mm, absent tumour induced ulceration and a mitotic count of 0mm^2

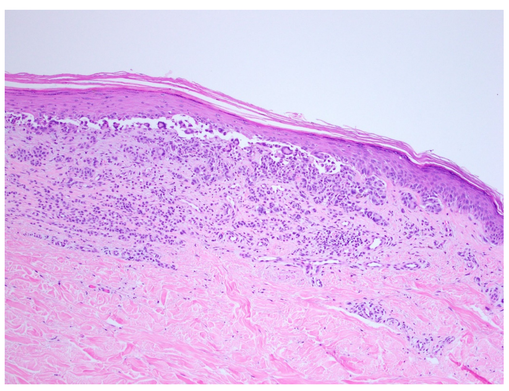

Figure 3: H&E stain demonstrating confluent melanocyte growth pattern, single cell upward migration and dermal invasion (x100 magnification)

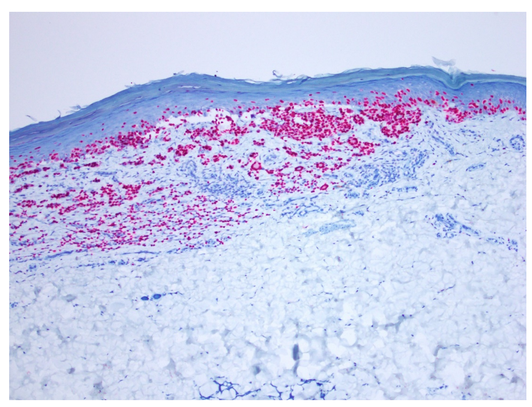

Figure 4: Sox 10 (red chromatin) highlighting confluent melanocyte growth pattern and single cell upward migration (x100 magnification)

- Optimal management of early melanoma detection is facilitated when both the clinician and histopathologist obtain and share important information. Guitera et al, 2016[2] demonstrated the advantages of synergistically utilising dermatoscopy and RCM in analysing amelanotic and light coloured skin lesions. In cases of misclassification by either modality, histopathology was able to confirm the correct diagnosis.

CONCLUSION

- This case study demonstrates that a 4.0mm hypomelanotic melanoma can be diagnosed when correlating all available diagnostic information. Piecing together information from different modalities may provide more clarity during the diagnostic process.
- Optimal early melanoma diagnosis can be achieved when clinicians and histopathologists share relevant information such as clinical, dermatosopic and RCM images.

References

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2.Guitar P, Menzies S, Argenziano G et al. Dermatoscopy and in vivo confocal microscopy are complementary techniques for diagnosis of difficult melanotic and light-coloured skin lesions. British Journal of Dermatology. 2016; 175(6), 1311-1319

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