

INVESTIGATION INTO THE IDENTIFICATION OF SIASCOPIY FEATURES IN MELANOMAS BY REGISTERED NURSES

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Introduction:

Increased public education has raised awareness of the dangers of sun exposure and the possibility of melanoma. This has resulted in the beneficial effect of many more melanomas being detected and removed at an early stage but has also resulted in large numbers of benign moles "swamping" pigmented screening clinics. Experienced clinicians can identify melanoma with a high degree of confidence, however their time is often stretched by filtering out clearly benign cases. This study investigates the efficacy of utilising trained nurse practitioners to screen pigmented lesions through the use of the non-invasive imaging modality SIAscopy.

A study investigating the use of this device in the diagnosis of melanoma was undertaken at Addenbrooke's Hospital and West Norwich Hospital, UK in which patients presenting with pigmented lesions for excision were imaged with a SIAscope. The results showed that melanomas characteristically display combinations of the following features: 1) Melanin in the papillary dermis, 2) Displacement of blood within invasive regions in combination with an erythematous blush at the periphery of the lesion, and 3) Collagen holes within the papillary dermis.

This dataset was originally analysed by two doctors trained in SIAscopy, unaware of the status of the lesion or patient history, and the sensitivity and specificity for individual features was calculated. The most obvious feature, dermal melanin, achieved a sensitivity of 96.1% and specificity of 56.8%.

The same dataset of 323 pigmented lesions, which included 52 melanomas was analysed by registered nurses to investigate whether they could reliably identify these specific features.

The nurses easily identified lesions with dermal melanin resulting in a sensitivity of 96.1% and a specificity of 53.9% but were poor at identifying collagen holes, blood displacement and the erythematous blush.

Superficial spreading melanoma, Clark's level II, 0.3mm Breslow. Compound Naevus
Dermatoscopy image on left, SIAgraphs on right.



Dermal melanin shown in blue



Note complete lack of dermal melanin. Around 50% of the compound naevi in the dataset have no dermal melanin, as the melanocytes in the dermis have ceased to produce melanin.

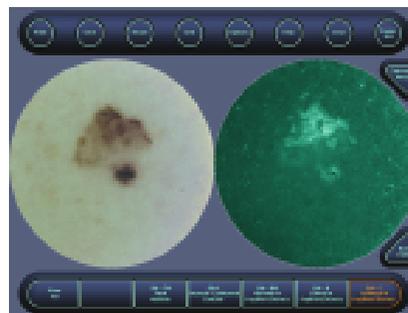


Note displaced blood (white) and erythematous blush (red). Black crescent is artifact due to light leakage.

Superficial spreading melanoma in situ



Note presence of dermal melanin in this melanoma in situ. Most melanomas in situ show some dermal melanin, due to pigmentary incontinence.



Note collagen hole (black)

Conclusion

These results suggest that the use of SIAscopy could be used in nurse-led clinics to screen pigmented lesions for suspected melanomas. Any patients displaying dermal melanin would then be referred on to the doctor. In addition the doctor would study all of the images at the end of the day and if any disagreements occur in the interpretation of the images the patient could be recalled. A beneficial effect of this approach may be to allow a larger cohort of patients to be examined without increasing the workload of experienced clinicians.