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Dermatoscopy and Skin Cancer

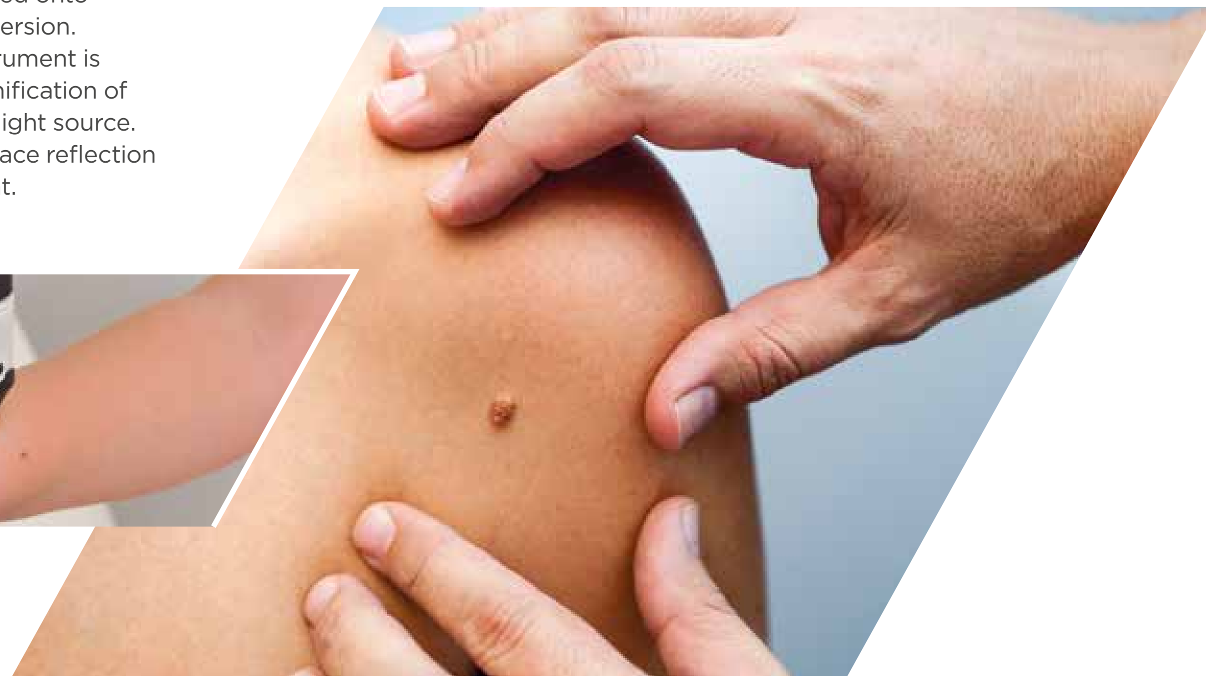
Dermatoscope

The German dermatologist Johann Saphier published in 1920 the term 'Dermatoskopie' whereby he used a binocular microscope with a built in light source to examine the skin and made interesting observations on anatomical structures of the skin in inflammatory conditions of lupus erythematosus and lichen planus. Dermatoscopy is a useful '*in vivo*' method that allows visualisation of skin structures not normally visible to an unaided eye.

Structures in the epidermis and dermis can be evaluated using non polarised light that requires immersion (using ultrasonographic gel, oil or water placed onto the skin) or polarised light not requiring immersion. The dermatoscope which is a hand held instrument is placed on the skin which allows 10 fold magnification of a pigmented lesion with a trans-illuminating light source. The fluid placed on the lesion eliminates surface reflection and renders the stratum corneum translucent.

Why use the dermatoscope as a GP?

- It can enhance the ability to detect skin cancer, in the early detection of melanoma and basal cell carcinomas and screening patients with multiple melanocytic lesions, provided there is adequate training
- It has been shown to reduce the benign to malignant excision ratio by improving the ability to recognise suspicious lesions and reduce unnecessary surgical excisions



Clinical Diagnosis of Melanoma

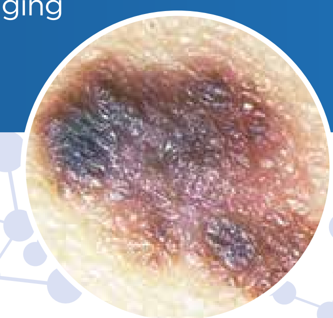
The incidence of melanoma is fast increasing and the prognosis of melanoma depends on early recognition with smaller tumour thickness (Breslow) associated with better prognosis.

The 'ABCD' mnemonic was designed in 1985 to help recognise several clinical features of melanoma and a later 'E' was added in 2004 for evolution, to describe certain changes in the lesion over time. The clinical algorithm has a sensitivity of 65-80% depending on the clinician's expertise. This algorithm can fail to identify small melanomas of <6mm diameter which account for 11.4% to 38.2% of all melanomas.

The ABCDE mnemonic is a useful tool to determine which patients should be referred via the 2 week wait skin cancer screening clinics.

ABCDE mnemomic

- Asymmetry
- Border irregularities
- Colour variation – more colours, more suspicious
- Diameter >6mm
- Evolving – lesion is changing in size, shape or colour

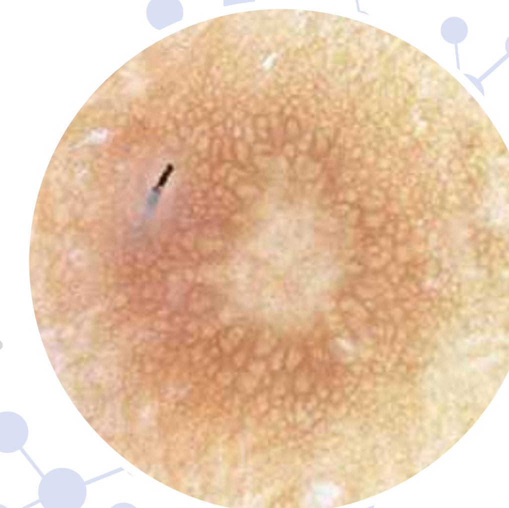


2 Step Dermatoscopy Algorithm

This is a useful algorithm to guide whether patients can be reassured or be further monitored or biopsied.

1st step : Melanocytic lesions vs non-melanocytic lesions
The first step is to determine whether the lesion is melanocytic or non-melanocytic

- **Non-melanocytic lesions: dermatoscopy clues**
Dermatofibromas – sharply demarcated central white patch surrounded by a light brown pigment network. The lesion is typically hard to feel and dimples when pinched



• **Basal cell carcinoma – arborising blood vessels**

• **Seborrhoeic keratosis – milia like cysts, comedo like opening,**

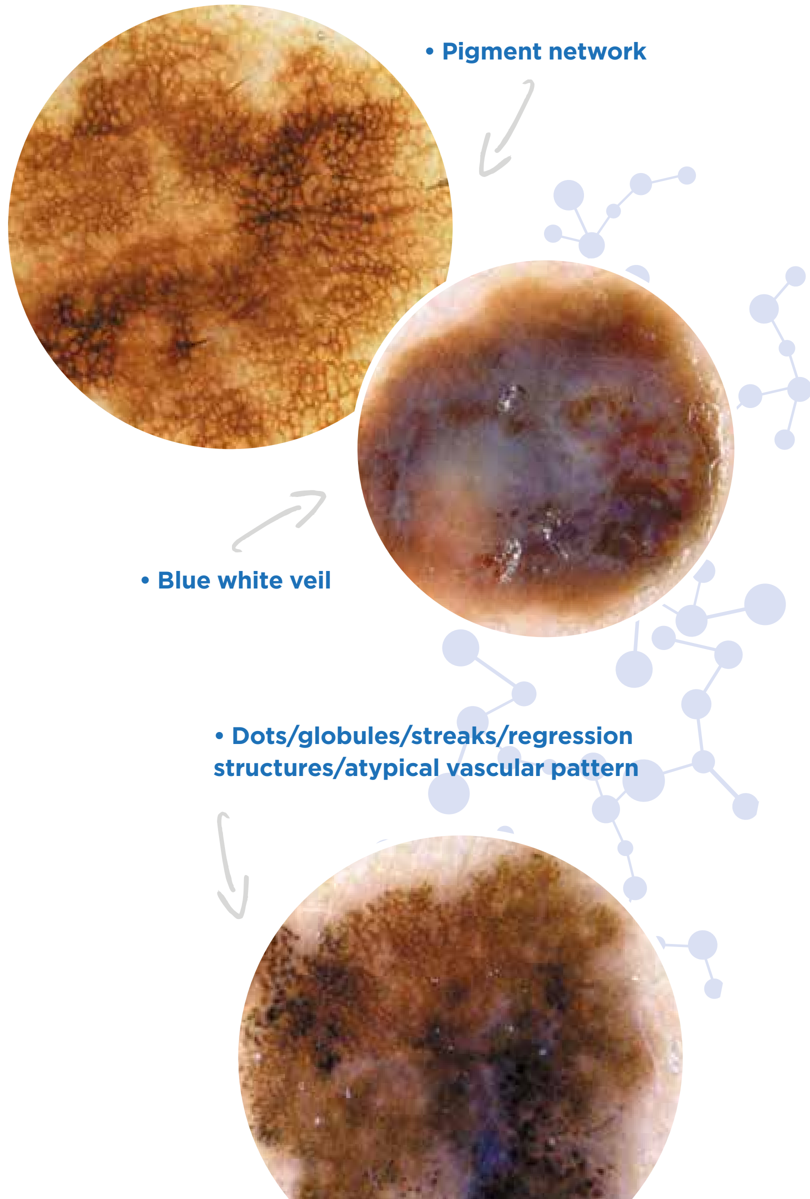
• **Seborrhoeic keratosis – gyri and sulci**

• **Basal cell carcinoma – maple leaf like structures, blue-gray ovoid nests**

• **Angiomas – well demarcated lacunae**

Melanocytic lesion: dermatoscopy clues

Pigment Network
Blue White Veil
Dot/globules/streaks/regression structures/atypical vascular structures



• **Pigment network**

• **Blue white veil**

• **Dots/globules/streaks/regression structures/atypical vascular pattern**

2nd step: Benign vs malignant melanocytic lesion

The second step is now to determine whether it is benign or malignant and the 3 point checklist is useful in this decision making process. 3 point screening checklist is a simple, accurate and reproducible skin cancer screening tool.

- Asymmetry in the distribution of colour and/or structures
- Irregular pigment network – thickened pigment lines or irregular pigment
- Blue gray veil

If 2 or 3 are positive then the lesion should be referred.

• **Invasive melanoma: To refer via the 2 week rule Skin cancer screening clinic**

Targeting lesions for dermatoscopy

- Lesions with a history of change – size, shape, colour, itchy, bleeding, crusting or lesion with unexplained concern
- New or changing lesions in adults older than 50 yrs
- 'Ugly duckling sign' – lesions that look different from other pigmented lesions. Looking for the odd one out
- 'Little Red Riding Hood sign' – lesions that look the same from a distance but are different on closer inspection – useful in dysplastic naevus syndrome – looking for the wolf!
- Lesions that look clinically like melanoma or with clinical index of suspicion

Dermatoscopy in primary care

General practitioners play a key role in the diagnosis of skin cancer and increased use of dermoscopy in primary care could shape the future of skin cancer referrals. Beginners and Advanced Dermatoscopy courses are available via the Primary Care Dermatology Society website. Accuracy in diagnosing pigmented skin lesions improves with continued dermatoscopic skills. Remember that the learning never stops and dermatology gets more interesting with a dermatoscope in your hand!