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Dermoscopy is a valuable diagnostic aid in primary care

Tierney E, Tidman MJ. Dermoscopy is a valuable diagnostic aid in primary care.
Practitioner Mar 2020;264(1835):21-25

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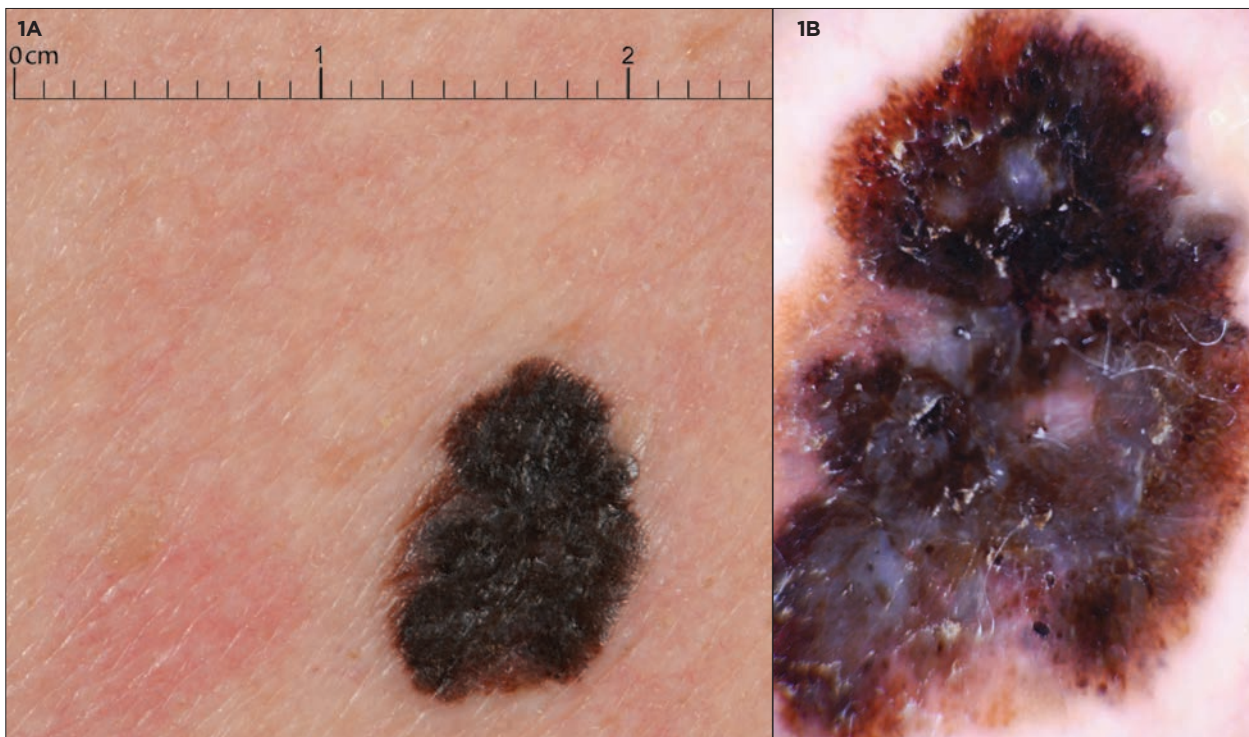
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FIGURE 1
Malignant melanoma
1A Image seen with
the naked eye
1B Dermoscopic
image showing
irregular pigmentation,
an atypical pigment
network, irregular
dots and globules,
and blue-white veil



What is the role of dermoscopy in primary care?

How can the technique speed up diagnosis?

How can findings help streamline referrals?



DERMOSCOPY (DERMATOSCOPY OR EPILUMINESCENCE MICROSCOPY) IS AN

extremely valuable adjunct to the assessment of lesions, and sometimes rashes, with the naked eye.

The dermatoscope shines a strong light into the skin and light reflected from sub-surface structures such as blood vessels, pigment and connective tissue yields considerable clinically useful information.

All dermatoscopes have a hand-held powerful light source with a magnifying lens and most have a graticule to enable measurement of lesions.

Photographic images can be obtained using the device and appropriate software enables images to be archived so that new images can be compared with stored ones.

The traditional or contact dermatoscope

has a non-polarised light source with a transparent glass contact plate that is pressed onto the skin and is brought into focus with a focusing ring. In order to reduce reflections from the skin surface and sharpen the view of deeper structures a liquid (immersion oil, alcohol gel or plain water) is required to diminish the interface between the glass plate and the skin.

The requirement for the repeated application of interface fluid can make assessing multiple lesions time consuming. Furthermore, the contact plate needs to be cleaned between patients with an alcohol swab. Pressure on the skin may obliterate vascular structures, and thus care needs to be taken when the blood vessels are an important element of the examination, for instance in suspected basal cell carcinomas.

The polarising (non-contact)

dermatoscope uses cross-polarised light to reduce light scatter from the skin surface and obtain an unobstructed view of sub-surface structures. Hence, contact with the skin is not absolutely necessary, dispensing with the need for applying an interface medium.

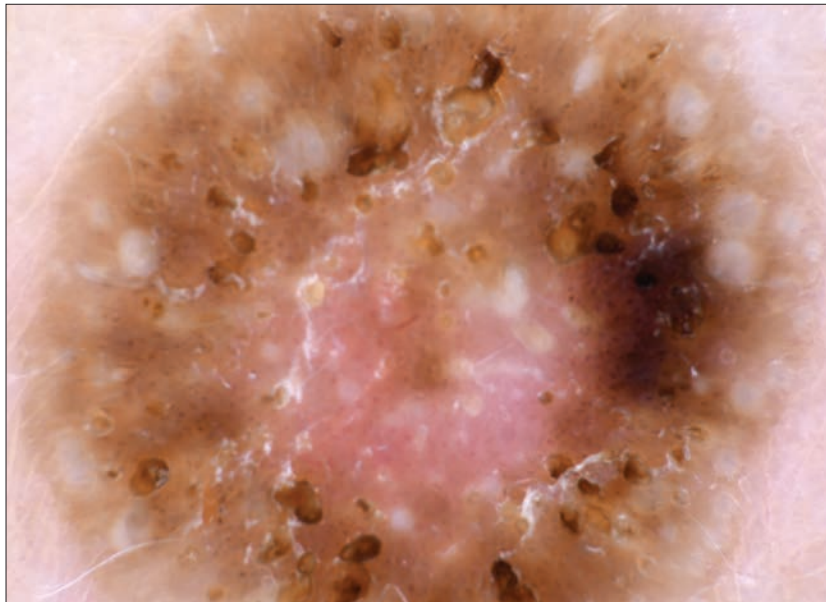
Multiple lesions can be examined quickly, and some dermatoscopes have a retractable spacer, which not only facilitates examination by enabling quicker focusing but also provides a means of steady focusing for photography. The non-contact aspect makes it easier to view lesions within concave regions such as the inner canthus of the eye and the finger and toe webs.

Hybrid devices that have polarising and non-polarising capabilities are available.

Dermoscopy as a clinical tool was developed primarily to evaluate



FIGURE 2
Seborrhoeic keratosis
Dermoscopic image showing typical milium-like inclusions and pseudofollicular openings



pigmented lesions, particularly suspected melanoma, and compared with unaided vision this technique undoubtedly enhances diagnostic accuracy.

However, it is also useful in many other clinical situations, including the evaluation of a variety of benign and malignant skin tumours, certain inflammatory conditions, hair disorders, connective tissue diseases, and some common infections and infestations.

FIGURE 3
Melanocytic naevus
3A Image seen with the naked eye
3B Dermoscopic image showing a reticular and cobblestone pattern of pigmentation

PIGMENTED LESIONS

When a patient presents with a new or changing pigmented lesion, the imperative is to establish whether there is a possibility that it is a malignant melanoma. Melanomas can vary considerably in clinical and dermoscopic appearance, but there is almost always

asymmetric pigmentation together with other characteristic features evident with the dermatoscope (see figure 1, p21).

Benign lesions that can be confused with melanoma include seborrhoeic keratoses (see figure 2, above), melanocytic naevi (see figure 3, below), dermatofibromas (see figure 4, opposite) and angiomas (see figure 5, opposite), all of which can usually be differentiated from melanoma on dermoscopic examination.

OTHER LESIONS

Basal cell carcinoma is the most common malignant tumour of the skin. It can usually be diagnosed with confidence on dermoscopic examination by a characteristic pattern of arborising vessels (see figure 6, opposite).

Inflammatory conditions

Dermoscopic examination can sometimes be very helpful in aiding diagnosis of inflammatory disorders. For instance, the presence of small discrete translucencies (representing spongiosis) occurs with eczema reactions (see figure 7, p24), subtle pustulation may confirm palmoplantar pustulosis (see figure 8, p24) and visualisation of micropustules on the face on a background of telangiectasia enables a diagnosis of rosacea.

The presence of follicular plugging evident dermoscopically may contribute to a diagnosis of discoid lupus erythematosus.

Hair disorders

Dermoscopy can be helpful in the evaluation of certain hair disorders. Exclamation mark hairs in alopecia areata are readily visualised, as is the miniaturisation of hairs that typifies androgenetic alopecia and the perifollicular inflammation that is characteristic of frontal fibrosing alopecia.

Connective tissue diseases

Dilated nail fold capillaries are a feature of a number of connective tissue disorders, and can be visualised easily through a dermatoscope (see figure 9, p25).

Infections and infestations

Any difficulty in distinguishing plantar viral warts from callosities is easily resolved by dermoscopy, as viral warts are characterised by thrombosed capillaries, which manifest as black or dark red spots. Doubt about a diagnosis of molluscum contagiosum can be allayed by visualisation of a central

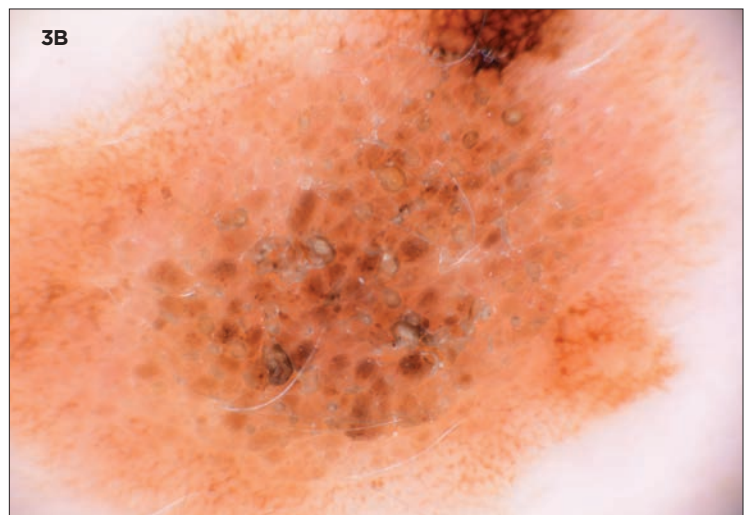


FIGURE 4

Dermatofibroma

4A Image seen with the naked eye

4B Dermoscopic image showing a peripheral dotted vascular component and central scar-like area

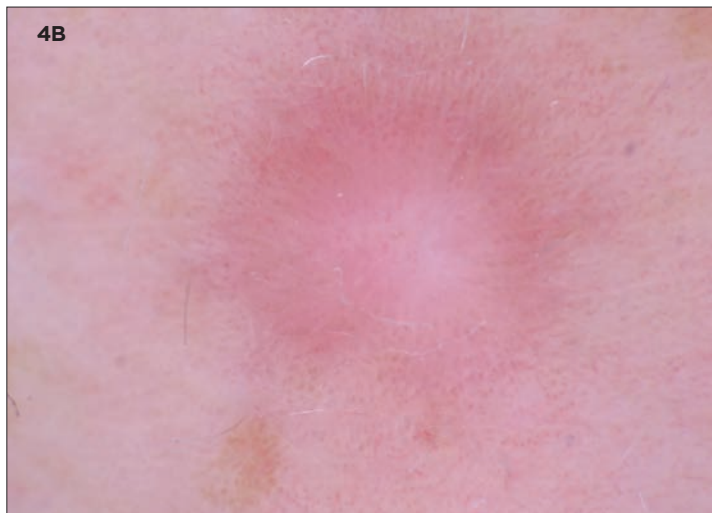
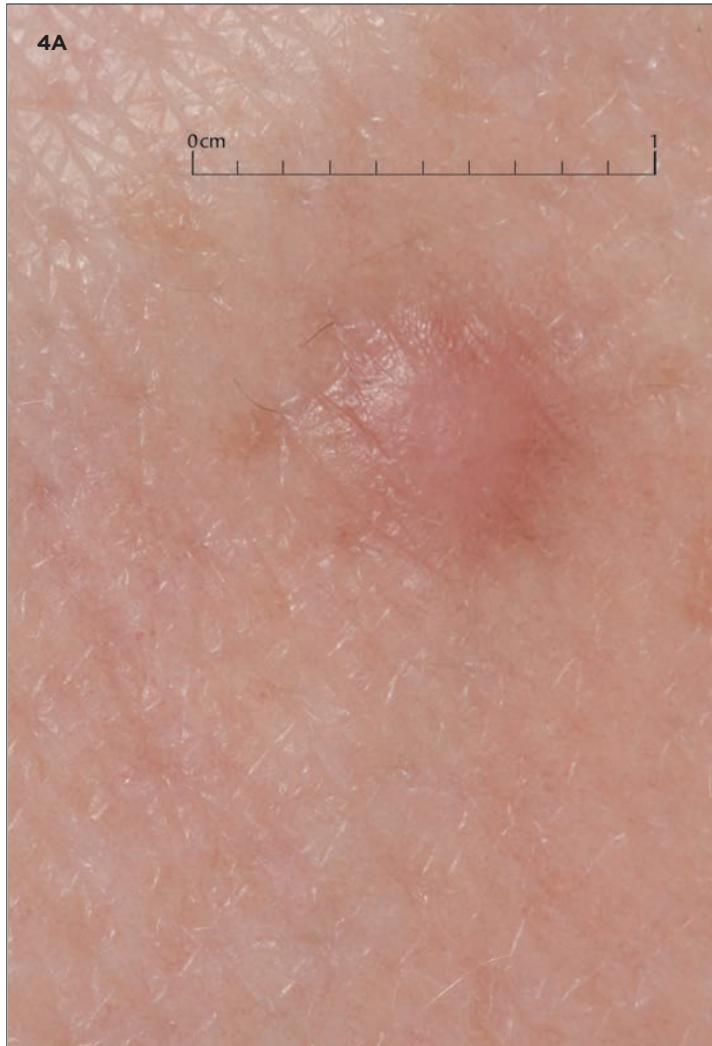


FIGURE 5

Angioma

5A Image seen with the naked eye

5B Dermoscopic image revealing characteristic purple vascular spaces



FIGURE 6

Basal cell carcinoma

Dermoscopic image showing typical arborising telangiectatic network



FIGURE 7

Eczema

7A Image seen with the naked eye showing non-specific skin thickening.
7B Dermoscopic examination showing small areas of translucency that represent spongiosis, the hallmark of an eczema process

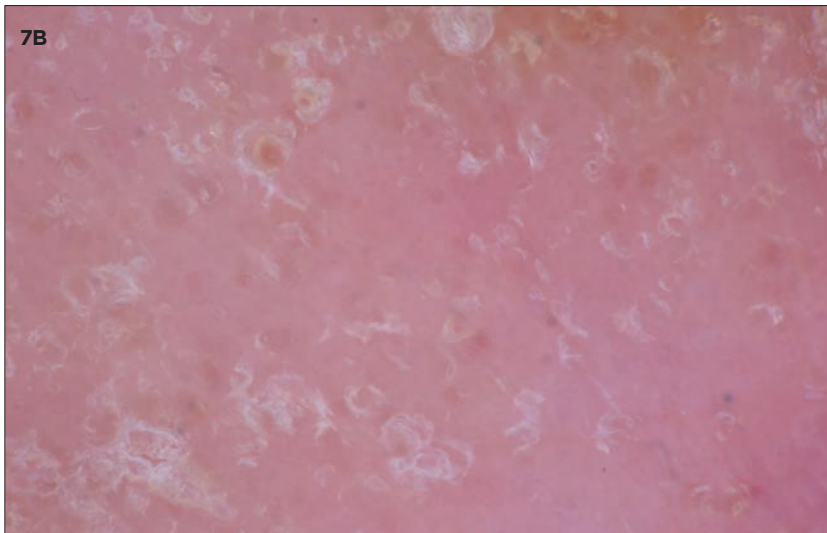
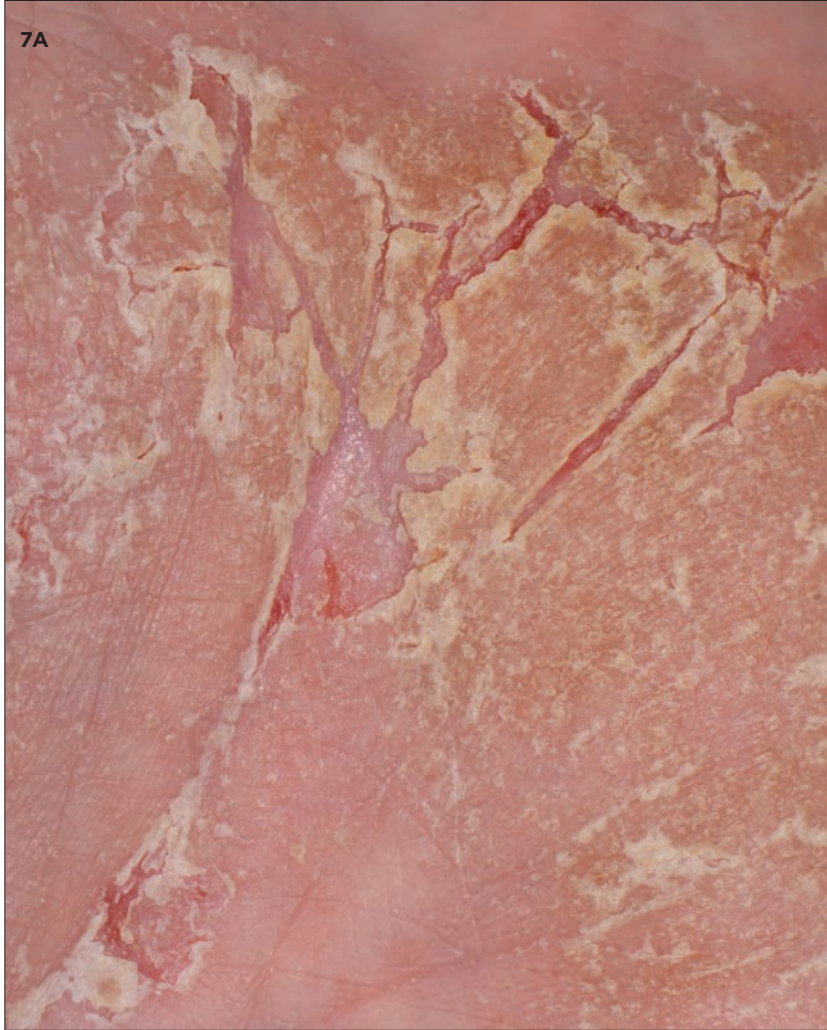
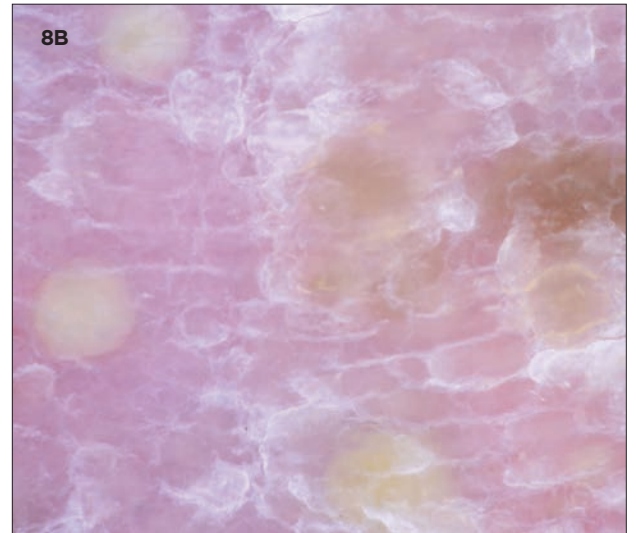


FIGURE 8

Palmoplantar pustulosis

8A Image seen with the naked eye
8B Dermoscopic image showing creamy-coloured foci of pus



key points

SELECTED BY

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Dermoscopy as a clinical tool was developed primarily to evaluate pigmented lesions, particularly suspected melanoma. It is also useful in many other clinical situations, including the evaluation of a variety of benign and malignant skin tumours, inflammatory conditions, hair disorders, connective tissue diseases, and common infections and infestations.

Melanomas can vary considerably in clinical and dermoscopic appearance, but there is almost always asymmetric pigmentation together with other characteristic features. Benign lesions that can be confused with melanoma include seborrhoeic keratoses, melanocytic naevi, angiomas and dermatofibromas. Basal cell carcinoma is the most common malignant tumour of the skin. It can usually be diagnosed on dermoscopy by a characteristic pattern of arborising vessels.

Subtle pustulation seen on dermoscopy may confirm palmoplantar pustulosis. Visualisation of micropustules on the face on a background of telangiectasia enables a diagnosis of rosacea. Follicular plugging may contribute to a diagnosis of discoid lupus erythematosus.

Dermoscopy also has a role in the evaluation of certain hair disorders. Exclamation mark hairs in alopecia areata are readily visualised, as is the miniaturisation of hairs that typifies androgenetic alopecia and the perifollicular inflammation that is characteristic of frontal fibrosing alopecia.

The dermatoscope can be attached directly to a digital camera or a dedicated dermatoscopic lens can be obtained for a camera. Adequate images can also be captured extremely easily and quickly by a smartphone encased in a connection kit, which locks onto the dermatoscope. Images can be archived or exported for a second opinion and can also be shown to, and discussed with, the patient.

Useful information

Dermoscopy UK

Basic and advanced courses and other resources for healthcare professionals

www.dermoscopy.co.uk

Cardiff University

An Introduction to Dermoscopy online course
cardiff.ac.uk/news/view/1205409-online-course-an-introduction-to-dermoscopy

Primary Care Dermatology Society

The PCDS provides a series of day courses at different levels (basic, intermediate, advanced), and has a bank of dermoscopic images

www.pcds.org.uk

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FIGURE 9

Dermatomyositis

Dermoscopic image showing typical nailfold telangiectasia

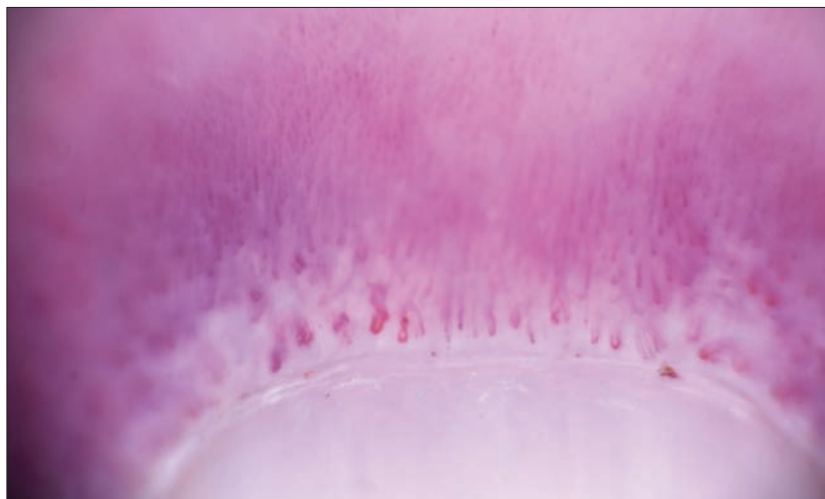
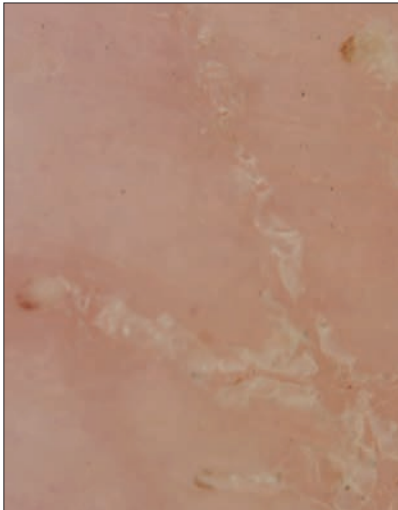


FIGURE 10

Scabies

Dermoscopic image showing the diagnostic arrowhead appearance of the front of the scabies mites in their burrows



depression (umbilication) on each lesion.

Dermoscopy can reveal the presence of the scabies mite in the skin of a patient with itching. Visualisation of the mite provides a watertight diagnosis and you can reassure the patient straightaway about the condition and the cure. The typical dark arrowheads (see figure 10, above) represent the front parts of the mite.

Dermoscopic examination of an itchy scaly scalp is also helpful to exclude the possibility that the 'scale' is not in fact the nits of head lice.

PHOTOGRAPHY

Photography is an integral part of dermoscopy and is particularly helpful in

monitoring change in pigmented lesions. The dermatoscope can be attached directly to a digital camera, or a dedicated dermatoscopic lens can be purchased for a camera. However, adequate images can be captured extremely easily and quickly by a smartphone encased in a connection kit, which locks onto the dermatoscope. Such images can then be archived or exported for a second opinion. The image can also be shown to, and discussed with, the patient.

CONCLUSION

Dermoscopy can become an invaluable tool in primary care and can play a key role in cutaneous examination.

As well as providing a unique window on a fascinating world invisible to the naked eye, dermoscopy adds an important extra dimension to assessing skin problems.

It can provide a wealth of clinically useful information. The fine detail seen can be vital in trying to distinguish seborrhoeic keratoses, angiomas, dermatofibromas and melanocytic naevi from malignant lesions, and in diagnosing basal cell carcinomas.

With appropriate training the use of dermoscopy in general practice has the potential to improve the assessment of skin lesions and help streamline referrals to secondary care.

A wide range of training courses are available (see Useful information box, left).

Competing interests: None

Further reading

Bowling J. Diagnostic Dermoscopy: The Illustrated Guide. Wiley-Blackwell. 2012