CONTINUING PROFESSIONAL UPDATE

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Skin Assessment

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Introduction

In the last Continuing Professional Update (CPU) article [1], Anthony Maher gave an overview of the podiatric consultation and clinical clerking process covering the essential aspects. In this follow up article, the dermatological assessment is explored in more detail. Skin disease is a common reason for patients to seek advice and treatment from a healthcare professional although often it is not covered in detail on many medical and healthcare curricula. Published data examining patient trends in general practice have demonstrated that skin diseases are the most common reason for new consultations in England accounting for nearly a quarter of all appointments, with an increasing trend observed since 2006 [2]. Around 13 million GP visits with skin problems occur annually. Other work suggests that around 54% of the UK population experiences a skin condition in any given twelve-month period. Most of these people (69%) will self-care, with only around 14% seeking further medical advice, usually from the doctor or nurse in the community, while the remainder sought help from family and friends [3]. In addition to the associated symptoms, many skin conditions can significantly affect a patient's quality of life.

Data on dermatological conditions affecting the foot are limited but the Achilles study of over 13,000 patients across Europe reported that 59% of adults attending dermatology clinics had a diagnosable dermatological condition affecting their feet [4]. This was confirmed with a larger study of over 70,000 patients demonstrating a similar rate of pedal dermatoses (box 1) [5].

There is an old adage in dermatology that says, "you can only diagnose what you know" and, as demonstrated from the list (box 1), the majority of skin problems on the foot can be attributed to just eight common causes. A comprehensive knowledge of these areas will serve a podiatrist well to be competent in assessing and diagnosing the most prevalent dermatoses in the podiatry clinic.

The impact of a skin problem on the patient should never be underestimated. A study examining the quality of life for those patients identified in the earlier surveys demonstrated that around 52% of patients had some aspect of their quality of life affected by their foot disease. Around 30% of patients experienced pain, 40% had discomfort whilst walking, 19% had their daily activities limited and 27% were embarrassed by their foot problem [6]. A larger impact on quality of life was measured in females and the elderly. Similar data can be obtained from published surveys of foot problems where the majority of foot pain and disability arise from dermatological problems [7]. Assessment of quality of life can readily be conducted during the consultation (see DLQI below). Skin disorders have a diverse range of causes and presentations. Increasing rates of skin cancers, particularly in older patients requires practitioners to be able to recognise suspicious changes to permit rapid referral.

BOX 1: MOST COMMON PEDAL DERMATOSES [5]

- Hyperkeratosis (including corns and callus)
- Fungal skin/nail infection
- Psoriasis
- Eczema
- Warts
- Ulceration
- Bacterial infection
- Pigmented lesions/tumours

Where to Start

When approaching a patient with a skin problem it is important for the practitioner to appreciate the psychological dimension of having a skin condition. What may seem trivial to people without a skin problem can have a significant impact on the patient. Moreover, many people still believe common, non-infectious skin diseases like psoriasis and eczema to be contagious or caused through poor hygiene leading to a subconscious fear or avoidance when meeting with a person with visible skin disease. Patients therefore, may be hesitant or fearful when discussing their skin problem. Consequently, healthcare professionals must approach the patient with understanding and empathy if a meaningful interaction is to be achieved. Giving time to the patient, so they feel heard, and their concerns are validated is important. Acknowledgement or discussion around how the skin problem affects the patient in a tactful and sensitive manner can go a long way to forging an effective patient-practitioner interaction. In addition, it is also worthwhile establishing what the patient is seeking from their consultation as this can easily be forgotten in the haste of a busy clinic.

Like clinical clerking, there is no set method for undertaking a skin assessment although each practitioner should adopt a structured, logical approach to ensure all the detail is collected to make a diagnosis or a list of potential diagnoses. The typical structure of a skin assessment consists of three aspects – history taking, examination and further tests.

TopTip: Dermatology, unlike other specialities is a very visual subject and so good observation skills are key. When a new or interesting condition is encountered, it is often worthwhile to take an image (with the appropriate patient permissions) and to read around the subject to reinforce the learning process and as part of ones continuing professional development. Such cases can be submitted as evidence when an HCPC registrant is called for audit.

History Taking

> "There is no substitute for a good clinical history."

A lot of information can be gathered to assist in securing a diagnosis by asking a few simple questions. In a clinical setting it is all too easy to be drawn to a patient pointing out a new lesion or a rash. This diversion means that the history may be relegated or neglected from the assessment meaning much of the useful detail needed for a diagnosis is omitted. Ultimately, a cursory glance initially at the presenting problem is all that is required before returning to the history. It is advised that this should take place in a private environment with sufficient time to undertake it fully. Although specific questioning is important, much of the time is also spent listening to patients, with occasional questions to elicit the history.

With experience, the questions asked will vary with each patient but to those less familiar with skin assessment, the questions below will be supplemental to the general patient information gathered at the initial assessment which would include their social, medical and drug history (readers are referred to the previous article [1] in this series for details on this) :

1. When did it start?
2. Where did it start on the body?
3. What were the symptoms (if any)?
4. Is there anything that makes it better or worse?
5. Have you put on any creams or other medicaments?
6. What are your occupational or recreational pursuits?
7. Any recent travel?
8. Does anyone else in the family have a skin problem?
9. In addition, it is often worthwhile asking the patient their own thoughts on the problem.

- The questioning process will help to tease out relevant information. Finding out what makes a skin condition better or worse can point to a specific diagnosis. For example: psoriasis for most patients improves in the summer – sun exposure leads to a reduction in the skin lesions. Scabies is an infestation caused by the mite Sarcoptes scabiei (figure 1). A common symptom is intense itching made worse when the patient is warm (for example when in bed) as the mite becomes more active in the skin.
- Eczema is an inflammatory skin disorder which can be worsened by a number of factors including types of clothing fabrics against the skin (particularly wool and polyester), metals such as nickel, soaps and fragrances applied to the skin and cigarette smoke.
- Tinea pedis can be made worse by the application of a topical steroid. The applied steroid may reduce the inflammatory component and itching but does nothing to alleviate the active infection. In fact, the immunosuppressive effect of the steroid cream permits the rapid spread of the infection more widely. This results in an extensive skin infection known as Tinea incognito (figure 2).
- Topical antibiotics are still occasionally prescribed for localised skin infection (topical drugs such as neomycin and mupirocin). They can reduce skin infection but are notorious for causing allergic contact dermatitis when applied repeatedly.

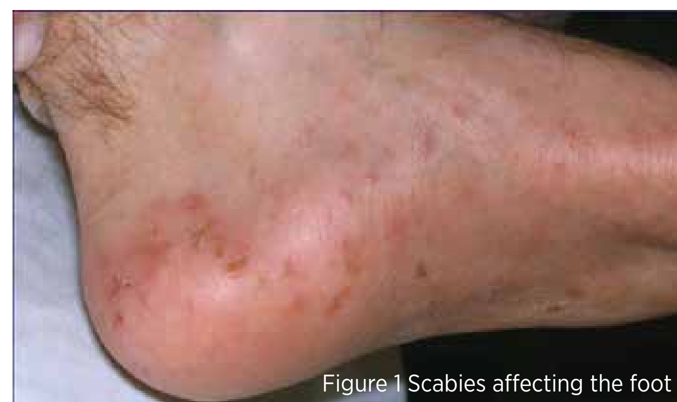
Figure 1 Scabies affecting the foot

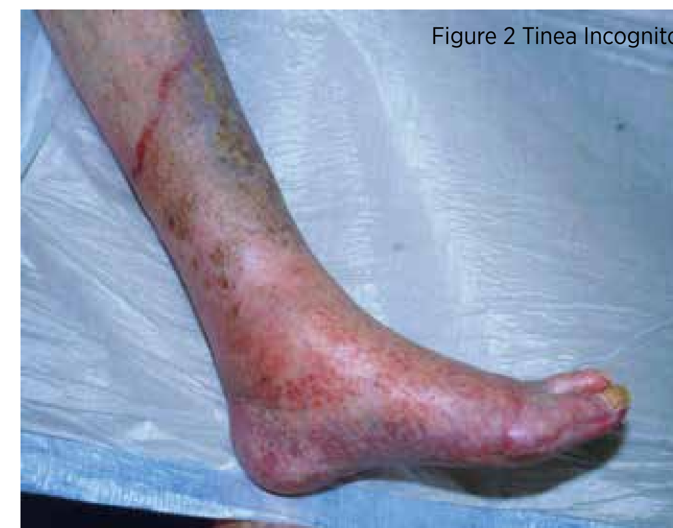
Figure 2 Tinea Incognito

Examination

Access all areas.

Examination of the skin is best carried out in natural light wherever possible. For podiatrists, often the first problem is adequate exposure of the affected skin. For example, examination of just one foot, through the removal of just a single shoe and sock may result in lesions elsewhere being missed, so it is important to examine both feet and where possible the lower leg as well. In addition, where a skin problem exists on the foot, the hands and wrists should also be assessed, including all the nails as many conditions will affect both extremities giving further clues to the diagnosis (for further details on nail assessment, readers are referred to the earlier CPU article) [8]. Where areas are not so easily accessible it is often pertinent to ask about other areas of the skin. For example, around 25% of male patients with tinea pedis will also suffer (usually intermittently) with tinea cruris ("jock itch") which is characterised by a well-demarcated rash on the inside of the thighs and genitals. Many patients are unaware of the connection between the two. Treatment to eradicate athletes' foot will be hampered as reinfection from the groin may occur due to fungal elements carried in the underwear passing over the feet during dressing and undressing.

When initially looking at a skin problem the site and number of lesions should be noted and recorded along with their size. A lesion refers to an individual area of skin disease, whereas a rash denotes a more widespread eruption. Where multiple lesions exist, the pattern or distribution should be noted (see box 2).

BOX 2: PATTERNS AND DISTRIBUTION OF LESIONS

Shape	Meaning
Annular	Circular
Linear	Arranged in a line
Nummular	Shaped like a coin or circle (discoid)
Grouped	Clustered in one area
Satellite	A main lesion surrounded by smaller lesions
Arcuate	Curved
Reticular	Net-like
Serpiginous	Snake-like
Flexural	Affecting the body folds, i.e. groin, neck, popliteal fossa, inside of elbows
Extensor	Affecting knees, elbows, ankles, heels
Dermatomal	Affecting an area served by a specific dermatome

Certain skin conditions like psoriasis and warts show the Koebner phenomenon (or isomorphic reaction). This is where injury to unaffected skin in an individual leads to the development of the skin condition at the site of trauma. Koebnerisation should be noted when apparent. Skin conditions that show isomorphic reactions include psoriasis, warts, lichen planus and discoid lupus erythematosus [9].

Common skin conditions such as psoriasis and eczema have characteristic distributions – psoriasis typically occurs on extensor surfaces of the knees and elbows as well as scalp. Whereas atopic eczema affects the flexures of the knees and elbows but is found more often on the face than with psoriasis. On the foot, both conditions can affect the dorsum and plantar areas but generally interdigital areas tend to be spared. Interdigital scale is more often associated with tinea pedis.

Describing individual lesions

Dermatological terminology can be confusing to those unfamiliar with the subject, but an understanding of the language enables clear description of skin lesions. Skin lesions can be described as primary or secondary. Primary lesions represent the initial appearance of the eruption whilst with the passage of time, lesions may become scratched, dried or crusted, for example and are recorded as secondary. Primary skin lesions give the clearest clue to the diagnosis and should be sought where possible.

Palpate and feel

As well as visual inspection, palpation and touch are very underused by podiatrists assessing skin lesions. Moreover, this is often carried out through a gloved hand which can impede proper assessment. During the dermatological

BOX 3: PRIMARY SKIN LESIONS

Macule	Flat lesion
Papule	Raised, palpable lesion
Nodule	Deeper, raised palpable lesion
Plaque	Elevated disc shaped area >1cm
Tumour	Large mass >2cm
Cyst	Sub-dermal fluid filled fibrous lesion usually attached to deeper structure
Wheal	Large oedematous bump
Vesicle	Tiny fluid filled blister
Bulla	Large fluid filled blister
Pustule	Vesicle or bulla filled with pus

assessment, gloves should be avoided where possible. In part, this may allow fine tactile sensation but it also helps to reassure patients that the practitioner is empathetic and does not consider the patient to be infectious or unclean which may be the perception. In a few conditions, smell can be helpful – usually with skin infections. For example, Pseudomonas infection, as well as producing blue-green pigmentation on the skin, produces a distinctive musty odour.

Palpation of skin lesions can add detail to the assessment. For example, does the lesion have scale? Typically, inflammatory conditions affecting the epidermis such as psoriasis, eczema and fungal infections will show varying degrees of scale which can be observed. Other scaly conditions affecting the feet include palmoplantar keratoderma, anhidrosis, ichthyosis, verrucae, corns and callus and cracked heels.

When examining a lesion, close inspection of the edges can be helpful. Tinea pedis and other fungal skin infections generally show a raised edge in comparison to the centre of the lesion. The edge of eczematous lesions tend to be less distinct when compared to psoriasis. In addition, psoriatic lesions have loosely attached silvery scale which when lifted may lead to pinpoint bleeding known as Auspitz sign.

A dermatofibroma is a small benign lesion, usually occurring following a penetrating injury. Centrally, the lesion is composed of palpable hard, scar tissue. Consequently, when it is squeezed the softer, normal tissue surrounding it rolls over the lesion – puckering the skin. Light touch of the skin can detect surface changes, but firmer pressure can often reveal if the lesion is deeply seated.

Assessment of patients with pigmented lesions and tumours

Patients presenting with lumps and bumps without a clear diagnosis should always be carefully assessed to rule out the possibility of malignancy. On the foot and lower leg common skin cancers include melanoma, squamous cell

BOX 4 : SECONDARY SKIN LESIONS

Scale	Flake of skin
Crust	Scab, dried exudate
Excoriation	Scratch marks
Fissure	Crack in dry or moist skin
Necrosis	Non-viable tissue
Ulcer	Loss of epidermis
Scar	Fibrous tissue produced by healing
Keloid	Excessive fibrotic healing
Striae	Lines in the skin without normal skin tone
Lichenification	Patchy, leather-like toughening of the skin due to excess rubbing or scratching

carcinoma and basal cell carcinoma. During the history taking, where such diagnoses are being considered it is important to direct questioning to cover sun exposure history and to question patients about any previous skin lesions they have had removed. Any patient who has had one type of skin cancer is at an increased risk of developing another. A history of change or rapid growth of a lesion is always a red flag, particularly in older adults, and should be referred where there is doubt (see the section entitled "Seeking a second opinion" below). The following tips can help in spotting a sinister lesion [10].

1. Palpation of the lesion can be helpful and give clues. If the lesion is soft, fleshy, wobbly or compressible it is likely to be benign. Malignant lesions tend to be firm.
2. Blanching is a sign of a benign lesion. If, when you place pressure on a lesion and it blanches completely, it is likely to be benign.
3. Melanoma is more common in paler-skinned individuals. Always check to see if any other moles on the same patient have a similar appearance. Watch out for a single dark mole in a fair skin individual. Moles tend to look similar in an individual. The term ugly duckling is sometimes used to describe a "mole" that does not look like the others on the patient's skin.
4. For suspicious moles colour counting can be helpful. A naevus with any three different colours is suspicious, for example:

a. pink, red and brown.
b. pink, brown and black.
c. blue, brown and black.

Figure 3 The CUBED acronym

Figure 4 Dermatoscopes

Figure 5 Pigmented lesion on the tip of the hallux

Figure 6 Dermatoscopic image of the lesion showing parallel furrow pattern strongly suggesting a benign lesion

A naevus with 3 different colours is a melanoma until proven otherwise and an urgent referral is warranted in these cases.

For suspicious lesions on the foot the use of the "CUBED" acronym (figure 3) can be helpful in deciding if an urgent referral is warranted [11]. Additional assessment of a lesion can be obtained by dermoscopy. Recent evidence [12] has shown how dermoscopy training can improve a podiatrist's skills in recognising melanoma on the foot. Increasingly podiatrists are receiving training and incorporating these skills into their practice to assist in the assessment of skin lesions.

Additional tests and Investigations

Dermoscopy

Older dermatology textbooks will often mention the use of a hand magnifier for close examination of individual skin lesions. The technique, although helpful, has a drawback in that it only allows examination of surface features. From this the modern dermatoscope has evolved – a handheld device (figure 4) which is capable of 10x magnification. The integration of polarised LEDs into the unit allows for a clearer examination of the skin than white light, with clearer visualisation of epidermal structures, particularly pigmented structures.

The device originally was developed for the early detection of melanoma [13] and other skin cancers but latterly research has been published demonstrating its successful use in the evaluation of a range of skin conditions including inflammatory skin conditions [14], moles [15], vascular lesions [16] corns and callus [17], warts [18], nail disorders [19], fungal infections [20] and many other dermatoses.

On the plantar surface, benign melanocytic naevi (moles) produce a characteristic parallel furrow pattern, which is reassuring for a benign lesion [21] (see figures 5 & 6).

Testing for the Fungal Infection

Around 40-50% of nail dystrophies involve fungal infection [22]. Consequently, when assessing toenail problems, mycological confirmation of infection is strongly recommended as visual examination alone risks mis-diagnosis [23]. Traditional diagnosis involves the collection of a nail clipping which is sent to a microbiology laboratory for a fungal culture and microscopy. The test can identify specific species and confirm the presence of infection typically within four weeks but frequently provides false negative results [24]. More recently the use of an immunochromatographic technique (lateral flow test) has been shown to be clinically accurate at identifying dermatophyte nail infection in under 5 minutes [25] (figures 7 and 8).

Wood's Light

Wood's light took its name from an American Physicist, Dr Robert Wood. It is a simple device for producing "black light" or long wave UV light in the range 320nm to 400nm (figure 9). The light emitted is low power and safe on the skin. When applied to the skin it is absorbed and reflected as visible light in certain infectious and pigmentary changes. Normal skin does not fluoresce much at all but can produce a slight blue colour. Thickened skin may appear slightly yellow. Anything that has been applied to the skin can also produce fluorescence so before use it is important to ensure the skin is clean and free of any topical applications, make-up or soap for example. In clinical practice, it is used

Figure 7 The dermatophyte Test Strip

Figure 8 The Dermatophyte Test Strip Showing a Positive Result

Figure 9 Woods Light

in a darkened room and shone onto the skin at a distance of about 25cm to elucidate any fluorescence which can be helpful in diagnosing certain skin conditions.

For the podiatrist, it has a few uses. There is a misguided belief that it can be used to detect dermatophytes on the feet, but this incorrect. The most common skin condition on the foot that it can detect is erythrasma. Typically, an interdigital eruption of a mixed fungi and bacteria infection producing damp, malodourous web spaces. With a Wood's light the condition will show up as a coral pink colour due to the presences of Corynebacterium in the web space. The second use of the light is the detection of Pseudomonas – typically found around and in chronic, damp wounds and as an occasional sub-ungual infection. The bacteria fluoresce in the presence of Wood's light making the infection easier to detect.

Dermatology Quality of Life Index (DLQI)

Assessing the severity of a skin condition can be calculated using a number of tools designed for dermatology which measure the surface area affected, but this gives little insight into how the condition itself is really affecting the patient. The DLQI is a rapid and straightforward tool which has been validated to measure the effect of a patient's skin condition on their day-to-day activities [26]. The DLQI is completed by the patient answering 10 questions about how their skin problem has affected their skin in the last week. The score is then calculated and interpreted. The DLQI is free for clinical use and is now available as a free smartphone App (available from the Apple Store® and Google Play®). The DLQI scoring system has been used for a range of dermatological conditions including onychomycosis [27].

Recording findings from the skin assessment

Once the skin examination is completed it is important for the details of the assessment to be recorded in the patient's notes. Accurate recording not only serves as a baseline and legal record of the assessment but allows thoughts to be collated into a possible diagnosis and treatment plan. For tumours, the inclusion of measurements and digital photographs can be helpful (with the appropriate patient consent).

Seeking a second opinion / Referral

When a skin problem is encountered that a practitioner is either unable to diagnose or is unfamiliar with the required treatment, it is pertinent to refer the patient on. In most cases in the UK, this is facilitated by a referral back to the patient's general practitioner. A referral can be made by contacting the GP surgery by telephone, but it is good practice always to send a written letter (copied to the patient). This serves as a record for the practitioner (and the patient) summarising what has occurred at the consultation.

For patients who present with suspicious lesions, requiring urgent referral, it is advisable to write a letter outlining the clinical history (see example referral letter - box 5). It is important to be objective stating the main features of concern without speculating on the possible diagnosis. Inclusion of photographs of the skin lesion can be helpful and good dermatoscopic images of the lesion can be invaluable to assist triaging patients. The letter should be clearly marked "urgent". Following the referral, it is advisable to check with the patient and or the surgery that a referral has occurred, and action has been taken. ■

Doctor Payne
The Surgery
Anytown
AY10 4PQ

12th December 2021

URGENT

Dear Dr Payne

RE: John Doe DOB: 23/10/48
The House, The Street, Townsley AY11 4SR
Problem: Unusual pigmented lesion on dorsum of left foot

I saw John today for an assessment of his feet. During the examination, I noticed a pigmented lesion on the dorsum of his left foot. The patient recalled that this had been there for about a year, but he felt it was getting bigger and was occasionally itchy. On examination, the lesion was 8mm in diameter and appeared to have multiple colours within it. Under the dermatoscope, the lesion displayed asymmetry, with multiple colours and an atypical pigment network. In view of these features and unclear diagnosis, I would be grateful if you would consider an urgent referral* for diagnosis of this lesion. I enclose a picture of the lesion and the dermatoscopic image.

Many thanks for your help in this matter.

Yours Sincerely

Mr I M A Footperson
HCPC Registered Podiatrist

Cc. John Doe, Patient

BOX 5: AN EXAMPLE OF A REFERRAL LETTER

**In England, an urgent referral means the patient should be seen by a specialist within 2 weeks. This 2 week time frame is not part of the waiting time targets for Scotland, Wales and Northern Ireland but patients should be seen as quickly as possible.*

Case Examples

Case Example 1

A 62-year-old man presents in clinic with a rash on his arms and legs which has developed over the last few months (figure 10). He reports the lesion is only occasionally itchy, but he is troubled by the scale that it produces. His medical history reveals he is hypertensive and has had type 2 diabetes for 10 years. He reports his father having a similar rash but could not recall much else about it. On examination, there are erythematous plaques on the extensor surfaces of his knees and elbows. These were covered in a silver scale which detached easily. Examination of other areas of the body revealed nail changes in a few of his fingers and toenails with onycholysis and pitting. Examination of the scalp also revealed lesions within his hairline. A diagnosis of psoriasis is made on the basis of the skin assessment. Psoriasis is a common skin condition affecting around 3% of the population. A family history of the condition is frequent. Nail changes concur with the clinical picture of the condition. Patients with type 2 diabetes are also at a greater risk of developing the condition [28].

Case Example 2

A middle-aged woman presented with a "new" mole on the dorsum of her foot which was changing over the short time it had been present (figure 11). In such a case it is important to stress the features that make this suspicious. Firstly, new moles in older adults are not common, most people's mole counts stabilize around the age of thirty so any new ones occurring beyond this age should be treated with suspicion. The patient had supplied this information in the history but also mentioned it was changing, a second "red flag" for melanoma. The third factor is that most melanoma in women occur on the lower limb.

In addition, dermoscopy was available (figure 12). The photograph was not dramatic but demonstrated a lesion which has varying shades of brown but was not symmetrical. The left-hand side of the lesion was what is termed "featureless" in dermoscopy (having no discernible pattern) and asymmetrical, one of the clues to melanoma. Consequently, she was urgently referred, and a biopsy confirmed a thin melanoma. The thinner the lesion at excision, the better the prognosis is for the patient. Consequently, recognising melanoma earlier greatly improves survival rates for patients.

Case Example 3

A 45-year-old female presents in the podiatry clinic concerned with the appearance of her big toenail (figure 13). She has purchased some antifungal lacquer over the counter but is concerned it is having no effect on the nail's appearance. Her medical history was unremarkable. She reported that she has been using nail varnish to camouflage the problematic toenail. On examination, the hallux was predominantly affected with some minor changes on the second toe. There was no evidence of tinea pedis anywhere on her feet and she had no previous history of it. A nail clipping was taken and tested negative for fungal infection. Close examination of the nail revealed a superficial pattern of nail erosion. A diagnosis of nail degranulation was made. Regular application and removal of nail varnish and acrylics, particularly when not entirely removed, leads to erosion of the superficial keratin of the nail plate. It is most often observed on the hallux nails and resolves in time when nail varnish is avoided. Topical urea products can also help to lift the loosened keratin improving the nail's' appearance. ■

Figure 10

Figure 10 Case 1

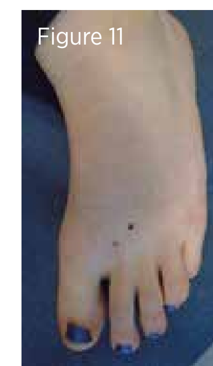
Figure 11

Figure 11 Case 2. A pigmented lesion on the dorsum of the foot

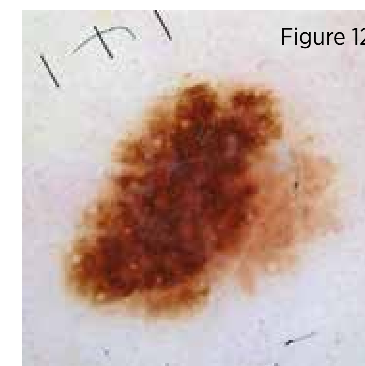
Figure 12

Figure 12 case 2. Dermoscopy of the lesion

Figure 13

Figure 13 Case 3. Nail degranulation

Recommended Resources in Dermatology

The following web resources contain a wealth of free information including images of dermatological conditions. The Primary Care Dermatology Society is a UK based charity and membership organisation offering a range of courses and events including dermoscopy training.

The Primary Care Dermatology Society (www.pcds.org.uk)
The Foot Expert (www.foot.expert)
Dermnet New Zealand (www.dermnetnz.org)

A free handbook covering skin assessment and basic dermatology is available to download from the British Association of Dermatologists. It can be accessed from: https://www.bad.org.uk/shared/get-file.ashx?itemtype=document&id=6595

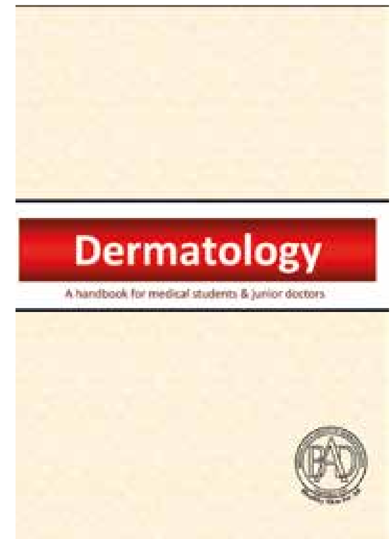

Figure 14 Free Dermatology Guide

Acknowledgement

Many thanks to Dr Stephen Hayes for the Case Example 2 from his online dermoscopy blog. (https://dermoscopy.wordpress.com/page/14/)

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