Checking pigmented skin lesions

Here is a guide to the various types of pigmented skin lesions often seen by GPs and dermatologists when performing skin checks on patients.

BRUCE TATE
PhD, FACD

Dr Tate is a Dermatologist in St Albans, Vic, and with the Skin and Cancer Foundation of Victoria.

The heightened community awareness of skin cancer makes skin checks for malignant skin lesions a common request for GPs and dermatologists. Given the range of benign pigmented skin lesions usually present in an individual and the large variation in the appearance and behaviour of both benign and malignant skin lesions, identifying skin cancers can be difficult. An added factor is that some people become overly worried about harmless blemishes and the potential of these to turn into skin cancers. Frequent too are requests to remove benign skin lesions for cosmetic reasons or because they are itchy, catching on clothing or prone to being cut. There are various options here – excision, cryotherapy, laser therapy, for example – but potential consequences of the treatments, such as scarring or changes in pigmentation, need to be considered.

The smorgasboard of skin lesions includes those listed in the box on page 39 (Figures 1 and 2). Doctors are generally familiar with the clinical features of these, but the variability of their appearance and their overlapping features may result in misdiagnosis. Pigmented lesions are usually diagnosed visually using the naked eye but other tools can be helpful, particularly dermatoscopy. Biopsy or excision may be required to make the definitive diagnosis.

Ideally skin checks should not be done on the fly; properly done, they are time consuming. However, a general examination is a good opportunity to identify a person at risk by observing whether the patient has sun damaged skin, a high mole count, dysplastic naevi and other indicators (Figure 3). A doctor's examination may be the only time a person has his or her back observed, especially if he or she does not have a partner.

Risk factors for skin cancers

The key risk factors for most skin cancers are fair skin and high lifetime sun exposure. Research suggests that melanoma and basal cell carcinoma are more likely in people who have had more frequent big bursts of sun exposure like sunburns, while

IN SUMMARY

- **Skin checks for malignancy are common requests for GPs and dermatologists, as are requests to remove benign skin lesions for cosmetic reasons or because they are itchy, catching on clothing or prone to being cut.**
- **A general examination provides a good opportunity to identify a person at risk for malignancy by observing whether he or she has sun damaged skin, a high mole count, dysplastic naevi or other indicators.**
- **A skin check is a time consuming process; preferably it should not be done on the fly.**
- **It is helpful if patients' partners are available during a skin check so that they can point out any lesions they have noted, and you can show them lesions that should be monitored over time and what to look out for regarding common skin cancers.**
- **People with risk factors for skin cancers should see their doctor for regular skin checks . They should also check their own skin and be familiar with the features of skin cancers.**

Common skin lesions

- Melanocytic naevi (such as acquired, congenital, spitz and blue naevi)
- Freckles
- Solar lentigos
- Seborrhoeic keratoses
- Stucco keratoses
- Dermatosis papulosa nigra
- Benign lichenoid keratoses,
- Warts
- Molluscum contagiosum
- Dermatofibromas
- Fibrous papules
- Keloid scars
- Soft fibromas
- Skin tags
- Haemangiomas
- Spider naevi
- Accessory nipples
- Sebaceous gland hyperplasia
- Trichoepitheliomas
- Pilomatricomas
- Epidermoid cysts
- Neurofibromas
- Solar keratoses
- Bowen's disease
- Basal cell carcinoma (Figure 1)
- Keratoacanthoma
- Squamous cell carcinoma
- Melanoma (Figure 2)

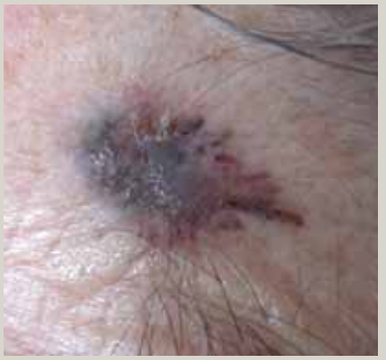

Figure 1. A pigmented basal cell carcinoma on the temple; confirmed on biopsy.

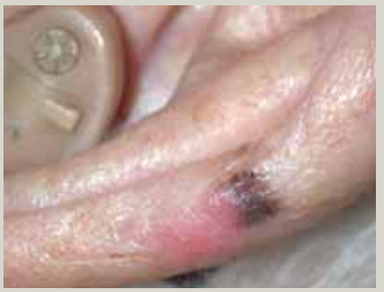

Figure 2. A level IV melanoma, 1.3 mm thick, on the ear. The elderly patient was unaware of this small lesion; clues were the irregular pigmentation and the several different colours.

squamous cell carcinoma is related more to cumulative sun exposure. Other important risk factors for melanoma are high melanocytic naevus count (more than 100, and particularly more than 150), multiple dysplastic melanocytic naevi (more than five) and family history of melanoma. Uncommon risk factors for squamous cell carcinoma are chronic immunosuppression, genital warts (for genital squamous cell carcinoma), arsenic exposure, chronic skin ulcers and genetic DNA repair disorders. People with these risk factors should see their doctor regularly for skin checks. They also need to check their own skin and so should be familiar with the features of skin cancers.

Performing skin checks

It is helpful if patients' partners are present during a skin check so they can indicate any lesions they have noticed and lesions of note can be pointed out to them as well as to the patients. It is also an opportunity to encourage patients and partners to check each other and also other family members.

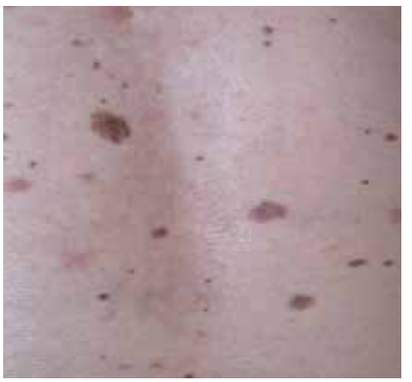

Figure 3. Multiple melanocytic naevi and dysplastic melanocytic naevi on a patient's back; the mole count was more than 300.

When I perform a skin check, I follow the steps listed below.

- Check the lesions the patient or his or her partner have concerns about.
- Identify the patient's risk factors, in particular sun exposure and sunburn history, past and family history of skin cancers, and mole count.
- Examine all of the patient's skin under good light, with the patient wearing only underwear (and a gown if requested). Examination of the lower limbs is easier if the patient lies on a couch. Ask about lesions in sites still covered and on the scalp (a hair dryer can help examination of the scalp). Also look between digits and in skin folds, explaining that skin cancers may be found in sites rarely exposed to the sun. Palpation helps in the detection of lesions – dermatofibromas feel like firm rubber and indent when squeezed laterally, neurofibromas are soft and press easily through the skin ('button hole sign') and squamous cell carcinomas are often tender. Magnifying loupes and the dermatoscope are valuable tools but training is needed for the latter to be of benefit (see the box of useful websites on page 40).
- Point out to the patient and his or her partner any lesions requiring

Papular–nodular lesions

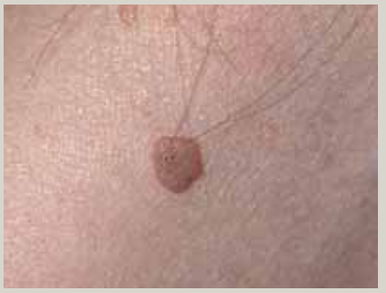

Figure 4. A nodular melanocytic naevus; flesh coloured with symmetrical tan pigment, not firm.

Figure 5. A dermatofibroma on the leg; firm on palpation, some variation in pigment and with the typical tan rim.

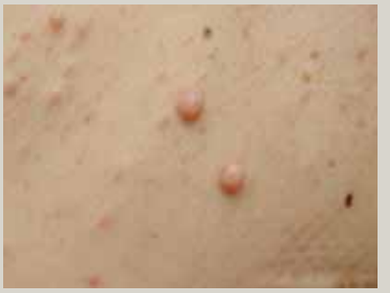

Figure 6. Neurofibromas on the back; flesh coloured, soft and with the 'button hole sign'.

Pigmented skin lesions: useful websites

For doctors

e-medicine sites

www.emedicine.com/derm/topic289.htm

www.emedicine.com/derm/malignant_neoplasms.htm

Dermoscopy tuition websites

www.dermoscopy.org

http://edinfo.med.nyu.edu/projects/dermoscopy/

www.danderm-pdv.is.kkh.dk/derma/section1/index1.html

For patients

Save your own skin website

www.cancercouncil.com.au/editorial.asp?pageid=1916

Dermnet patient information

www.dermnetnz.org/lesions/index.html

Sun Smart Victoria site

www.sunsmart.com.au

Australasian College of Dermatologists public area, A-Z of skin

www.dermcoll.asn.au/public/a-z_of_skin.asp

SkinCancerNet (American Academy of Dermatology)

www.skincarephysicians.com/skincancernet/index.html

observation but not worrying enough to remove or biopsy. Measure and document them in the patient's notes and also on a dated information sheet to give to the patient. Tracings or digital photographs can be useful and more sophisticated mole mapping technologies may be used. High risk patients should have full body photography by a professional medical photographer to establish a baseline (this will cost about $100 to $250) – the photo album each patient is given should be referred to at each skin check, whether it be a self-examination or a check by a partner or doctor.[1]

- Provide information about the various lesions found and an indication of the patient's risk of getting a skin cancer.
- Educate the patient and partner on how to distinguish between benign and malignant skin lesions. For instance, I may give advice on the various appearances and behaviours of moles, dysplastic naevi and seborrhoeic keratoses versus melanomas, or solar keratoses and Bowen's disease versus squamous cell carcinomas.
- Recommend that self-skin checks be performed every change of season, and more often if there is a high risk of skin cancers. Useful websites regarding this are listed in the box on this page. Those patients at higher risk should be checked regularly by their doctor at intervals of three months to several years, depending on the level of risk. I use a recall system if appointments are not made by the allotted time.
- Tell the patient to report any suspicious lesions to his or her referring doctor.

Some points of note

Papular–nodular lesions

Papular–nodular moles (Figure 4) are compound or intradermal melanocytic naevi and probably have no higher risk of transforming into melanoma than do other melanocytic naevi. Dermatofibromas (Figure 5), neurofibromas (Figure 6) and fibrous papules are other benign papular–nodular lesions. Be aware that some melanomas are amelanotic and can simulate a flesh coloured papular mole although they will usually be changing.

Pigmented lesions that change in appearance

Pigmented lesions that are changing in appearance may be of concern, whether or not they are raised or macular. Very slow change in an otherwise benign looking mole deserves observation. The threshold for biopsy and/or excision for lesions

that change in appearance is lower than with papular–nodular moles, and the procedure should be done if there are notable atypical features. A changing tan pigmented macule, often on the head or neck, may be a macular seborrhoeic keratosis (Figures 7 and 8), solar lentigo (Figure 9) or lentigo maligna (level I melanoma, Figure 10); these lesions can be difficult to distinguish, even with dermatoscopy, and biopsy is more often indicated, generally with the shave or punch technique.

Two-tone, irregular moles

It is common for moles to be two-tone in colour, varying from pink to dark brown-black, and to have an angular or somewhat irregular shape (Figure 11). A long history and lack of change is reassuring. While the ABCDE features of melanoma (asymmetry, border irregularity, colour variation, diameter over 6 mm, evolving [enlarging, changing]) are well known, there is a definite overlap of features with moles and melanoma (particularly if early) and experience helps greatly in diagnosis. Note that the most commonly missed melanomas are the nodular melanomas, which are changing lesions but may have little or no pigment. Amelanotic melanomas may also be macular or desmoplastic, and are often diagnosed when more advanced so are a significant threat.

Itch, pain, bleeding

If other features are benign, itch, pain or bleeding does not usually indicate melanoma. Causes of these signs in benign lesions include trauma and folliculitis in the mole or seborrhoeic keratoses, or may be related to the neural crest origin of melanocytes. Occasionally melanocytic naevi develop itchy eczema around them ('Meyerson's naevus'); this is of no concern.

Halo change

Halo change around a melanocytic naevus is common (seen in about 5% of schoolchildren) and is the result of a vitiligo-like attack on the melanocytes in the naevus and surrounding skin (it may herald the onset of vitiligo elsewhere). Halo change occasionally occurs around a melanoma, and partial depigmentation is a feature of immunologically mediated regression within a melanoma. Atypical or changing halo melanocytic naevi should be excised.

Dysplastic melanocytic naevi

'Dysplastic naevus' is a histological term that has the clinical correlate of a larger, somewhat irregular mole, flat or raised (usually centrally, like a fried egg) and sometimes with surrounding erythema. About 5 to 10% of young adults have at least one clinically dysplastic melanocytic naevus. People who have dysplastic melanocytic naevi removed are sometimes told 'it was close to turning to a melanoma'. I don't use this phrase as these are usually stable lesions with a low risk of malignant transformation. Individuals with many of these lesions are prone to melanoma, but probably most often the melanoma does not arise from the dysplastic melanocytic

Pigmented lesions changing in appearance

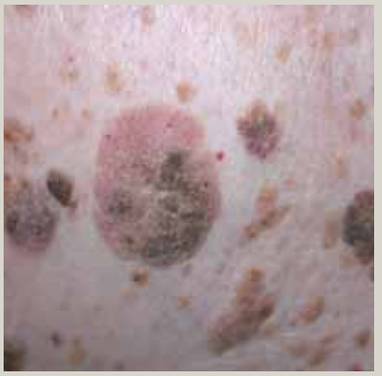

Figure 7. Seborrhoeic keratoses on the back; some variation in pigment and a warty appearance.

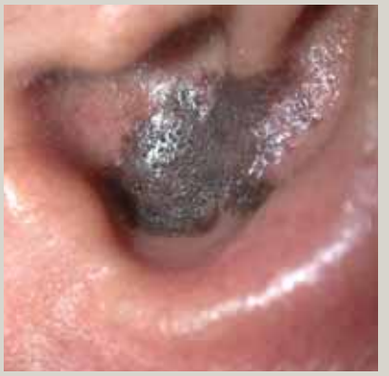

Figure 8. A seborrhoeic keratosis on the ear; resembled melanoma but confirmed on biopsy.

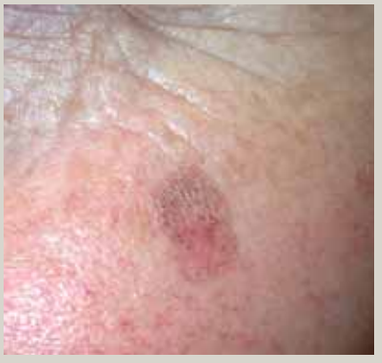

Figure 9. A solar lentigo on the face; benign on shave biopsy.

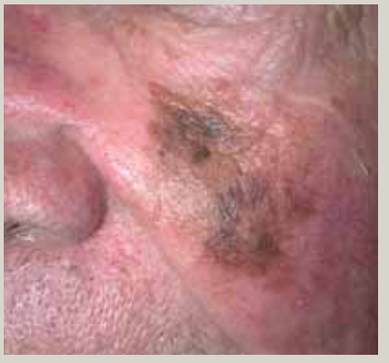

Figure 10. A level I melanoma on the face (also known as lentigo maligna or Hutchinson's melanotic freckle).

naevus itself.[2] While a melanoma may be more prone to develop in a dysplastic melanocytic naevus than in a normal melanocytic naevus, the transformation rate is low and not enough to recommend routine removal.

Other benign pigmented lesions

Other benign pigmented lesions that may be seen include the following:

- cockarde naevi – melanocytic naevi where the pigmentation is more prominent around the margin; they are symmetrical and tend to be larger than normal moles
- blue naevi – melanocytic naevi that are usually small, fairly even in colour and flat to papular; the melanocytes are deeper in the dermis and heavily melanised, causing the blue-grey colour (Figure 12)
- naevus spilus – a group of junctional melanocytic naevi on a well defined café au lait background; the lesions vary in size from small to giant, and their malignant potential is low, hence observation is generally sufficient (Figure 13)
- spitz naevi – melanocytic naevi that are usually dome or oval shaped nodules, typically firm in texture and brownish red, although they can be softer in feel or be from skin colour to dark brown or resemble a haemangioma (Figure 14); they are most often seen in people younger than 20 years (80% of cases) and are diagnosed on histopathology; they may itch or slowly change, and while excision is recommended, their malignant potential is probably quite low.

Counselling patients

It may be useful to relate some of the following facts when counselling patients who have skin lesions.

Mole count

- The average number of melanocytic naevi in Australian teenagers is around 68.[3]
- Children who live in sunnier climates have higher mole counts but also achieve their maximum melanocytic naevus count at a younger age.[4]
- Older people have lower mole counts, suggesting some moles naturally involute.
- About 15% of older teenagers have at least one clinically dysplastic melanocytic naevus.
- Congenital melanocytic naevi are found in up to 6% of newborns.
- Sometimes moles with features of congenital melanocytic naevi appear years after birth.

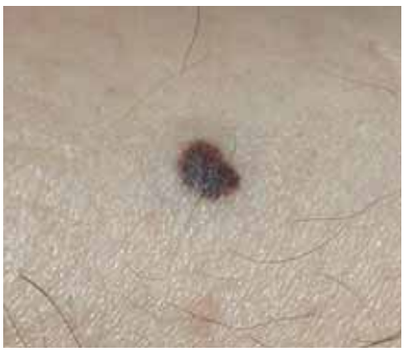

Figure 11. A dark, two-tone melanocytic naevus on the leg, which had been stable for many years.

New pigmented lesions

Acquired melanocytic naevi may appear during adult life as well as in childhood, particularly in people with a high mole count, so a new pigmented lesion is not necessarily of concern.

Mole transformation risk

- The estimated lifetime risk in a person aged 20 years of a single melanocytic naevus turning into a melanoma is roughly 1:3000 for men and 1:10,000 for women.[5]

Some benign pigmented lesions

Figure 12. A papular blue naevus on the ankle.

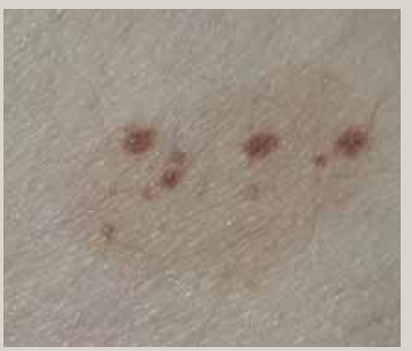

Figure 13. A naevus spilus on the thigh.

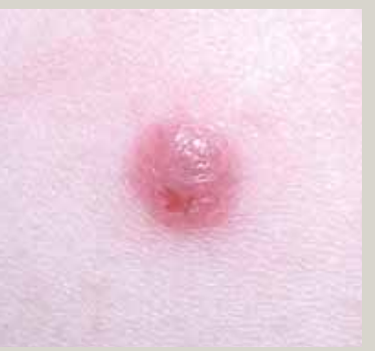

Figure 14. A spitz naevus on a baby's thigh.

- The transformation risk per mole is highest in older men (about 1:2000).[5]
- For clinically dysplastic melanocytic naevi, the risk may be around five times higher.
- For congenital melanocytic naevi, the risk of transforming to melanoma can be related to their size – for example, for giant (more than 20 cm diameter) congenital melanocytic naevi, the risk is about 7% and is skewed to the first 20 years of life; the risk for medium sized (1.5 to 10 cm diameter) and small congenital melanocytic naevi is very low, and generally considered not high enough to excise them solely for that reason, particularly if they are small.
- Melanoma in congenital melanocytic naevi can be hard to identify as the melanocytes descend more deeply in the skin than they do in acquired melanocytic naevi.
- It is not known whether larger acquired melanocytic naevi have a higher transformation risk.
- About one-third of melanomas develop from a pre-existing mole (based on histopathology).[6]

Melanoma statistics

In Australia in 2001:[7]

- The incidence of melanoma was 46 per 100,000 (ranging from 36 per 100,000 in Victoria to 65 per 100,000 in Queensland).
- The lifetime risk of an Australian developing melanoma was 1:25 for men and 1:32 for women.
- Excluding nonmelanoma skin cancer, about 10% of all cancers seen in Australia were melanomas. Melanoma was the fourth most common cancer in men and the third most common in women.
- The average age of diagnosis was 59 years for men and 52 for women.
- Melanoma was the most common cancer in the 15- to 44-year-old group.
- 96 melanomas were diagnosed in 0 to 19-year-olds.
- There were 1074 deaths that year from melanoma (3% of all cancer deaths).
- The incidence rate of melanoma increased annually between 1991 and 2001 by, on average, 2.1% for men and 1.2% for women. The incidence is increasing most for men older than 55 years but is decreasing for young adults.
- Melanoma mortality rates increased annually between 1996 and 2001 by 0.5% for males and 0.2% for females.

Survival rates

The five-year survival figures for stages

I and II (skin only) melanomas favour thin lesions. The five-year survival is more than 99% if the melanoma is less than 0.76 mm Breslow thickness; more than 85% if 0.76 to 1.5 mm; 60 to 85% if 1.5 to 4 mm; and 35 to 60% if more than 4 mm.

Sun exposure

There is debate among experts as to the amount of sun exposure people should have. Too little may lead to hypovitaminosis D, particularly in those with a darker skin type.[8] A simple solution is to recommend oral vitamin D supplements for people where more strict sun protection is recommended. MT

References

1. Oliveria SA, Chau D, Christos PJ, Charles CA, Mushlin AI, Halpern AC. Diagnostic accuracy of patients in performing skin self-examination and the impact of photography. Arch Dermatol 2004: 140: 57-62.
2. Schneider JS, Moore DH 2nd, Sagebiel RW. Risk factors for melanoma incidence in prospective follow-up. The importance of atypical (dysplastic) nevi. Arch Dermatol 1994; 130: 1002-1007.
3. Rivers JK, MacLennan R, Kelly JW, et al. The eastern Australian childhood nevus study: prevalence of atypical nevi, congenital nevus-like nevi, and other pigmented lesions. J Am Acad Dermatol 1995; 32: 957-963.
4. Kelly JW, Rivers JK, MacLennan R, Harrison S, Lewis AE, Tate BJ. Sunlight: a major factor associated with the development of melanocytic nevi in Australian schoolchildren. J Am Acad Dermatol 1994; 30: 40-48.
5. Tsao H, Bevona C, Goggins W, Quinn T. The transformation rate of moles (melanocytic nevi) into cutaneous melanoma: a population-based estimate. Arch Dermatol 2003; 139: 282-288.
6. Bevona C, Goggins W, Quinn T, Fullerton J, Tsao H. Cutaneous melanomas associated with nevi. Arch Dermatol 2003; 139: 1620-1624.
7. Australian Institute of Health and Welfare, Australasian Association of Cancer Registries. Cancer in Australia 2001. AIHW cat no CAN 23. Canberra: AIHW (Cancer Series no 28), 2004. www.aihw.gov.au/publications/can/ca01/ca01.pdf (accessed March 2007) .
8. Working Group of the Australian and New Zealand Bone and Mineral Society; Endocrine Society of Australia; Osteoporosis Australia. Vitamin D and adult bone health in Australia and New Zealand: a position statement. Med J Aust 2005; 182: 281-285 [Letters and author reply; Med J Aust 2005; 183: 52-54].

DECLARATION OF INTEREST: None.