Nodular melanoma

No longer as simple as ABC

John W Kelly, *MD, BS, FACD, is Associate Professor, Head of Dermatology Unit and Director, Victorian Melanoma Service, Alfred Hospital, Melbourne, Victoria.*
Alexander J Chamberlain, *MBBS, is a Registrar in Dermatology, Victorian Melanoma Service, Alfred Hospital, Melbourne, Victoria.*
Margaret P Staples, *DipAppSc, BBSc (Hons), MSc, is Senior Project Officer, National Cancer Control Initiative, Carlton, Victoria.*
Brian McAvoy, *FRACGP, MD, FRCP, FRNZCGP, FRCGP, FAChAM, MB, ChB, BSc, is Deputy Director, National Cancer Control Initiative, Adjunct/Honorary Professor of General Practice, Universities of Melbourne, Monash and Queensland.*

BACKGROUND Malignant melanoma is the fourth most commonly diagnosed malignancy in Australia. Nodular melanoma (NM) comprise less than 15% of all melanoma but account for up to 70% of those thicker than 3 mm.
OBJECTIVE This article describes the clinical features of NM, its prognosis and management.
DISCUSSION Nodular melanoma presents very differently from superficial spreading melanoma, and does not meet the 'ABCD' criteria used to alert doctors and patients to the possibility of this diagnosis. Due to their rapidly developing depth of invasion, urgent referral and wide excision are advised.

Malignant melanoma is the fourth most commonly diagnosed malignancy in Australia accounting for about 800 deaths per year.[1] The most recent data from state cancer registries show that a total of 8243 new cases (4627 males, 3616 females) of cutaneous melanoma were diagnosed in Australia in 1999. It was the most common malignancy diagnosed in the 15–44 years age group and for all ages it was the fourth most common malignancy; (10.4%) in males and the third (9.6%) most common in females. Incidence increases with age and the median age at diagnosis was 61 years in males and 54 in females.[1] The risk of developing melanoma by the age of 74 years is one in 25 for males and one in 35 for females. Risk factors for the development of melanoma are shown in Table 1.[2]

In keeping with an increased risk of melanomas with greater sun exposure, rates are higher in northern latitudes of Australia than in southern areas; the rate for Queensland being nearly double that of Victoria.[1] In 1999, the age standardised mortality rate (standardising to the World Standard Population) was 4.7 per 100 000 in males and 2.4 per 100 000 in females. Melanoma ranked eighth as a malignancy related cause of death for both males and females and a total of 11 455 person years of life before the age of 74 years were lost to melanoma. Melanoma was the tenth most expensive malignancy at a cost of $65.5 million.[3] Among the world's caucasian population, melanoma incidence is increasing more rapidly than any other malignancy.[4] Tumour thickness is the most accurate measure of prognosis. At present, tumours with a thickness of less than 1 mm are generally cured with surgery, whereas five year survival for those thicker than 4 mm is approximately 50%.[5]

Table 1. Risk factors for the development of melanoma[2]

- Dysplastic naevi
- Large total naevus numbers (>200)
- Personal history of melanoma
- Blistering sunburns
- Family history of melanoma
- Equatorial latitudes

The incidence of thick melanoma and related mortality is largely static despite advances in early detection during the past 20 years. The commonest form of melanoma is superficial spreading melanoma (SSM) (Figure 1), accounting for 50–75% of all cases. The 'ABCD'

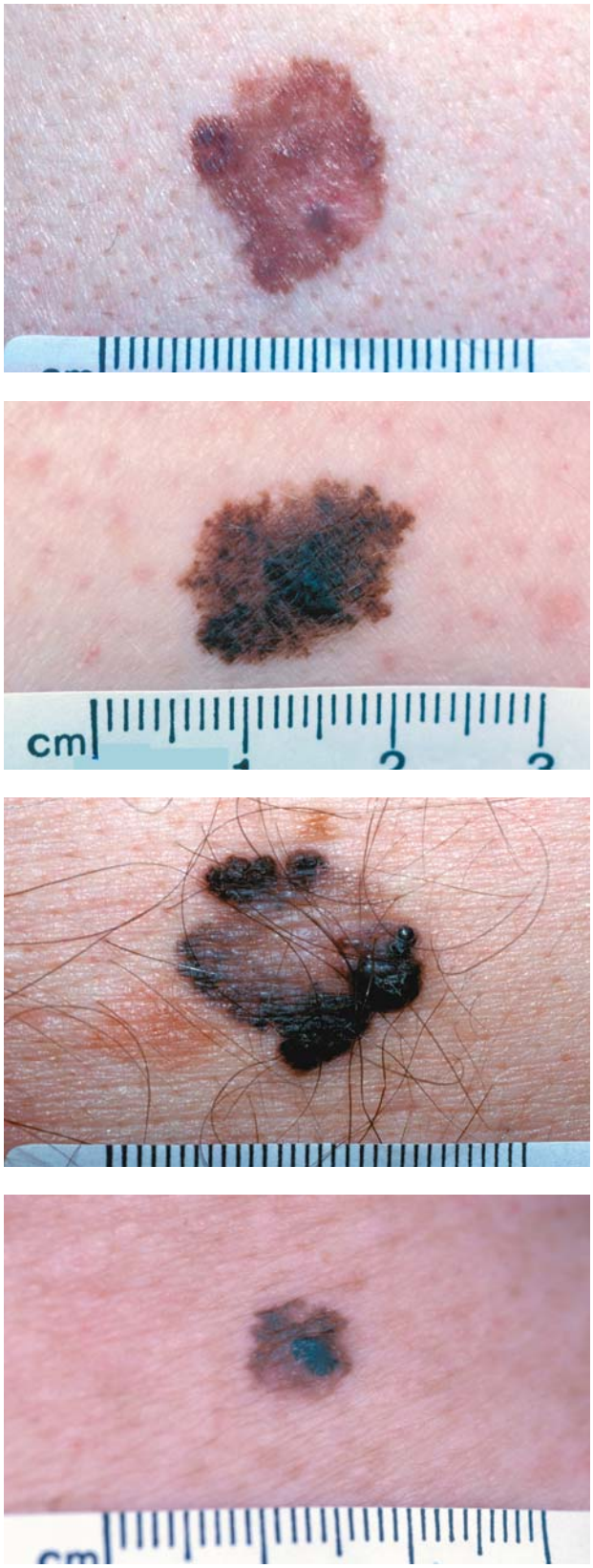

Figure 1. Early superficial spreading melanoma, less than 1 mm in thickness

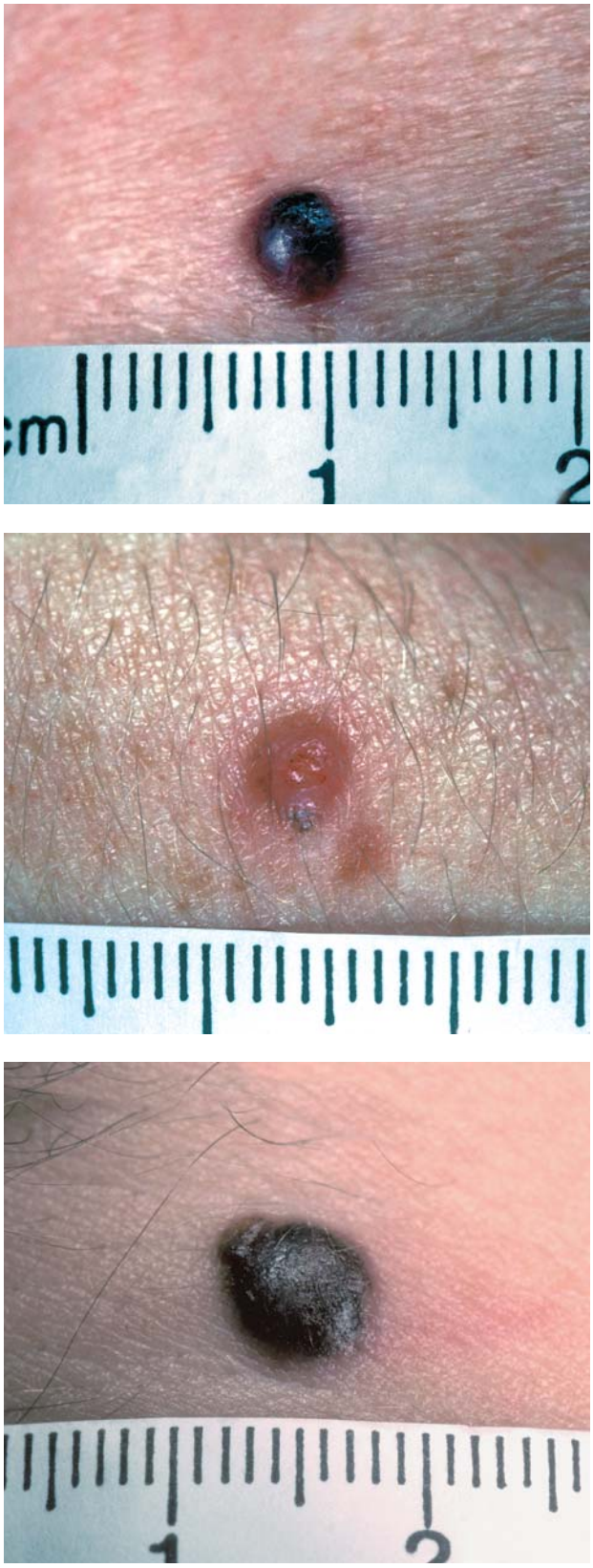

Figure 2. Early nodular melanoma, 1–2 mm in thickness

acronym for Asymmetry, Border irregularity, Colour variation and large Diameter (>6 mm), coined by the New York University group,[6] has been a valuable aid in alerting doctors and patients to the possibility of SSM. Unfortunately nodular melanoma (NM) do not meet these criteria, and in fact represent their opposite. While NM comprise only 10–15% of all melanoma, Australian studies have shown that they account for 56–72% of all tumours thicker than 3 mm.[7,8] A similar New York review found that NM accounted for 66% of tumours thicker than 3 mm.[9]

Diagnosis of nodular melanoma

A recently published Victorian study of patients' perceptions of the presenting symptoms and signs of NM compared with those of SSM has demonstrated how contrasting these subtypes may appear.[10]

Table 2. The ABCDEFG of melanoma

Superficial spreading melanoma	
A	Asymmetry
B	Border irregularity
C	Colour variation
D	Diameter >6 mm
Nodular melanoma	
E	Elevated
F	Firm
G	Growing progressively for a month or more

Table 3. Margins of re-excision for melanoma after initial excisional biopsy

Tumour thickness	Margin of re-excision
In situ (level 1)	0.5 cm
<=2.0 mm	1.0 cm
>2.0 mm	2.0 cm

Nodular melanomas were mostly symmetrical (80%), with a regular border and of single colour (78%), the majority (55%) being amelanotic. They were also more likely to be elevated (90%), weeping, crusted or tender in comparison to SSM.

Nodular melanoma are mostly red or pink in colour and if present, pigmentation is usually evenly distributed throughout the lesion. They are raised from the outset and grow progressively as a round nodule (Figure 2). After a period of growth from one to several months NM will begin to ulcerate, crust and bleed. Nodular melanoma grow vertically from the start and develop depth of invasion more rapidly than other radial growth phase melanomas. Lesions that are persistently growing for more than a month are suspicious for NM and require an urgent response. Clearly 'ABCD' features are unhelpful in the diagnosis of NM. A suggested aide memoire for the clinical features of NM might be 'EFG' for Elevated, Firm and Growing progressively for more than a month (Table 2).

Differential diagnosis

Patients may have difficulty in distinguishing NM from small inflammatory lesions such as acne, folliculitis and insect bites. These may initially show similar features but should resolve within one month. Longstanding raised nodules that are stable, such as dermatofibromas and intradermal naevi, may also arouse concern but clearly differ from NM because of their long history of stability.

Other differential diagnoses may include angiomas, basal cell carcinomas (BCC) (Figure 3) squamous cell carcinomas (SCC) and a variety of rare tumours. Most lesions that fulfill the diagnostic criteria for NM will turn out to be BCC or SCC. Basal cell carcinomas may be distinguished by the presence of pearliness and horizontally arranged branching telangiectasia. Squamous cell carcinomas may show hyperkeratosis but can be impossible to distinguish from NM in some cases. Dermoscopy is valuable in the diagnosis of BCC but is of little use for NM and SCC.

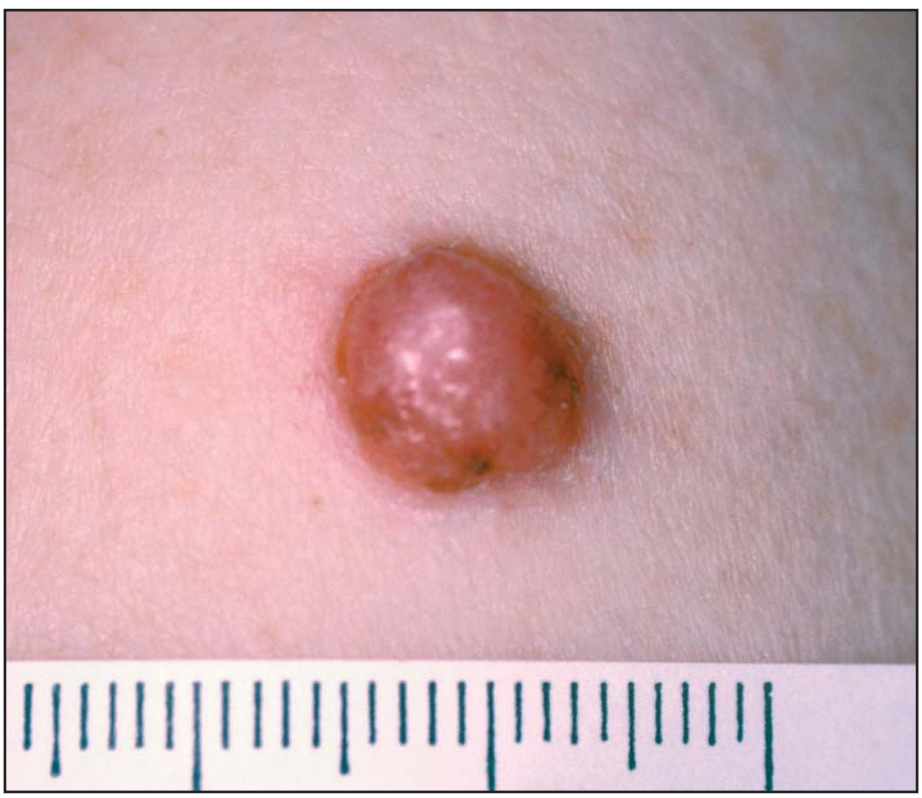

Figure 3. Advanced nodular melanoma, 8 mm in tumour thickness

Management

If NM cannot be ruled out after clinical assessment, urgent action is required. If a referral to a dermatologist is undertaken it is important to make direct contact with the clinician in order to avoid unnecessary delay in having the patient assessed. Alternatively a complete excisional biopsy may be undertaken using a 1–2 mm margin. Punch biopsies are less reliable and should not be used for possible melanomas. Shave biopsies and shave excisions interfere with the important histological assessment of depth and should be avoided. Once excisional biopsy has been undertaken further progression or metastasis has been totally prevented and further treatment is no longer urgent.

If the diagnosis of NM has been histologically confirmed the assessment of prognosis according to tumour thickness, ulceration, location and patient sex is the same as for other melanomas. For significantly invasive tumours (>1.0 mm) consideration should be given to seeking consultation with a multidisciplinary melanoma service. As for other melanomas a re-excision of normal skin surrounding the melanoma is undertaken to ensure complete removal of the primary tumour, the width of excision varying with tumour thickness (Table 3). The patient should then be followed on a regular basis, the frequency assigned according to the risk of presentation with metastatic disease. At each follow up visit the patient should have their lymph nodes (regional and distant) and liver assessed. The entire skin surface should be checked for further primary melanomas as well as for cutaneous metastases. Regular computerised tomography (CT) or other imaging techniques are not appropriate as part of routine follow up unless specific symptoms or signs require investigation.

Conflict of interest: none declared.

Resource

A more extensive atlas and information regarding nodular melanoma can be found on the Alfred Hospital website at: www.alfred.org.au/departments/victorian_melanoma_service.html

References

1. Australian Institute of Health and Welfare and Australasian Association of Cancer Registries. Cancer in Australia 1999. AIHW cat. no. CAN 15, 2002. Canberra: AIHW (Cancer Series no. 20).
2. Lotze M T, Dallal R M, Kirkwood J M, Flickinger J C. Cutaneous melanoma. In: DeVita V T Jr, Hellman S, Rosenberg S A, eds. Cancer: Principles and practice of oncology. Philadelphia: Lippincott Williams & Wilkins, 2001; 2012–2022.
3. Mathers C, Penm R, Sanson-Fisher R, Campbell E. Health system costs of cancer in Australia 1993–1994. Canberra: AIHW and the National Cancer Control Initiative, 1998; 1–42.
4. Armstrong B K, Kricker A. Cutaneous melanoma. Cancer Surv 1994; 19-20:219–240.
5. Soong S-J, Weiss H L. A computerised mathematical model and scoring system for predicting outcome in patients with localised melanoma. In: Balch C M, Houghton A N, Milton G W, Sober A J, Soong S J, eds. Cutaneous Melanoma. Philadelphia: J B Lippincott Company, 1992; 201–211.
6. Friedman R J, Rigel D S, Kopf A W. Early detection of malignant melanoma: The role of physician examination and self examination of the skin. C A Cancer J Clin 1985; 35:130–151.
7. Chamberlain A J, Fritschi L, Giles G G, Dowling J P, Kelly J W. Nodular type and older age as the most significant associations of thick melanoma in Victoria, Australia. Arch Dermatol 2002; 138:609–614.
8. Hanrahan P F, Hersey P, D'Este C A. Factors involved in presentation of older people with thick melanoma. Med J Aust 1998; 169:410–414.
9. Kopf A W, Welkovich B, Frankel R E, et al. Thickness of malignant melanoma: Global analysis of related factors. J Dermatol Surg Oncol 1987; 13:345–350.
10. Chamberlain A J, Fritschi L, Kelly J W. Nodular melanoma: Patients' perceptions of presenting features and implications for earlier detection. J Am Acad Dermatol 2003; 48:694–701.

AFP

Correspondence

Email: kellyderm@bigpond.com