Melanoma continues to rise throughout the world

Revelas A, MD, PhD, General Practitioner, Department of Pathology, St. Nicolas General Hospital, Greece
Tahmazidis O, MD, General Practitioner, Department of Pathology, Vardakeio General Hospital, Syros
Correspondence to: Angela Revelas, e-mail: donnoiko24@yahoo.gr
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Abstract

Melanoma has become a common form of cancer. The incidence of melanoma tends to increase with increasing latitude, being low in southern, sunny tropical areas, where dark skins are more prevalent, and high in the north, in temperature areas, where lighter skins predominate because of a higher concentration of descendents of fair-skinned European immigrants.

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Introduction

Cutaneous melanoma has become a common form of cancer. Melanoma affects adults of all age groups. The median age at diagnosis is 53.[1] Sunlight is the most important environmental factor[1-3] in the pathogenesis of melanoma. The radiation in the ultraviolet B range is said to be the critical component. Generally, worldwide, the incidence of melanoma in white people[4,5] correlates inversely with latitude, i.e. rates are higher closer to the equator, and become progressively lower in areas nearer the poles.

White people, especially those with a tendency to burn[3,4] rather than tan when exposed to sunlight, have higher rates of melanoma than non-white people. Childhood or adolescence represents a critical period for sunburn.

Rates of melanoma are relatively low in persons with outdoor occupations. The link between blistering sunburn and an increased risk of melanoma may be confounded by phenotype (the tendency to burn easily) as a risk factor.[1-3] The depletion of the earth's ozone layer, thought to be induced by artificial chlorofluorocarbons, and the subsequent increase in the amount of ultraviolet light reaching the earth, may exacerbate the increase in melanoma in coming decades.

Risk factors for the development of cutaneous melanoma include:

- Being > 15 years of age.
- Pigmented lesions.
- Dysplastic moles (and familial melanoma).
- Dysplastic moles (no familial melanoma).
- Lentigo maligna.
- A higher-than-average number of benign melanocytic nevi.
- Congenital moles.
- The white race (versus the black race).
- Previous cutaneous melanoma.
- Cutaneous melanoma in parents, children or siblings.
- Immunosuppression.
- Excessive exposure to the sun.
- Sun sensitivity.

Recognition of melanoma

Cutaneous melanoma is a visible tumour, and therefore perhaps more easily discovered in an asymptomatic phase than other types of cancer. The early detection and recognition of malignant melanoma is key to a possible cure.[1]

Thus, melanoma should be considered when a patient reports a new pigmented lesion or a change in an existing mole, specifically a change in colour, size, shape or surface, and especially rapid enlargement of the mole, the development of raised areas on a previously flat lesion, or scaling, ulceration, crusting or bleeding. Itching, burning, or pain in a pigmented lesion should also arouse suspicion of a malignant change. However, most patients with melanoma have no skin discomfort whatsoever.

Therefore, a visual examination remains the most reliable means of identification.[1] Melanoma can occur anywhere on the surface of the skin. Melanoma has four subtypes:[2] superficial spreading melanoma, lentigo maligna melanoma, acral lentiginous melanoma and nodular melanoma.

Superficial spreading melanoma accounts for approximately 70% of melanomas.[3] Lentigo maligna melanoma occurs primarily on the sun-exposed skin of elderly patients, usually on the face.[2-4] This subtype is closely linked to cumulative

exposure to the sun. Lentigo maligna melanoma arises from lentigo maligna, a slowly growing macular lesion, regarded by some as melanoma in situ. Acral lentiginous melanoma usually affects the palms, soles, nail bed and mucous membranes. Sunlight does not seem to be involved in the cause of this subtype. Acral lentiginous melanoma occurs more frequently in black people and Asians than it does in white people.[3,5] Although benign pigmentation within the nail plate is not uncommon, particularly in black people, a dark subungual area or the periungual spread of pigmentation in a patient suggests the possibility of acral lentiginous melanoma.[3,5]

Cancer prevention and control

The contrast between near-certain death from metastatic disease, and near-certain survival with thin melanoma, underscores the importance of prevention and early detection.[6,7] The theoretical appeal of screening for melanoma is high. The disease is increasingly common. Patients whose lesions are identified early have a high survival rate, and screening is noninvasive, quick and regarded as reliable in the diagnostic setting.[6-8]

A successful strategy in preventing death from melanoma must include increased public and professional education,[9] rigorous design and evaluation of the proper role of screening, a better understanding of tumour biology, further refinements in surgical treatments and new therapies for advanced and metastatic disease. Most deaths from melanoma should be preventable in the future using a broad interdisciplinary approach.

Biopsy technique and histological evaluation

Recommendations with respect to conducting a biopsy technique and histological evaluation include the following:

- Whenever possible, excise the lesion with narrow margins for diagnostic purposes. An incisional biopsy technique is appropriate when the suspicion for melanoma is low, when the lesion is large, or when it is impractical to perform an excision.
- Perform a repeat biopsy if the initial biopsy specimen is not adequate enough to enable accurate histological diagnosis or staging.
- Fine-needle aspiration cytology should not be used to assess the primary tumour.
- Histological interpretation should be performed by a pathologist experienced in the microscopic diagnosis of pigmented lesions.

Melanoma may be difficult to diagnose accurately on a clinical basis alone, and patients presenting with a lesion in which melanoma is clinically suspected should undergo a biopsy. Although there is strong evidence that an incisional biopsy does not adversely affect survival,[10,11] it has been recommended that excision of a lesion with narrow margins should occur while ensuring that the specimen is adequate for histological valuation.[12]

Fine-needle aspiration cytology should not be used to assess the primary tumour.[13] It is recommended that the biopsy is interpreted by a pathologist who is experienced in the microscopical diagnosis of pigmented lesions because melanoma can be difficult to diagnose, both clinically and histopathologically.[12]

Pathology report

The pathology report should:

- Be included in the biopsy report.
- Include the patient's age.
- Include the patient's gender.
- Include the anatomical site of the lesion.
- Include a gross and microscopical description of the specimen.
- Include diagnosis.
- Include tumour thickness in millimetres (Breslow's thickness).
- Include ulceration.
- Include margin involvement for surgical excision.

Reporting on Clark's level, growth phase, tumour-infiltrating lymphocytes, mitotic rate, regression, angiolymphatic invasion, microsatellitosis, neurotropism and histological subtype is encouraged, but is optional.

There is conflicting evidence on the value of age, gender and anatomical site for prognostic purposes.[14,15] There is strong evidence that routine imaging studies, including a chest X-ray and blood work, have limited, if any, value in the initial workup of asymptomatic patients with a primary cutaneous melanoma 4 mm or less in thickness. The goal of follow-up in patients with melanoma is to reduce morbidity and mortality through the detection of asymptomatic metastases and additional primary melanomas.

Differential diagnosis

A number of melanocytic and nonmelanocytic lesions mimic melanoma. In addition, the fact that the average white adult patient may have a dozen or more pigmented moles (melanocytic nevi) further complicates the early recognition of melanoma. Ordinary melanocytic nevi grow, darken or increase in number at certain times of life, such as during puberty or pregnancy. However, in general, melanocytic nevi change together, whereas a single malignant pigmented lesion may react differently. Melanocytic nevi usually arise in childhood, adolescence or young adulthood, and are characterised by regular borders and even pigmentation, sometimes with a regular stippled pattern. The blue nevus, a smooth, gun-metal blue or blue-black nodule generally

less than 1 cm in diameter, has a well defined regular border, and usually occurs on the buttocks, hands or feet. Lentigo simplex is usually less than 5mm in diameter, and is a sharply defined, oval, uniformly pigmented or regularly stippled tan-brown or black macule. It may have a reticulated (net-like) pattern of pigmentation. Solar lentigines, commonly called freckles or liver spots, appear as lightly pigmented, tan macules in sun-exposed areas.

Nonmelanocytic pigmented lesions that may resemble melanoma include seborrheic keratoses, pigmented basal cell carcinoma, appendage tumours and vascular lesions. Seborrheic keratoses are benign tan, brown or black, greasy-appearing, well-demarcated plaques with a stuck-on appearance. Close examination shows a warty texture, with keratin plugs on the surface. Basal cell carcinoma, classically a pearly, translucent facial papule with telangiectasis, resembles melanoma when it contains melanin, which gives it a blue or black colour.

Several vascular lesions may look like melanoma. An ulcerated pyogenic granuloma, a rapidly growing pink or red vascular nodule with a tendency to bleed, may be clinically identical to amelanotic melanoma. A haemangioma may also appear as a red or blue-purple lesion.

Conclusion

The skin colour of the population shows a trend to a lighter colour with increasing latitude. The incidence of malignant melanoma also tends to increase with increasing latitude. It is low in southern sunny tropical areas, where dark skins are more prevalent, and high in the north, in temperate areas, where lighter skins predominate, because of a higher concentration of descendents of fair-skinned European people.

References

1. Sober AJ, Fitzpatrick TB, Mihm MC, et al. Early recognition of cutaneous melanoma. JAMA. 1979;242(25):2795-2799.
2. Clark WH Jr, From L, Bernardino EA, Mihm MC. The histogenesis and biologic behavior of primary human malignant melanomas of the skin. Cancer Res.1969;21(9)705-727.
3. Balch CM, Milton G. Cutaneous melanoma. Clinical management and treatment results worldwide. Philadelphia: JB Lippincott; 1985.
4. Mihm MC Jr, Clark WH Jr, From L. The clinical diagnosis, classification and histogenetic concepts of the early stages of cutaneous malignant melanoma. New Engl Med J. 1971;284(1):1078-1082.
5. Krementz ET, Reed RJ, Coleman WP III, et al. Acral lentiginous melanoma. A clinicopathologic entity. Ann Surg. 1982;195(5):632-645.
6. Koh HK, Lew RA, Prout MN. Screening for melanoma/skin cancer, theoretic and practical considerations. J Am Acad Dermatol. 1989;20(2 Pt 1):159-172.
7. Koh HK, Geljer AC, Miller DR, Lew RA. Can screening for melanoma/skin cancer save lives? J Am Acad Dermatol. 1991(2 Pt 1):271-277.
8. Koh HK, Caruso A, Gage I, et al. Evaluation of melanoma/skin cancer screening in Massachusetts. Preminary results. Cancer. 1990;65(2):375-379.
9. Grossman DJ. Public and professional educational materials on skin cancer. J Am Acad Dermatol. 1989;21(5 Pt 1):1012-1018.
10. Lees VC, Briggs JC. Effect of initial biopsy on prognosis in stage I invasive cutaneous malignant melanoma: review of 1 086 patients. Br J Surg. 1991;78(9):1108-1110.
11. Lederman JS, Sober AJ. Does biopsy influence survival in clinical stage I melanoma? J Am Acad Dermatol. 1985;13(36):983-987.
12. Austin JR, Byers RM, Brown WD, Wolf P. Influence of biopsy on the prognosis of cutaneous melanoma of the head and neck. Head Neck. 1996;18(2):107-117.
13. Daskalopoulou D, Gourgiotou K, Thodou E, et al. Rapid cytological diagnosis of primary skin tumours and tumour-like conditions. Acta Derm Venereol. 1997;77(1):292-294.
14. Halpern AC, Schuchter LM. Prognostic models in melanoma. Semin Oncol. 1997;24 Suppl 4:52-57.
15. Sahin S, Rao B, Kopf AW, et al. Predicting ten-year survival of patients with primary cutaneous melanoma. Corrobation of a prognostic model. Cancer. 1997;80(8):1426-1431.