Clinical Diagnosis of Malignant Melanoma

– R Strover

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Curriculum vitae

Roger Strover was born in Harare, Zimbabwe and studied at the University of Cape Town where he received a MB ChB in 1959. Subsequent years saw Dr Strover working at Groote Schuur Hospital, Nkane Mine Hospital at Kitwe, and in locums at Fort Victoria and in the Cape. In 1963 he was appointed Surgical Registrar at Mpilo Hospital, Bulawayo. Upon being awarded his FRCS and FRCS (Ed) in England, Dr Strover returned to South Africa to recommence duty at Groote Schuur Hospital as Surgical Registrar Plastic Surgery. In 1976, and for two years thereafter, he took up the appointment as full-time Head of Department of Plastic Surgery at Groote Schuur. He subsequently resigned and established a private practice in Wynberg, Cape Town. Dr Strover is currently Consultant Plastic Surgeon at Groote Schuur and Co-director of the Melanoma Clinic. He is an Executive Committee member of the Association of Plastic and Reconstructive Surgeons of SA, a member of the Burn Society of SA, the Association of Hand Surgeons of SA, and a full member of ISAPS.

Summary

The importance of malignant melanoma, its aetiology, risk factors and early diagnosis is presented. A clinical diagnosis can be made in the early phases and distinguished from other conditions. Early treatment has a high success rate.

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Malignant melanoma is a skin tumour with a notoriously bad reputation. Because of its apparently unpredictable behaviour it is the anecdotal tumour par excellence and many people still believe that its diagnosis is more or less a death sentence. The incidence of malignant melanoma has increased over the past twenty years, and with this has come considerable increase in our knowledge of its behaviour.

Malignant melanoma can nearly always be diagnosed, clinically, in its early phases, at which stage excisional surgery will effect a cure. Delay in excisional treatment results in a dramatic fall in the cure rate. It is therefore essential that all medical personnel are aware of the importance of early diagnosis of malignant melanoma and capable of recognising the salient features of the tumour. Education of the public at large in this regard is also vital in enabling the medical profession to see and treat these tumours when they are still curable.

Aetiology

1. Heredity

Melanin pigment in the skin protects the underlying melanocytes from the damaging rays of the sun, and therefore the tumour occurs most frequently in light-skinned people living in sun-drenched lands such as South Africa and Australia. In the darker races it is less common, and is most frequently seen on the areas of the skin that are less pigmented than the rest of the body, such as the palms, soles and mucous membranes.

Dysplastic naevi are hereditary, and we know that a very large proportion of people who develop malignant melanoma have dysplastic naevi. True familial malignant melanoma is well documented, but is fortunately rare. Finally, one should mention the fact that the incidence of malignant change in congenital naevi, particularly the large ones, is very much higher than in the acquired naevi.

2. Ultra Violet Light

It appears that the damaging rays of the sun, from the melanoma point of view, are in the ultra-violet spectrum. Blistering sunburn, particularly in youth, has the most damaging effects.

3. Risk Factors

The American Cancer Society has identified six risk factors for malignant melanoma. These are as follows:

1. Family history of malignant melanoma.
2. Presence of blond or red hair.
3. Presence of marked freckling on the upper back.

4. History of 3 or more blistering sunburns prior to age 20.
5. History of 3 or more years of an outdoor summer job as a teenager.
6. Presence of actinic keratosis.

Persons with one or two of these factors have a 3,5 fold increased risk over the general population for

The incidence of malignant melanoma has increased

developing malignant melanoma. Those with three or more of the factors have an increased risk of approximately 20 fold.

One should add to this list the fact that people who have had one malignant melanoma are at increased risk of developing another and people who live near the equator or work indoors and have primarily outdoor recreational habits are at increased risk.

4. *Clinical Diagnosis*

Malignant melanoma is the one dangerous cancer which presents itself for all the world to see if only we would look. Our general population is poorly informed on malignant melanoma, and all physicians and health workers should take every opportunity to examine the total body surface of their patients, because the prognosis of melanoma when it is diagnosed early is excellent, in sharp contrast to the poor prognosis for late, or deep lesions.

Examination of the skin should be done in good light, preferably with the aid of a magnifying glass.

Melanoma occurs in four clinical forms, each with characteristic appearances and all of which may be confused with other fairly common pigmented lesions. The four types are as follows:

1. Superficial spreading melanoma.

This is the commonest form, accounting for almost 70% of melanomas. It is a macule, which usually has an irregular, often notched, edge. The colour of the lesion is irregular, consisting mainly of blacks and browns, but frequently containing red, white or blue as well. The surface is usually uneven and irregular, with little mounds rising above the surrounding surface in one or several places. These areas of activity are often shiny and later cases

Malignant melanoma can nearly always be clinically diagnosed in its early phases

even desquamate or ulcerate. When not found on routine skin examination, the lesion usually has been present for several years and has brought attention to itself by itching or bleeding.

2. Nodular melanoma.

Nodular melanoma develops rapidly over the course of weeks or months and may be noticed by the patient because of sudden increase in size, ulceration or bleeding. Clinically it is a fairly small tense, black shiny nodule. The surface is usually shiny and may be desquamating or ulcerated. Not infrequently there is evidence of recent bleeding. Where the nodule meets the normal skin there may be an irregular brownish margin and, not infrequently, the

Blistering sunburn, particularly in youth, has the most damaging effects

base of the lesion looks inflamed. The colour is usually dark black, but patches of red, white and blue are common and occasionally the lesion is totally amelanotic, in which form it is extremely easily confused with a pyogenic granuloma.

3. Lentigo Maligna melanoma

This is also termed "Hutchinson's Freckle Melanoma" and is most commonly seen on the faces of old people. It does occur as young as 45 years of age. A Hutchinson's freckle or lengito meligna is confined to the epidermis and looks like a smudge of brown boot polish, usually on the face. It slowly increases in size, often over 15 or 20 years before malignant change occurs. Malignant transformation is heralded by changes in the surface, colour and edge of the lesion. In its benign form it is impalpable but when malignant change commences the surface becomes irregular and palpable excrecences occur. The uniform brown colour becomes less uniform usually in the form of black patches. There are also pale areas, which

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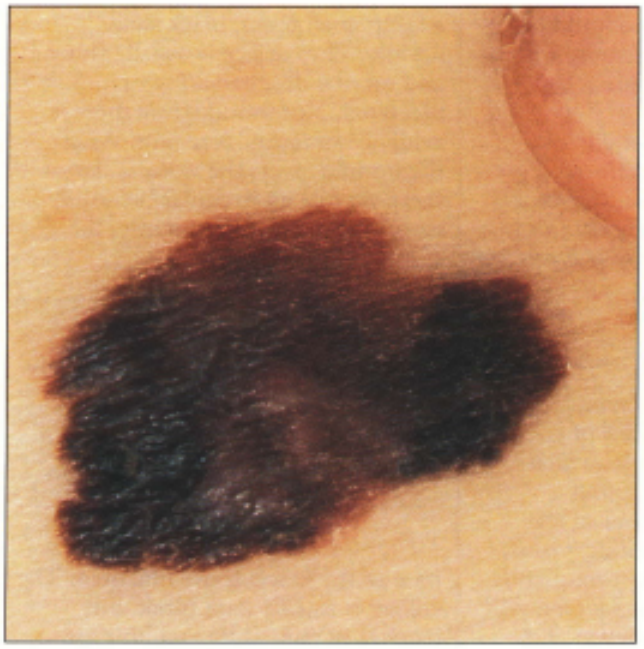

Figure 1: Superficial spreading melanoma

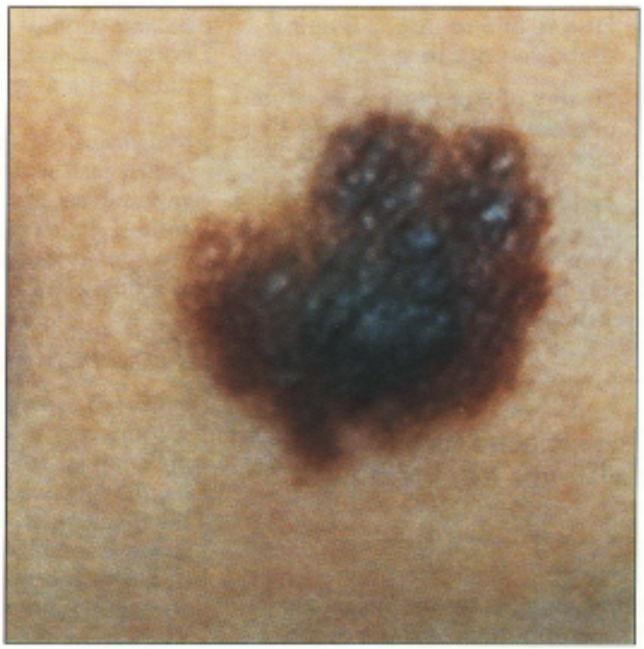

Figure 2: Superficial spreading melanoma

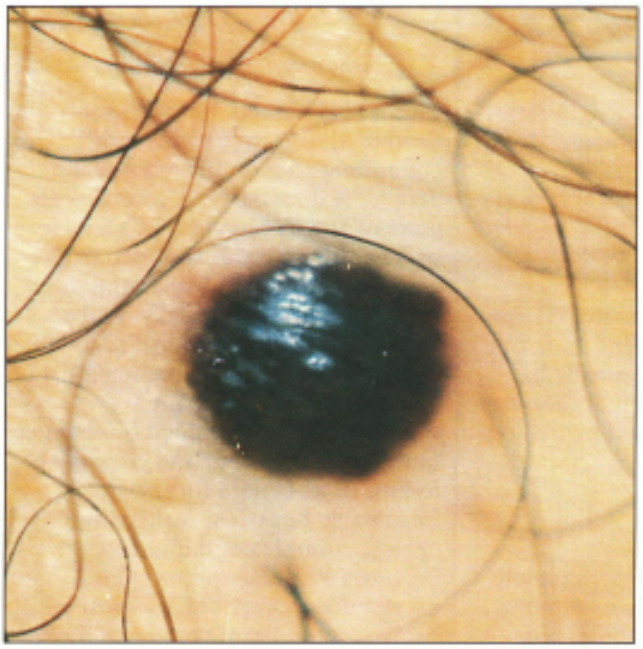

Figure 3: Typical nodular melanoma

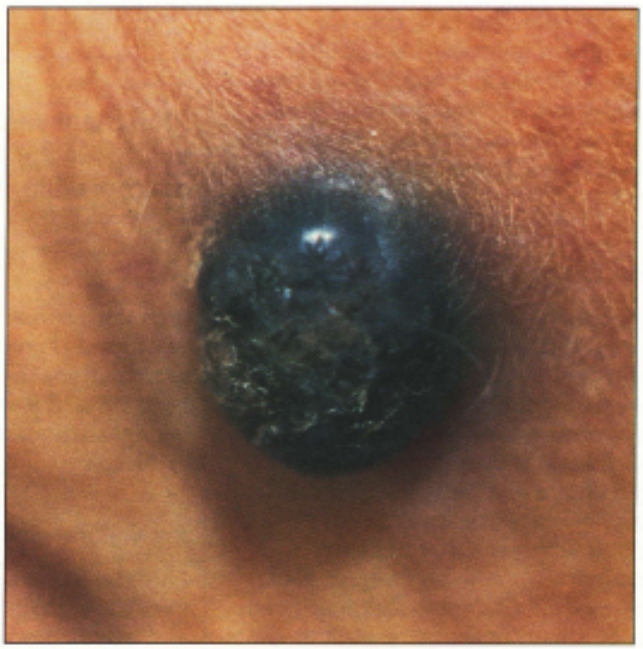

Figure 4: Advanced nodular melanoma at angle of mouth

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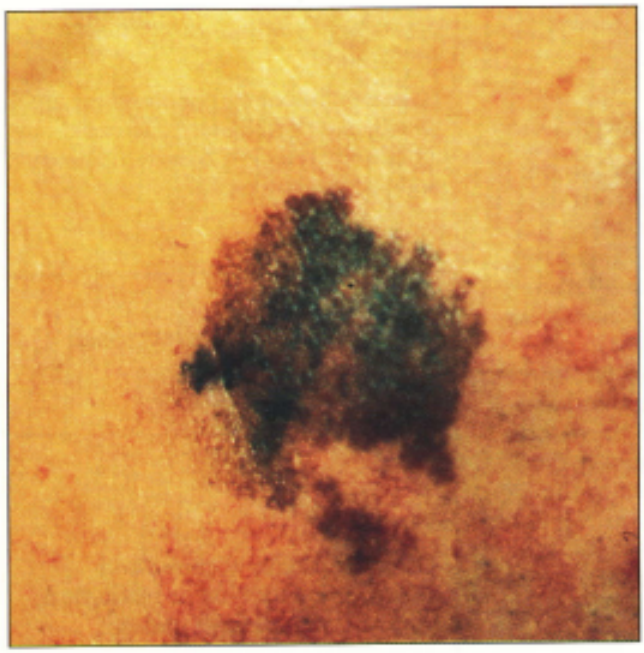

Figure 5: Hutchinson's freckle melanoma

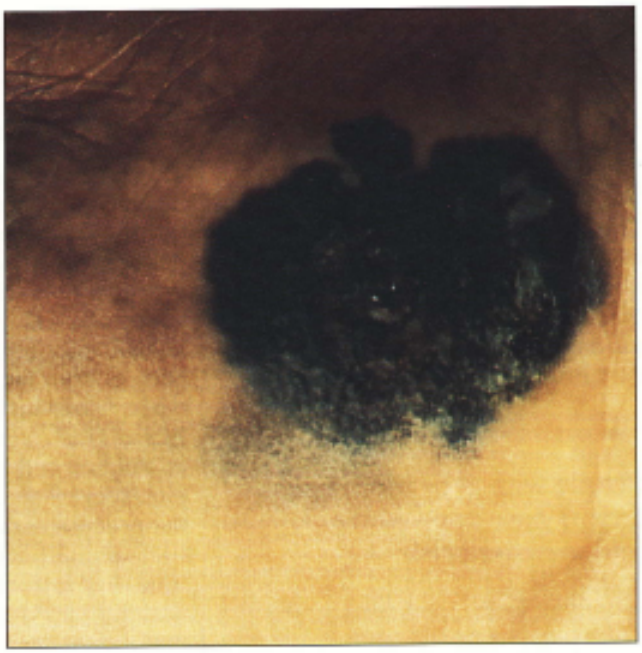

Figure 6: Advanced acral lentiginous melanoma instep of foot

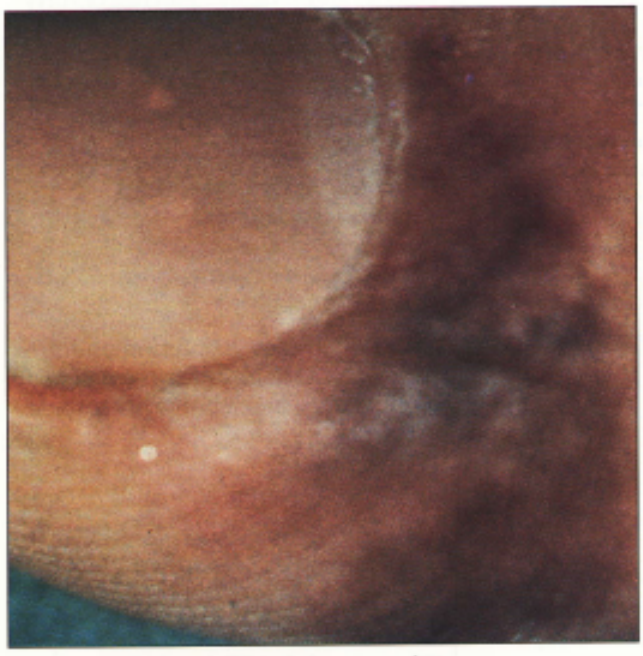

Figure 7: Early acral lentiginous melanoma

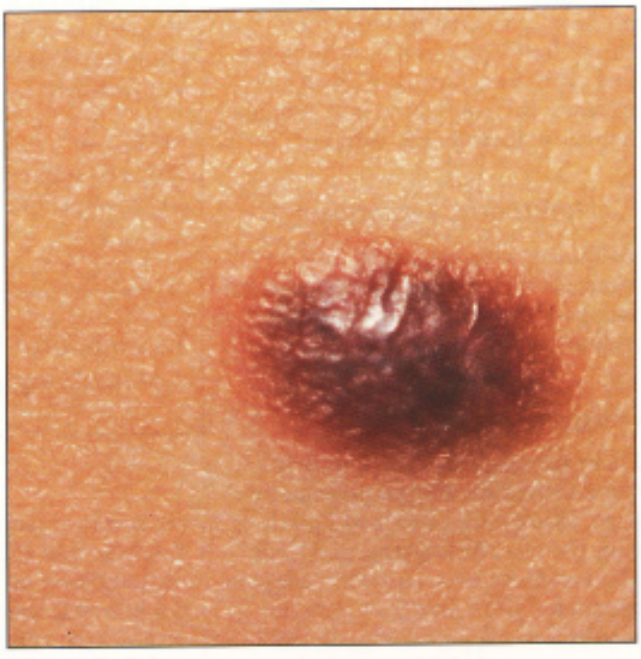

Figure 8: Spitz naevus

indicate an immune response, and the edges become irregular, and frequently notched, as is so often seen in superficial spreading melanoma.

4. Acral lentiginous melanoma.

This tumour occurs on the areas which contain less pigment than the rest of the body, such as the buccal mucosa, the palms, soles and subungual regions. It presents as a dark brown or black lesion with

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People with 3 or more risk factors have approximately a 20 fold increased risk

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irregular edges, with brown pigment extending beyond the main lesion under the keratinous layer. Melanoma of the nail fold is frequently mistaken for low-grade infection, particularly when the patient has been treating it for some time with dressings which may macerate the epithelium and disguise the true colours of the tumour.

5. Differential Diagnosis

Malignant melanoma may be confused with many other pigmented lesions of the skin. The important ones are as follows:

Congenital Naevi

These are relatively rare, and may range from a small black macule to a large, blackened, often hairy patch of skin, the so called "garment naevus". The incidence of malignant change in congenital naevi is higher than in acquired naevi, particularly in the large ones, and children with them should be referred for specialist opinion.

Benign Acquired Melanocytic Naevi

These are the commonest tumour of man and have a characteristic natural history. Absent at birth, they gradually increase in number to an average of plus or minus 40 naevi in young adult life. They then regress and are once again absent in old people. They are divided into three types: Junctional, Compound and Intradermal. Junctional naevi occur in children and histologically the melanocytes are confined to the dermo-epidermal junction. Clinically they are light-brown macules. With time they mature as the melanocytes descend into the dermis. This maturation does not occur on the soles, palms and genitalia. Compound and intradermal naevi are usually elevated presenting as anything from dome-shaped to papillomatous lesions. The less elevated varieties are usually compound and the more elevated are intradermal.

"Halo" or "Target" Naevi are simply acquired naevi which have developed a ring of pallor around them. They

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Examination in good light with a magnifying glass

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are common on the backs of young children, and the halo which histologically presents an intense lymphocytic infiltrate eventually devours the central naevus. They are not malignant.

Spitz Naevi (Benign juvenile melanoma)

Common in young people, these are usually seen on the face and neck. They are large (1 – 2cm in diameter) and present as a pinkish, fleshy mole.

It can be cured if diagnosed and treated early

Blue Naevi

These are usually acquired and present as a dark blue or black, firm, rounded, well-defined nodule.

Seborrheic Keratoses (Basal cell papilloma)

These are very common in the elderly, and look like patches of dirty wax which have been stuck onto the skin.

Pigmented Basal Cell Carcinoma

When ulcerated, these are extremely difficult to differentiate from malignant melanoma.

Intracutaneous Haematoma (Blood blister)

These often cause confusion on the sole of the foot or under the nail bed, particularly when a history of trauma is lacking.

Pyogenic Granuloma

These are frequently confused with amelanotic melanoma.

Haemangiomas and Angiofibromas

These are vascular leions, but can be

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surprisingly difficult to distinguish from melanomas.

Dysplastic Naevi

These are relatively large (5 – 10mm in diameter). They look like a splash of mud or molten chocolate on the skin, being relatively flat and having rather feathered edges. Their significance has been discussed under "Aetiology" in this article.

Conclusion

Malignant melanoma can be cured if it is diagnosed early. If the diagnosis of malignant melanoma is suspected clinically, histological examination of the lesion is imperative. Complete cutaneous examinations by the physicians and other health care providers should be made at initial check-up consultations and on a regular basis in patients with three or more "risk factors". The danger signs of malignant melanoma are as follows:

1. Change in sensation, particularly itching.
2. Change in colour.
3. Change in size.
4. Change in shape, especially development of irregular or notched margins.
5. Change in elevation, either localised or general.
6. Change in surface, especially desquamation, ulceration and bleeding.
7. Change in surrounding skin, especially redness, swelling or satellite pigmentations.

Patients with congenital naevi or dysplastic naevi should be referred for specialist treatment.

Suspicious lesions should be excised and submitted for paraffin section. The whole lesion should be excised in an ellipse, with margins of 2 – 3mm around the lesion. The full thickness of skin should be biopsied as well as a small wedge of subcutaneous tissue beneath. Frozen section and punch biopsy are not recommended as they do not allow detailed examination of the tumour, which is necessary to assess the depth of penetration, and determine the subsequent management. Incision biopsy may be justified in very large lesions, but careful selection of the biopsy site is important.