

Melanoma

Malignant melanoma is a potentially serious type of skin cancer. It is due to uncontrolled growth of pigment cells, called melanocytes.

New Clinical Guidelines on the Management of Melanoma in Australia and New Zealand have been released by the New Zealand Guidelines Group and the Australian Cancer Network. Please refer to these for up to date information on the care of patients with this disease.

What are melanocytes?

Normal melanocytes are found in the basal layer of the epidermis, i.e. the bottom part of the outer layer of the skin. The melanocytes produce a protein called melanin, which protects the skin by absorbing ultraviolet (UV) radiation. Melanocytes are found in equal numbers in black and in white skin, but the melanocytes in black skin produce much more melanin. People with dark brown or black skin are very much less likely to be damaged by UV radiation than those with white skin. Non-cancerous growth of melanocytes results in moles (properly called benign melanocytic naevi) and freckles (ephelides and lentigines).

Cancerous growth of melanocytes results in melanoma.

Who is at risk of melanoma?

Melanoma is most common in white skinned individuals, but it may rarely develop in those with dark skin as well. About one in fifteen white skinned New Zealanders are expected to develop melanoma in their lifetime – Australia and New Zealand have the highest reported rates of melanoma in the world. It was the third most common cancer registration in New Zealand in females and the fourth most common cancer for males in 2000*.

Melanoma can occur in adults of any age but is very rare in children. In New Zealand in 2003: *

- Fewer than 1% occurred in those under 20 years
- 13% occurred in people 20 to 40 years
- 36% in those aged 40 to 59 years
- 51% in those aged over 60 years

Unfortunately, about 15% of those with invasive melanoma die from it; 253 New Zealanders died from melanoma in 2000.*

The main risk factors for developing melanoma include:

- Sun exposure, particularly during childhood
- Fair skin that burns easily
- Blistering sunburn, especially when young
- Previous melanoma
- Previous non-melanoma skin cancer (basal cell carcinoma, squamous cell carcinoma)
- Family history of melanoma, especially if two or more members are affected
- Large numbers of moles (especially if there are more than 100)
- Abnormal moles (called atypical or dysplastic naevi)

How does a melanoma grow?

Cancers proliferate at an uncontrolled rate because of abnormalities in the genes that control cell growth. Further genetic changes promote invasion into surrounding tissue. Melanoma is now thought to begin as uncontrolled proliferation of transformed melanocytic stem cells.

Superficial forms of melanoma spread out within the outside layer of skin (the epidermis). A pathologist may report this as the radial or horizontal growth phase. If all the melanoma cells are confined to the epidermis, it is *melanoma in situ*. *Lentigo maligna* is a special kind of melanoma in situ that occurs around hair follicles on the sun damaged skin of the face or neck. Melanoma in situ is always cured by excision because it has no potential to spread round the body.

When the cancerous cells have grown through the basement membrane into the deeper layer of the skin (the dermis), it is known as *invasive melanoma*. The pathologist may state that the tumour has a vertical growth phase, which is potentially more dangerous than the horizontal growth phase. *Nodular melanoma* appears to be invasive from the beginning, and has little or no relationship to sun exposure.

Once the melanoma cells have reached the dermis, they may spread to other tissues via the lymphatic system to the local lymph nodes or via the blood stream to other organs such as the lungs or brain. This is known as metastatic disease or secondary spread. The chance of this happening mainly depends on how deep the cells have penetrated into the skin. So early detection of melanoma is vital.

Where do you find melanomas?

Melanoma can arise from otherwise normal appearing skin (50% of melanomas) or from within a mole or freckle, which starts to grow larger and change in appearance. Precursor lesions include:

- Congenital melanocytic naevus (brown birthmark)
- Atypical or dysplastic naevus (funny-looking mole)
- Benign melanocytic naevus (normal mole)

Melanomas can occur anywhere on the body, not only in areas that get a lot of sun. The most common site in men is the back (around 40% of melanomas), and the most common site in women is the leg (also around 40%).

Although melanoma usually starts as a skin lesion, it can also grow on mucous membranes such as the lips or genitals. Occasionally it occurs in other parts of the body such as the eye, brain, mouth or vagina.

What does a melanoma look like?

The first sign of a melanoma is usually a changed or new freckle or mole. It may have an unusual shape. A melanoma may be detected at an early stage when it is only a few millimetres in diameter, but they may grow to several centimetres in diameter.

It may have a variety of colours including tan, dark brown, black, blue, red and, occasionally, light grey. Melanomas that are lacking pigment are called amelanotic melanoma. There may be areas of regression that are the colour of normal skin, or white and scarred.

During its horizontal phase of growth, a melanoma is normally flat. As the vertical phase develops, the melanoma becomes thickened and raised.

Some melanomas are itchy or tender. More advanced lesions may bleed easily or crust over.

A pigmented lesion (mole or freckle) should be checked by an experienced doctor if it has any of the characteristics described by the Glasgow 7-point checklist or by the ABCDE's of melanoma. Not all such lesions prove to be malignant. Not all melanomas show these characteristics.

Glasgow 7-point checklist

Major features

- Change in size
- Irregular shape
- Irregular colour

Minor features

- Diameter >7mm
- Inflammation
- Oozing
- Change in sensation

The ABCDs of Melanoma

- A** Asymmetry
- B** Border irregularity
- C** Colour variation
- D** Diameter over 6 mm
- E** Evolving (enlarging, changing)

Types of Melanoma

Melanomas are described according to their appearance and behaviour. Those that start off as flat patches (i.e. have a horizontal growth phase) include:

- Superficial spreading melanoma (SSM)
- Lentigo maligna melanoma (sun damaged skin of face, scalp and neck)
- Acral lentiginous melanoma (on soles of feet, palms of hands or under the nails – the subungual melanoma)

They tend to grow slowly, but at any time, they may begin to thicken up or develop a nodule (i.e. progress to a vertical growth phase).

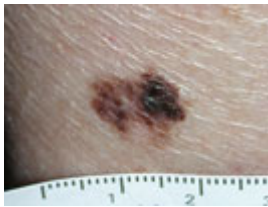
Melanomas that quickly involve deeper tissues include:

- Nodular melanoma (presenting as a rapidly enlarging lump)
- Mucosal melanoma (arising on lips, eyelids, vulva, penis, anus)
- Desmoplastic melanoma (fibrous tumour with a tendency to grow down nerves)

Combinations may arise e.g. nodular melanoma arising within a superficial spreading melanoma.

Melanoma images

Superficial spreading melanoma



Typical SSMM



SSMM with regression



Amelanotic melanoma

More images of [superficial spreading melanoma](#) and [melanoma in situ](#)...

Lentigo maligna melanoma



Lentigo maligna melanoma



Lentigo maligna



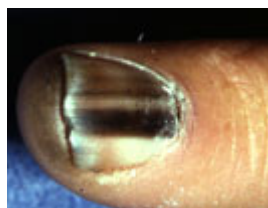
Nodular melanoma in lentigo maligna

More images of [lentigo maligna melanoma](#)...

Acral lentiginous melanoma



Acral lentiginous melanoma



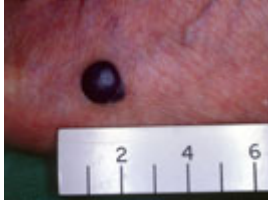
Subungual melanoma



Amelanotic subungual melanoma

More images of [acral lentiginous melanoma](#)...

Nodular melanoma



Black nodular melanoma



Amelanotic nodular melanoma



Ulcerated nodular melanoma

More images of [nodular melanoma](#), [Metastases and rare forms of melanoma](#)...

Diagnosis of melanoma

Melanoma may be suspected by your doctor because of the history of change (if known) or the appearance of the skin lesion. The dermoscopic appearance is particularly helpful in the diagnosis of early melanoma. [Dermoscopy](#) requires special training. Dermoscopy is not necessary if the lesion has the typical clinical appearance of melanoma.

A suspected melanoma should be surgically removed with a 2 to 3-mm margin ([excision biopsy](#)) and sent to a pathology laboratory for examination under a microscope (histology).

The pathologist will describe the appearance of the lesion. He or she will report the thickness of the melanoma in millimetres (Breslow depth) and describe which layer of the skin has been breached (Clark's levels). Clark's level 1 refers to melanoma in situ. Invasive melanoma may reach Clark's level 2 (thin) to 5 (reaching the fat layer under the skin).

When a diagnosis of melanoma is made, the doctor examines the whole body to see if cancer cells could have spread to other areas (such as nearby lymph glands), and whether there are any more lesions suspicious of melanoma. Sometimes X-rays, ultrasound examinations and special scans are thought advisable.

Treatment

Melanomas are removed surgically. The extent of surgery depends on the thickness of the melanoma and its site. Most thin melanomas do not need extensive surgery. The lesion is removed using a local anaesthetic, and the defect stitched up. A small area of normal skin around the melanoma is also excised to make sure that all the melanoma cells have been removed. Often this is done as a second procedure (re-excision) when the pathology has confirmed melanoma.

For thicker melanomas (those over 1 mm or so in thickness), a much wider area of skin is cut out. A skin graft might be necessary, which replaces the removed skin with skin taken from another part of the body. The lymph glands in the area may also be tested ([sentinel node biopsy](#)) or removed.

If the melanoma is widespread, other forms of treatment may be necessary, but are not always successful in eradicating the cancer.

Prognosis

The staging classification used by cancer specialists refers to how far the cancer has spread to other parts of the body.

- Local disease: T 1-4 a & b
- Disease in the regional lymph nodes: N 1-3
- Distant spread: M 1a, b, c

Death is unlikely if a melanoma has a Breslow thickness of less than one millimetre (T1). About half the patients are dead within 5 years if their melanoma is more than 4 mm thick (T4).

Follow-up

After treatment, regular check-ups are arranged for a period. These checks are important to detect any further problems from the melanoma and to detect any new melanoma early.

Regular self skin examination and whole body skin examinations by an experienced doctor are advisable, possibly supplemented by mole mapping. Protect yourself from the sun at all times. Use a broad spectrum sunscreen on all exposed skin daily.

If you have any risk factors for melanoma, ask your dermatologist or GP to give you a thorough skin check.