Melanoma facts

It is essential, especially in New Zealand, to know the signs that will alert you to the fact that you may have melanoma and then to act on them quickly ...

By Professor Jim Shaw

WHAT IS MELANOMA?

Melanoma is a malignant tumour arising from pigment cells (melanocytes) in the skin. Melanoma is the least common, but most aggressive type of skin cancer. The more common cancers being basal cell and squamous cell lesions.

The highest documented incidence of melanoma in the world is in Auckland, New Zealand. Melanoma is virtually confined to Europeans. All other ethnic groups including Maori, Polynesian, Asian, only make up 2% of the total.

Men and Women are equally at risk, with a lifetime risk of between 1 in 20 and 1 in 10 chance of developing melanoma. Major risk factors include being Caucasian, having had several episodes of severe sunburn especially in childhood, being "fair skinned" or being of Celtic ethnicity

COMMON SITES FOR MELANOMA

Melanoma can occur in any area of skin; the commonest site in women being the lower limb, and for men the back. The skin of the head and neck is also a high-risk site. Head and neck skin makes up 9% of skin surface area but 17% of Melanomas occur in this area. Melanoma can also occur on soles of the feet, palm of hand, or under fingernails or toenails.

Rarer sites for melanoma include in the mouth, behind the nose, on the penis, in the vagina, in the anal canal, and in the back of the eye.

HOW DOES MELANOMA PRESENT?

Most commonly melanoma presents as a "change" in a pre-existing mole or the development of a new dark spot on the skin.

Most Melanoma's are dark brown or black but some have no pigment at all (amelanotic melanomas).

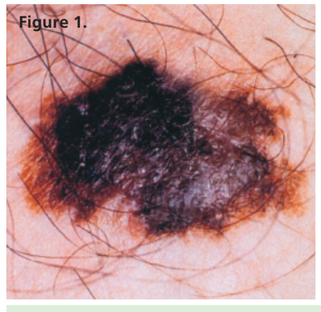
Figure 1.

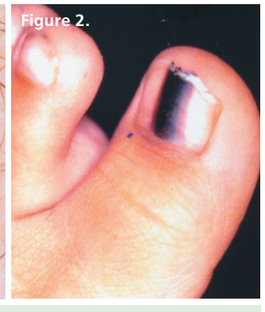
Figure 2.

Figure 2. Superficial spreading and nodular lesion.
Figure 3. Subungal Acral Melanoma.

HOW IS MELANOMA DIAGNOSED?

The key-word is "CHANGE". Any changing skin lesion especially one that has changed over a few weeks or months, has to be regarded as suspicious.

Change may involve the growth of a new pigmented skin lesion, or change in a pre-existing lesion which becomes larger, darker, itchy or irregular or starts to bleed. Most, if not all, changing pigmented skin lesions require excision under local anaesthetic as this is the ONLY certain way to diagnose melanoma.

WHAT IS REQUIRED TO TREAT MELANOMA?

The thickness of the melanoma in millimetres governs the extent of surgery required. Also the level of skin invasion is important. The various levels of invasion and the layers of the skin are shown in Figure 1. The thinnest level for melanoma is level 1 also known as in-situ melanoma. With progressive invasion of the dermis by the melanoma the level changes through levels 2 to 3 to 4, and eventually if untreated invasion goes right through the dermis into the underlying subcutaneous fat or level 5. The lymphatic and blood vessels are situated at around levels 4 and 5.

Time is critical – delay in diagnosis or misdiagnosis is a critical issue. The longer the melanoma is allowed to go undiagnosed, the thicker it becomes, and the worse the outcome.

In-situ or Level 1 melanomas require 0.5cm of clearance. This can almost always be accomplished under local anaesthetic as an outpatient.

Melanomas less than 1.0mm thick require a 1cm margin of clearance. Again this can usually be accomplished under local anaesthetic as an outpatient procedure.

Melanomas over 1mm in thickness require more extensive treatment because of (a) the risk of lymph gland involvement, and (b) because a wider margin of clearance is required. Here a 2cm margin of clearance is often necessary and surgery to detect possible lymph gland involvement is usually appropriate i.e, the performance of a sentinel node study.

ARE ALL MELANOMAS THE SAME?

There are several sub-types of melanoma, the most common type is superficial spreading melanoma which presents as a flat lesion either black or brown in colour. The second most common is a nodular melanoma where a nodule develops in a pigmented lesion, see Figure 2 which shows a superficial spreading lesion on the right coexisting with a nodular lesion anteriorly on the left.

Other types include lentigo maligna, most commonly seen as a dark spot developing in a pigmented lesion on the face, usually in older patients.

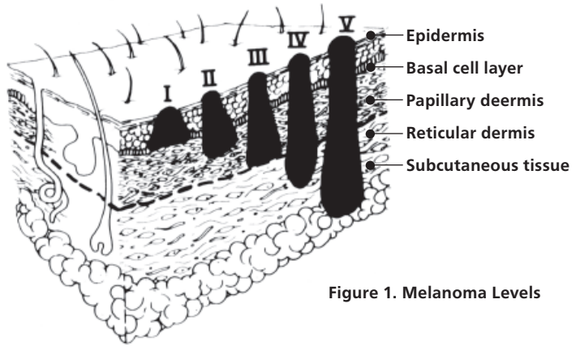

Figure 1. Melanoma Levels

Acral lentiginous is an aggressive sub-type which occurs in the skin of palm of hand, sole of foot and under fingernails or toe nails. The subtype occurring under finger and toe nails is known as a subungual melanoma. See figure 3. When non-Caucasians develop melanoma it is most commonly this type.

WHAT IS A SENTINEL NODE STUDY?

Any particular area of skin on the body will have lymphatic drainage to one or two lymph glands either in the neck, armpit or groin. A sentinel node study is appropriate for melanomas thicker than 1mm as a means of detecting lymph gland involvement by melanoma prior to the lymph glands becoming palpable.

Following the diagnosis of melanoma greater than 1mm thick the sentinel node is detected by injection of a radio-isotopic tracer into the skin excision site. The tracer used travels in the lymphatic system to the lymph node that provides lymphatic drainage for that particular area of skin. The site of the node is marked on the skin. Blue dye is then injected into the skin excision site and this also travels along the lymphatic channels to the radiologically marked lymph node. Then under either local or general anaesthesia the wide excision of the primary lesion is performed and an incision is made over the pre-marked node. The blue staining node is the sentinel node and this is removed and sent for histology. If the node does not show involvement by melanoma no further action is required. If the node is involved by melanoma then node dissection (removal of all of the nodes in that area) is indicated. Prospective studies have shown that the use of sentinel node studies have improved survival in melanoma patients with lesions thicker than 1mm.

LYMPH GLAND INVOLVEMENT WITH MELANOMA

20% of patients with melanoma develop lymph gland involvement.

This may be detected by sentinel node study or alternatively patients with known melanoma can subsequently develop enlarged palpable lymph glands in neck, groin or armpit. In this latter group of patients, fine needle aspirate cytology is usually diagnostic and treatment involves removal of not just the one or two involved glands but all of the lymph glands in that area be it neck, groin or armpit.

IF I HAVE HAD AN OPERATION FOR MELANOMA INVOLVING LYMPH GLANDS, IS ANY OTHER TREATMENT POSSIBLE?

Two forms of treatment may be used but both are experimental and neither have been definitely proven to prolong life. Interferon may be used to stimulate the immune system but the side-affects may preclude treatment especially severe flu-like symptoms that some patients develop with this treatment.

Vaccines can also be used. Here a vaccine is prepared against the patient's melanoma and subsequently injected into the patient to specifically stimulate the patient's immune system against the cancer.

CAN MELANOMA SPREAD TO OTHER PLACES ASIDE FROM LYMPH GLANDS?

Melanomas can recur locally, close to where the primary melanoma has been excised – this is called local recurrence. The thicker the primary melanoma, the more likely that local recurrence may occur. In addition if there has been an inadequate margin of clearance of the primary melanoma, then the risk of recurrence is also higher. Local recurrence is of ominous significance as it is usually associated with the presence of further melanoma either in lymph glands or in vital organs such as lung, brain, or liver.

Melanoma can spread to virtually any part of the body. This involves principally patients with thicker melanomas. Common sites for systemic or metastatic disease, include brain, lung, liver and bone. Treatment of this type of disease occasionally involves surgical resection (some brain lesions are suitable for surgical resection). Treatment with palliative radiation is often appropriate for bone disease, and some brain disease. Chemotherapy only has a limited role in the management of advance melanoma as melanoma cells are often not sensitive to chemotherapy.

OUTCOME FOR PATIENTS WITH MELANOMA?

A number of factors influence survival for melanoma but by far the most important is the thickness of the primary melanoma. The thicker the lesion the more likely the patient will die from melanoma.

SUMMARY:

- **Approximately 5% of Caucasian New Zealanders will develop melanoma during their life-time.**
- **Prompt diagnosis of a changing skin lesion is critical for early diagnosis, and early diagnosis is critical for a good outcome.**
- **Adequate surgical management is critical for a good outcome.**
- **For thicker lesions, the use of sentinel node study has been shown to improve survival.**
- **Prompt detection of lymph gland disease and appropriate surgical management are critical.**
- **Overall the majority of patients with melanoma present with promptly diagnosed thin lesions and these patients generally have an excellent outcome.**

Professor Jim Shaw MD, DSc, FRACS is a Head and Neck Surgeon and Melanoma Surgeon. He is Chief of Surgery at Ascot private Hospital in Auckland, has worked at Auckland Hospital for more than twenty years, and has performed thousands of operative procedures with respect to both head and neck surgery, and all aspects of Melanoma Surgery. Professor Shaw has private practice offices in Remuera, Greenlane, Browns Bay, and Howick.