

Melanoma: Diagnosis and staging (leaflet 4 of 7)



Patient information from the British Association of Dermatologists

Produced for National Cancer Patient Information Pathways, National Cancer Action Team

Melanoma leaflets in this series, produced by the British Association of Dermatologists:

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i) Diagnosis:

Your GP will not always be able to diagnose a skin cancer, however, if your GP thinks the lesion (affected area of skin) might be a melanoma or has any doubt, you should be referred to a local hospital skin cancer specialist, usually a Consultant Dermatologist. This doctor should be a member of either a local hospital skin cancer multidisciplinary team, or a specialist skin cancer multidisciplinary team. A multidisciplinary team is a group of healthcare professionals involved in the specific disease and the group includes people with all the different skills related to the disease.

If you need a hospital appointment, you may be able to choose which hospital you would prefer to attend. Your GP can help you to weigh up the advantages and disadvantages that might influence your choice. You may wish to know other things about each hospital - for example if you are likely to meet medical students, if there is any public transport or if you will be able to park your car.

If your GP suspects you have a melanoma, you will be referred under 'two week wait' which means you will be seen by the specialist within two weeks. You will be seen either at a hospital dermatology (skin) department or at a special 'pigmented lesion' clinic, which is a clinic session that deals specifically with suspected skin cancers.

Generally you will need two appointments, the first for diagnosis and the second for removal or biopsy, although in some clinics this is done in one appointment.

At your first appointment the specialist will examine the area, sometimes with a handheld instrument called a dermatoscope, to decide whether it needs to be removed. A dermatoscope is basically a magnifier that helps the doctor look at the lesion more closely. It does not hurt or affect the skin in any way.

If the mole or lesion is thought to be cancerous, the whole of the suspicious area will then be removed under a local anaesthetic (called an 'excision biopsy') and sent to the laboratory to be examined by a histopathologist (a specialist who examines tissue).

This is done under a local anaesthetic, which involves an injection next to the lesion to numb the skin. After the biopsy the area will be closed using stitches.

The only way in which the diagnosis of a melanoma can be made firmly is by looking at the suspected area under microscope.

ii) Staging:

Sometimes the doctor will call the investigation process "staging" – this is the process of determining the size / depth of the melanoma and if / how far it has spread.

When the melanoma is removed, the depth of the tumour will be examined. This is the depth from the surface of the skin at which the cancer cells are present. This is measured according to the Breslow thickness, which states to what depth in millimeters (mm) tumour cells are present at the time of surgical excision (removal). Most melanomas are less than 1mm thick and this group are less likely to grow back or require further treatment.

TNM System:

The tumour-node-metastasis system (TNM System), created by the American Joint Committee on Cancer (AJCC), is a widely used system for staging of skin cancer, and expands on the Breslow scale mentioned above.

- T: Primary Tumour

The 'T' represents the thickness of the tumour in mm and whether it is 'ulcerated' (the skin is broken on the surface of the tumour).

In terms of thickness:

Tis is 'Tumour in situ': the cells are only in the epidermis, the very outermost layer of skin

T1 is less than 1.0mm

T2 is 1.01-2.0mm

T3 is 2.01-4.0mm

T4 is more than 4.0mm

This is then further defined according to whether or not the tumour is ulcerated. If it is not, it is classed as 'a' whereas if there is ulceration, it is classed as 'b'. Tumours that are ulcerated are more likely to spread. So for example, a tumour classed as T2a would be 1.01 to 2mm thick and without ulceration.

- N: Regional Lymph Nodes

The 'N' refers to whether or not the tumour has spread to the nearby lymph nodes.

N0 means there is no evidence of the melanoma cancer cells in the lymph nodes.

N1 means there are cancer cells present in one nearby lymph node.

N1a means the cancer can only be detected as cells using a microscope ('microscopic metastasis' – metastasis means spread).

N1b means the cancer can be felt or seen by the doctor examining you, as the lymph nodes are enlarged ('macroscopic metastasis').

N2 means there are cancer cells in 2 or 3 nearby lymph nodes, or there are cancer cells in areas of skin near the tumour but not in the lymph nodes.

N2a means the cancer can only be detected as cells using a microscope (microscopic metastasis).

N2b means the cancer can be felt or seen by the doctor examining you, as the lymph nodes are enlarged (macroscopic metastasis).

N2c means the melanoma cells are present in very small areas of skin close to the tumour (satellite tumours) or has spread to skin lymphatic channels around the tumour, but without reaching the lymph nodes.

N3 means that either:

There are cancer cells in 4 or more nearby lymph nodes, or

There are cancer cells in lymph nodes that have become 'matted' together, or

The melanoma cells are present in very small areas of skin close to the tumour (satellite tumours) or the cancer has spread to skin lymphatic channels around the tumour, and also in the lymph nodes.

- M: Distant Metastasis

The 'M' signifies whether or not the cancer has metastasized (spread) to other parts of the body.

M0 means there is no evidence of the cancer having spread to distant tissues or organs

M1a means the cancer has spread to skin elsewhere on the body or to lymph nodes that are not close to the tumour

M1b means the cancer has spread to the lung

M1c means the cancer has spread to other parts of the body.

- Stage Grouping:

Once the T, N, and M are determined, they are combined to provide an overall "Stage" of the cancer – numbered 0 to 4 (often represented by the Roman numerals 0, I, II, III, IV). These can be further divided as a, b or c.

Stage	Features	T	N	M
0	The cells are only present in the top layer of skin, called the 'epidermis', and have not spread to the 'dermis', the layer of skin below the epidermis. Stage 0 melanoma is also called melanoma or tumour 'in situ' (Tis).	Tis	0	0
1a	Less than 1mm in the dermis. No ulceration. No spread to lymph nodes or other parts of the body.	T1a	0	0
1b	Less than 1mm in the dermis and ulcerated or 1mm to 2mm and not ulcerated. No spread to lymph nodes or other parts of the body.	T1b T2a	0 0	0 0
2a	1 - 2 mm and ulcerated or 2 - 4mm and not ulcerated. No spread to lymph nodes or other parts of the body.	T2b T3a	0 0	0 0
2b	2 - 4mm and ulcerated or	T3b	0	0

	More than 4mm and not ulcerated. No spread to lymph nodes or other parts of the body.	T4a	0	0
2c	More than 4mm and ulcerated. No spread to lymph nodes or other parts of the body.	T4b	0	0
3a	1 - 4mm and not ulcerated. Cancer cells present in one, two or three nearby lymph nodes. The cancer in the lymph nodes can only be detected as cells using a microscope, not felt or seen by the doctor examining you (the lymph nodes are not enlarged.) No spread to other parts of the body.	T1-4a T1-4a	1a 2a	0 0
3b	1 – 4mm and ulcerated. Cancer cells present in one, two or three nearby lymph nodes. The cancer in the lymph nodes can only be detected as cells using a microscope, not felt or seen by the doctor examining you (the lymph nodes are not enlarged.) No spread to other parts of the body. or 1 - 4mm and not ulcerated. Cancer cells present in one, two or three nearby lymph nodes. The cancer in the lymph nodes can be felt or seen by the doctor examining you (the lymph nodes are enlarged.) or 1 – 4mm, either ulcerated or not ulcerated. Cancer cells present in very small areas of skin close to the tumour (satellite tumours) or has spread to skin lymphatic channels around the tumour, but without reaching the lymph nodes. No spread to other parts of the body.	T1-4b T1-4b T1-4a T1-4a T1-4a/b	1a 2a 1b 2b 2c	0 0 0 0 0
3c	1 - 4 mm and ulcerated. Cancer cells present in 1 to 3 nearby lymph nodes. The cancer in the lymph nodes	T1-4b T1-4b	1b 2b	0 0

	<p>can be felt or seen by the doctor examining you (the lymph nodes are enlarged.)</p> <p>1 – 4mm, either ulcerated or not ulcerated. Cancer cells present in 4 or more nearby lymph nodes, or there are cancer cells in lymph nodes that have become ‘matted’ together, or the melanoma cells are present in very small areas of skin close to the tumour (satellite tumours) or the cancer has spread to skin lymphatic channels around the tumour and is also present in the nearby lymph nodes.</p> <p>No spread to other parts of the body.</p>	Any T	N3	0
4	<p>The melanoma cells have spread elsewhere in the body, away from the primary tumour and nearby lymph nodes, such as to organs like the brain or lung, or to distant lymph nodes.</p>	Any T	Any N	M1 (a,b or c)

The TNM staging system is not as easy to understand as the Breslow thickness. The Breslow thickness (depth) of the melanoma is a good indication of the risk of metastasis (spread beyond the skin) and therefore of the long term outcome or prognosis. If the melanoma is thin (Breslow <1mm), the risk of metastasis is very small and the prognosis is excellent. If the melanoma is thicker (Breslow >4mm), the risk of metastasis is higher and the prognosis less good. Thus, the risk that a melanoma may have spread beyond the skin is directly related to its depth (Breslow thickness) at diagnosis.

For more information, please contact:

British Association of Dermatologists

4 Fitzroy Square, London W1T 5HQ

website: www.bad.org.uk

tel: 0207 383 0266

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