Melanoma

ML Pathology

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WHAT IS MELANOMA?

Melanoma is a type of cancer that affects cells called melanocytes. These cells are found mainly in skin but also in the lining of other areas such as nose and rectum, and also in the eyes. They produce melanin, which is a pigment that affects the colouring of hair, eyes and skin. As melanin helps to protect skin from UV radiation, people with lighter skin are more prone to its harmful effects.

Although the risk of developing melanoma increases with age, it can also affect children and adolescents. Exposure to UV radiation is thought to be the main risk factor; however, other factors such as skin type and the health of the immune system also play a role. Additionally, there are rare genetic abnormalities that increase the risk of developing melanoma. Melanoma can occur in a pre-existing mole – the highest risk is within large congenital moles that have been present from birth.

WHAT DOES THE PATHOLOGY REPORT MEAN?

The pathology report should include all the vital results that can help to predict how a melanoma will behave. The melanoma may be 'in situ' (Clark level 1), in which case it is still a precancerous lesion that has not invaded tissues and cannot spread to other parts of the body.

When the melanoma has invaded tissues, the following information must be included in the pathology report:

- **Breslow thickness:**
  This measures how thick the melanoma is, and is the single most important prognostic indicator.
- **Clark level:**
  Indicates which part of the skin has been invaded.

- **Ulceration:**
  Associated with a worse prognosis when present.
- **Mitotic rate:**
  The presence of ≥6 mitotic figures per square mm is associated with lower long term survival.
- **Tumour infiltrating lymphocytes:**
  Brisk/non-brisk/absent; a brisk response is associated with better survival for localised melanoma.
- **Lymphovascular invasion/angiotropism:**
  Associated with a worse prognosis when present.
- **Regression:**
  Associated with a worse prognosis when present.
- **Microsatellites:**
  Small tumour deposits that have spread and are found next to the melanoma.
- **Neural invasion:**
  Associated with a worse prognosis when present.
- **Melanoma subtype**
- **Margins**

Some of this information is used to place the tumour in an American Joint Committee on Cancer (AJCC) clinical staging group (see next section) that, combined with the other information, will help to guide further management.

WHAT IS AJCC STAGING?

AJCC staging is used for all types of cancers including melanoma and these guidelines have been written through input by experts from all over the world. The latest (8th) version of the AJCC Cancer Staging Manual was released towards the end of 2016.

Clinical stage I and II implies localised disease. Nodal and non-nodal locoregional metastases are present in stage III disease. In stage IV, distant metastases are present.

WHAT IS SENTINEL LYMPH NODE BIOPSY (SLNB)?

Most melanoma (80%) patients will have localised disease (AJCC clinical stage I and II) but as the forecast for this group can be variable, patients that are found to be at the highest risk for early nodal spread will be offered SLNB.

The purpose of SLNB is to detect early spread of melanoma to lymph nodes. This involves finding and removing the first lymph node(s) which the melanoma cells are likely to reach and is carried out by injecting dye and/or a radioactive tracer into or near the original tumour. This is usually performed at the same time as the definitive wide excision of the melanoma. There may be one or more nodes that are identified, and these will be examined by a pathologist using very detailed and specialised techniques. If no melanoma is identified, no further management apart from follow up is required. If even a single melanoma cell is found in a SLNB the patient will be upstaged from AJCC clinical stage I/II to III, and the patient may be offered a completion lymphadenectomy and adjuvant therapy.

WHO SHOULD HAVE SLNB?

SLNB should be offered to patients with no proven sign of metastatic disease and who have a melanoma that is >1mm thick. It may also be discussed with and offered to patients with melanomas 0.8-1mm thick when high risk features such as mitoses, ulceration, lymphovascular invasion are present.

>>> CONTINUED OVERLEAF

WHAT MARGINS ARE NEEDED FOR MELANOMA?

When melanoma is suspected, an excisional biopsy should be performed if possible. For this, the entire lesion should be removed with a surrounding narrow (1-3mm) rim of normal looking skin. A wide excision at this stage is not advised as it will affect the success of SNLB, if this is later required.

When the pathology report confirms melanoma, despite the histological margins measured in the report, a further (definitive) excision will be required to ensure the entire melanoma has been removed. Cancer Council Australia provides guidelines for definitive excision margins, according to the clinical stage, but patient traits, anatomical factors and melanoma subtype also need to be taken into account. Often, no residual melanoma is identified in the definitive excision. On the other hand, some subtypes of melanoma, such as lentigo maligna, may be a challenge to remove completely as it can be hard to define the margins clinically as well as histopathologically.

For further information please consult your treating doctor or visit http://www.cancer.org.au/about-cancer/types-of-cancer/skin-cancer/melanoma.html

To find your local collection centre: visit **qml.com.au**, or scan this QR code using a smart phone app.

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