The Pathology Report for
Cutaneous Melanoma

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Getting to the Starting Line

Diagnosis:

- Microstaging Applies to Invasive Melanoma
- Primary cutaneous melanoma
  - Be aware of nodular melanoma issues
  - Problematic cases
    - Atypical Spitz Tumours/Spitzoid melanoma
    - Atypical blue naevus/blue naevus like melanoma
    - Some cases of melanoma arising in congenital naevi
    - Putative primary dermal melanoma
    - Pigmented epithelioid melanocytoma
HISTOPATHOLOGY REPORT

SPECIMEN:
Lesion: right elbow.

CLINICAL:
Excisional biopsy. Changing pigmented lesion, right elbow.

MACROSCOPIC:
A skin ellipse 30 x 14 x 8 mm. On the surface is an ill-defined tan macule 8 x 6 mm. The entire lesion is submitted. (2p1b/t) (S Tan/Romani-Gibbs)

MICROSCOPIC AND CONCLUSION:
These sections of skin show a primary invasive malignant melanoma. A synoptic summary follows:

Site: Right elbow.

Melanoma subtype: Invasive superficial spreading melanoma.

Breslow thickness: 1.35 mm.

Clark level of invasion: 3.

Ulceration: Absent.

Mitotic rate: 1/mm2.

Satellite Metastases: Absent.

Tumour stage (AJCC 7th edition, 2010): T2a

Tumour infiltration by lymphocytes: Present, non-brisk

Intermediate/late regression: Absent.

Lymphovascular invasion: Absent.

Perineural invasion: Absent.

Margins:
- Distance from the invasive component to the nearest peripheral margin: 5 mm.
- Distance from the invasive component to the nearest deep margin: 10 mm.
- Distance from the in-situ component to the nearest peripheral margin: 4.5 mm.

Microscopic Description/Other Comments:
These sections of sun-damaged skin show a moderately broad, asymmetrical and somewhat poorly-circumscribed compound melanocytic proliferation. The intradermal component consists of nested and lentiginous growth at the junction, with areas of confluent sheets of melanocytes and focal Pagetoid extension of single cells to the level of the granular layer. The dermal component consists of sheets and nests of cells which lack maturation or dispersal with descent into the dermis. The constituent cells are a mixture of spindle and epithelioid forms with markedly enlarged pleomorphic nuclei showing variable prominent nuclei. Occasional dermal mitotic figures are identified.

PATHOLOGIST: BENJAMIN WOOD
The Melanoma Synoptic Report

Advantages of combined synoptic reporting:
- International standardisation (ICCR)
- Completeness of data
- Uniformity of format
- Ease of interpretation
- Potential for data linkage
Melanoma Subtype

The following are the most common WHO subtypes:

- Superficial spreading melanoma
- Nodular melanoma
- Lentigo maligna melanoma

- Subtype is not of independent prognostic significance for the common types
- There is emerging evidence that these subtypes show some correlation with pathogenic classes and molecular subtypes
Breslow Thickness
Prognostic Factors Analysis of 17,600 Melanoma Patients: Validation of the American Joint Committee on Cancer Melanoma Staging System

Breslow Thickness is Used to Determine T stage

- **T1**: <1mm thick
- **T2**: 1.01-2mm thick
- **T3**: 2.01-4mm thick
- **T4**: >4mm thick
Clark Level
Clark Level

- Prognostic value independent of thickness, ulceration and mitotic activity is limited
- Clark level is no longer used to subdivide T1 lesions
- It remains true that patients with thin Clark level 2 tumours (without regression) are at very low risk of developing metastasis
Ulceration
Ulceration

- Ulceration is an important negative prognostic factor
- Stratifies “a” and “b” substage in all T categories
- Ulceration is definitionally non-traumatic
  - Clinical history can be vital in this regard
Mitotic Rate

1 mm²
Mitotic Rate

“Hot Spot”
Mitotic Rate

- (Equal) second most powerful prognostic factor
- Used to stratify T1a and T1b
# Tumour Stage

## Primary Tumor (T)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Melanoma in situ</td>
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<tr>
<td>T1</td>
<td>Melanomas ≤1.0 mm in thickness</td>
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<tr>
<td></td>
<td>- without ulceration and mitosis &lt;1/mm²</td>
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<tr>
<td></td>
<td>- with ulceration or mitoses ≥1/mm²</td>
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<tr>
<td>T2</td>
<td>Melanomas 1.01 – 2.0 mm</td>
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<tr>
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<td>- without ulceration</td>
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<td>- with ulceration</td>
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<tr>
<td>T3</td>
<td>Melanomas 2.01-4.0 mm</td>
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<td>- without ulceration</td>
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<td>- with ulceration</td>
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<tr>
<td>T4</td>
<td>Melanomas &gt;4.0 mm</td>
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<td>- without ulceration</td>
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<td>- with ulceration</td>
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Satellite Metastasis
Satellite Metastasis

- **Satellite lesions**
  - grossly visible cutaneous or subcutaneous metastases occurring within 2 cm of the primary tumour.

- **Microsatellites**
  - any discontinuous nest of intralymphatic metastatic cells greater than 0.05 mm in diameter that are clearly separated by normal dermis (not fibrosis or inflammation) from the main invasive component of melanoma by a distance of at least 0.3 mm.

- **‘In transit metastases’**
  - cutaneous and/or subcutaneous metastases occurring within lymphatics lying at a distance greater than 2 cm from the primary melanoma in the region between the primary and the first echelon of regional lymph nodes.

- All probably represent the same process, and the present data show no difference in outcome between them.

- The presence of these features without lymph node metastases defines the pN2c category.
Other Data Points

- Tumour infiltration by lymphocytes
- Regression
- Lymphatic/vascular space invasion
- Perineural invasion
Margins

- Involvement of the surgical margin may result in regrowth or metastases from residual melanoma.
- The report should document the distance of melanoma from:
  - peripheral margin, in situ component
  - peripheral margin, invasive component
  - deep margin, invasive component
- Do not conflate clinical margin recommendations and histological measurements!
Microscopic Description/Other Comments

- Brief description of the tumour
- If necessary, rationale for diagnosis, discussion of difficult issues
For more details, references, questions:

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