How to read a pathology report

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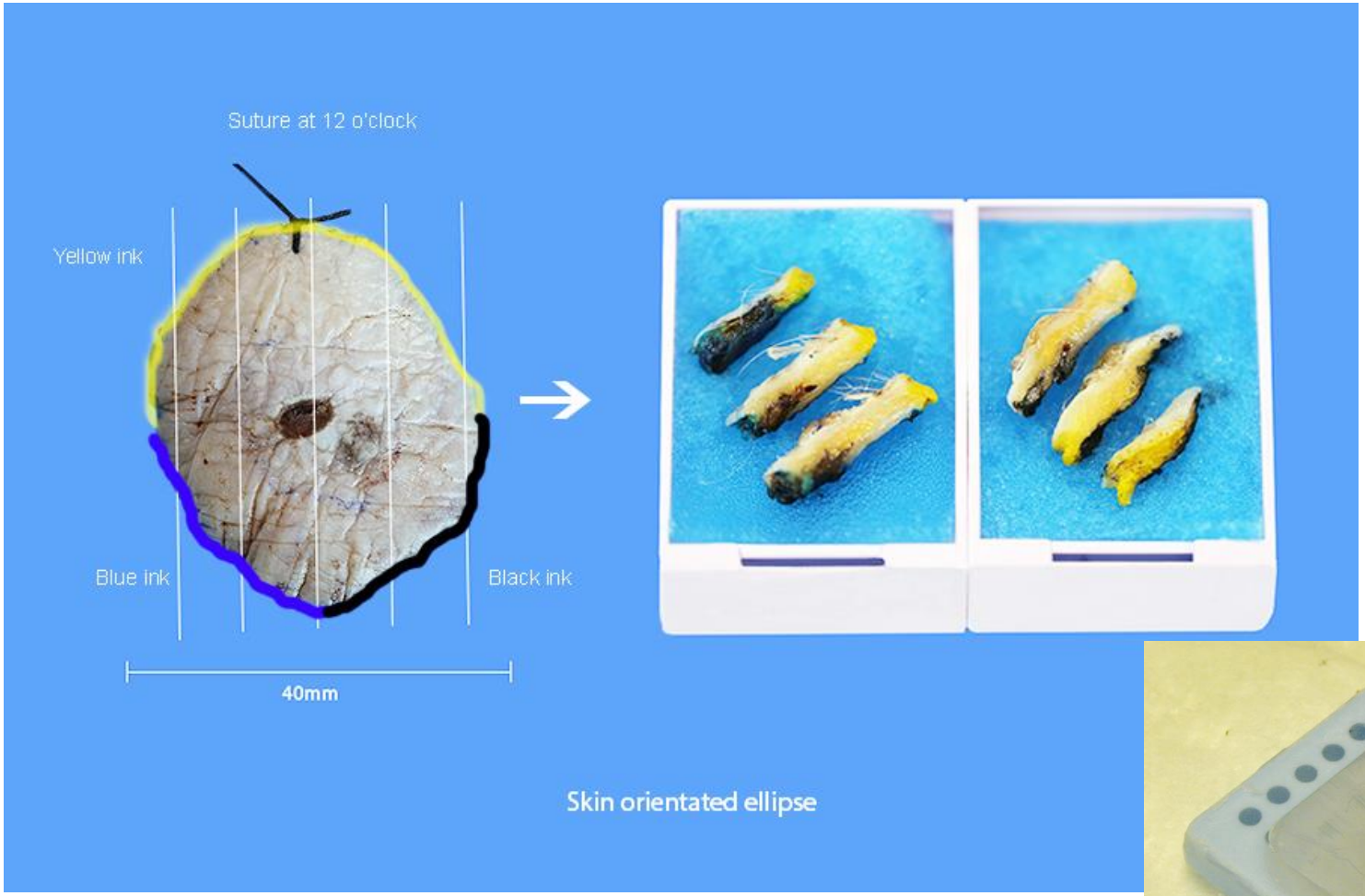
What is a pathologist?

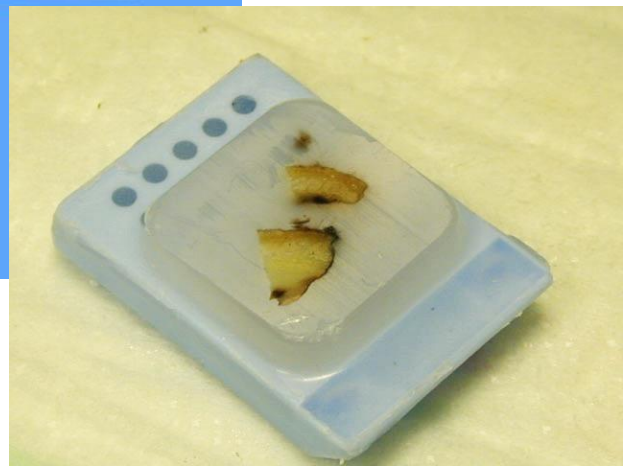
- Medically qualified doctors
- Work at the interface of the clinic and the lab
- Examine tissue and cell samples to diagnose disease

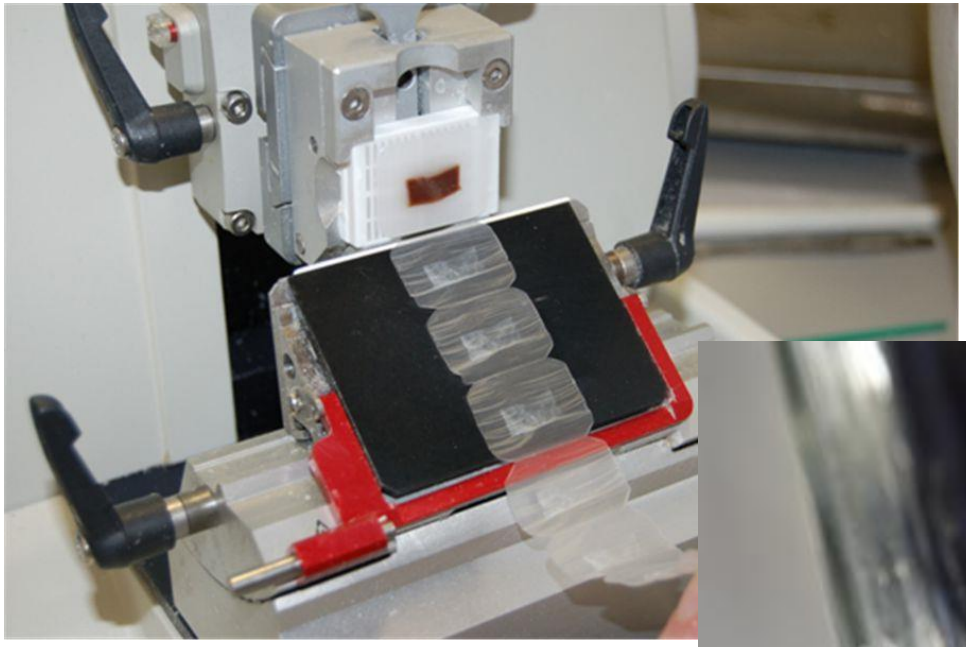
The Royal College of Pathologists
Pathology: the science behind the cure

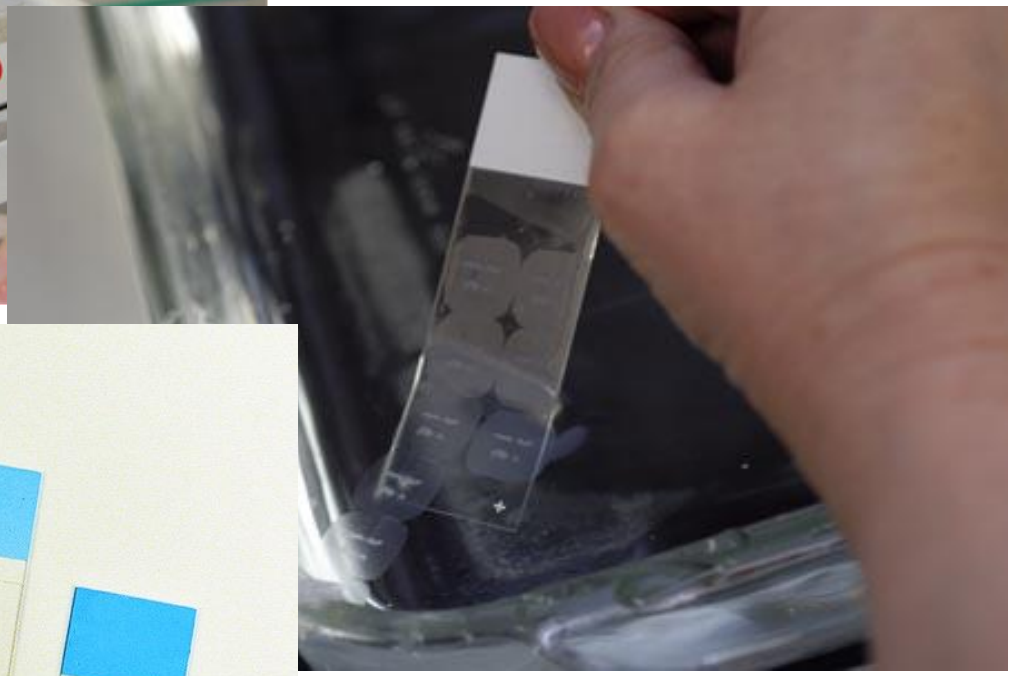
CM-Path
Cellular Molecular Pathology Initiative

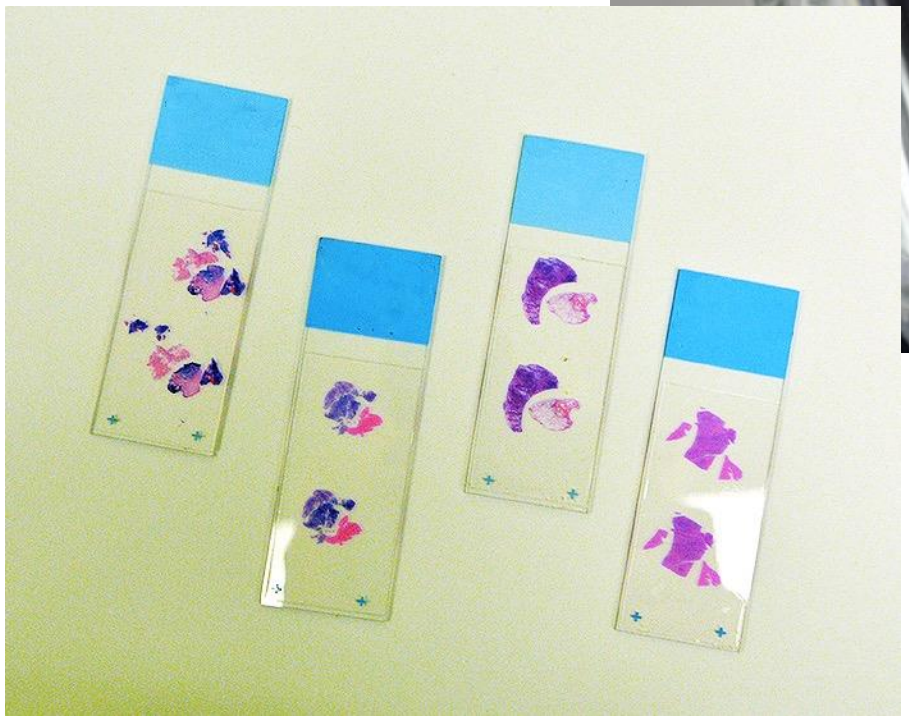
What happens to my tissue?

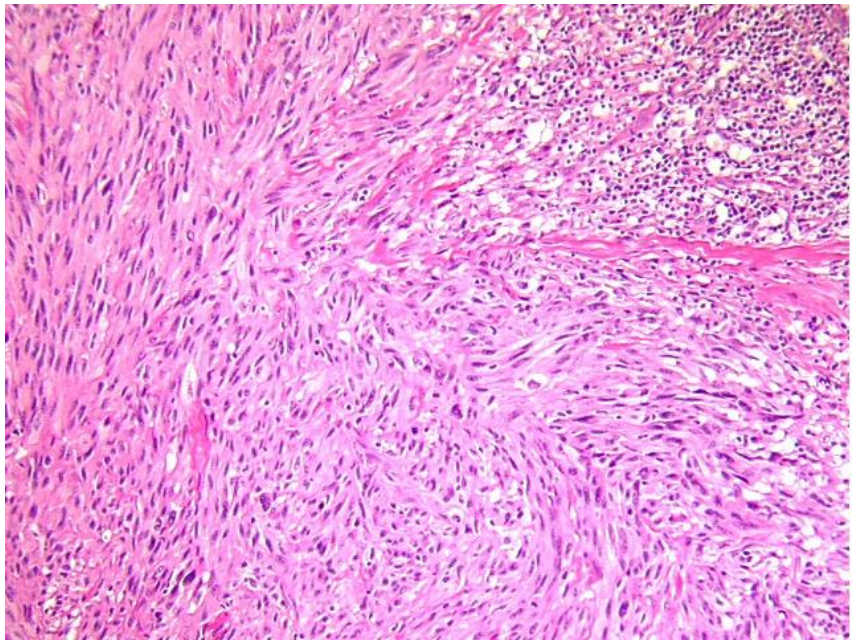


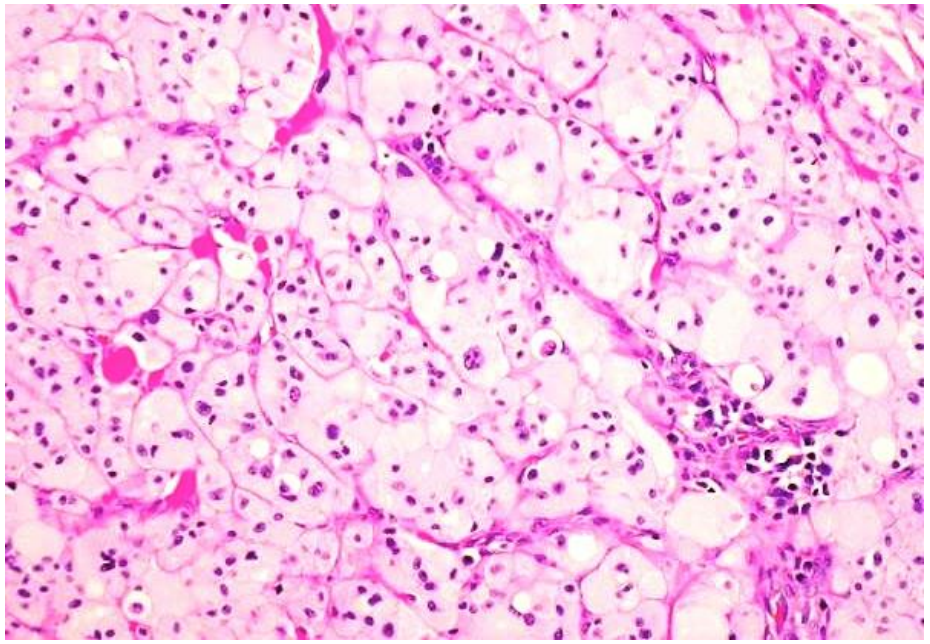


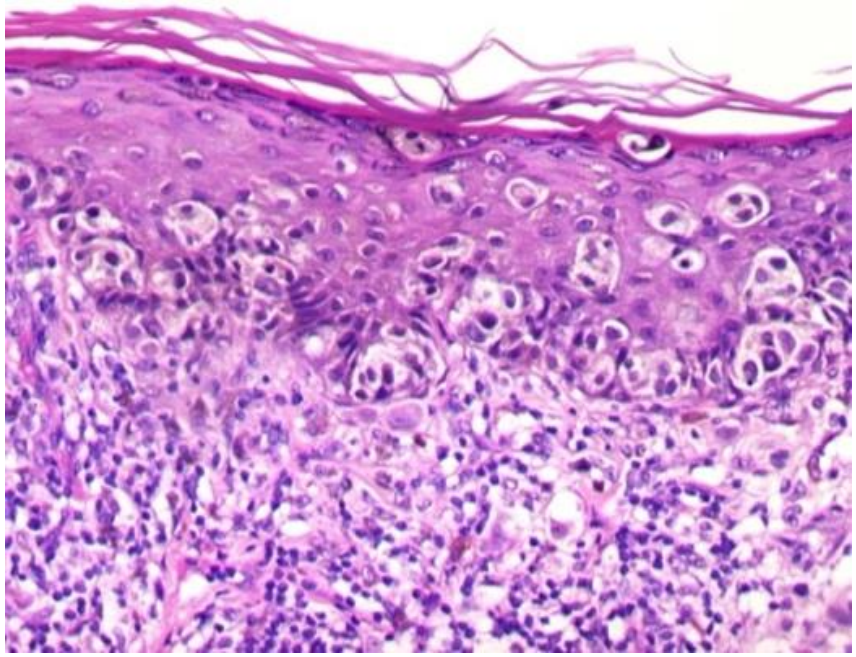


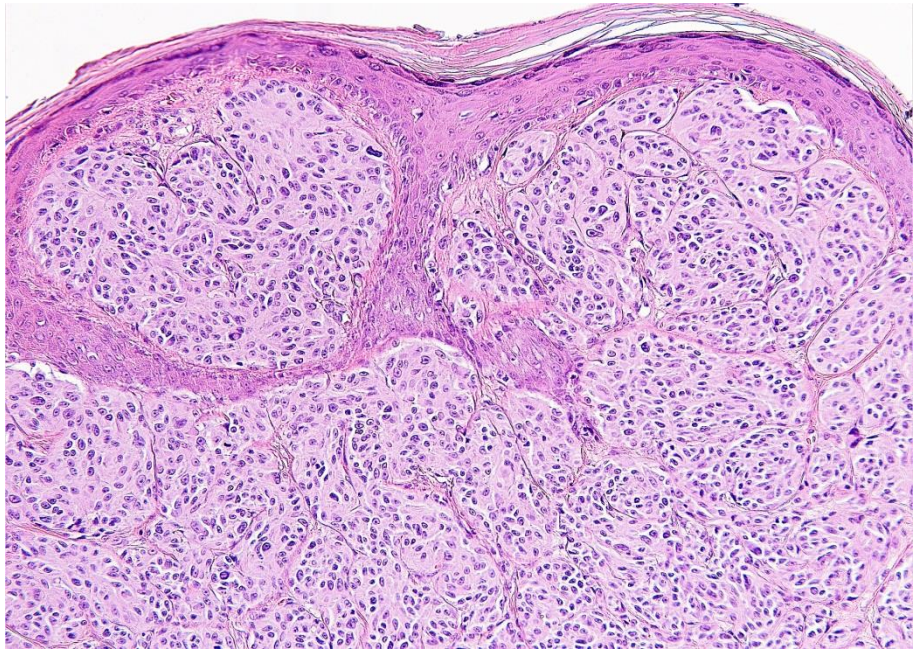












What is the purpose of a pathology report?

- Diagnosis
- Prognostic factors
  - GRADE – How aggressive is the tumour?
  - STAGING – How far has the tumour spread? TNM
  - EXCISION – Has all the tumour been removed?
- Biomarkers
  - Presence of a genetic mutation
  - Detection of a protein

- Ensure patients receive the appropriate treatment

Full details in RCPath Melanoma Dataset

- Royal College of Pathologists website
- www.rcpath.org
- *'Tissue Datasets and Pathways'* section

- National guidance of what needs to be included in a melanoma pathology report

The Royal College of Pathologists
Pathology: the science behind the cure

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Standards and datasets for reporting cancers

Dataset for the histological reporting of primary cutaneous malignant melanoma and regional lymph nodes

May 2014

Authors

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Unique document number	G125
Document name	Dataset for the histological reporting of primary cutaneous malignant melanoma and regional lymph nodes
Version number	3
Produced by	Dr David Slater (Specialist Dermatopathologist to the National Cancer Intelligence Network Skin Cancer Site-Specific Clinical Reference Group, Member of British Association of Dermatologists' Skin Cancer Clinical Guideline Development Group; previously President of British Society of Dermatopathology, Chair of RCPath Joint Specialty Advisory Committee (SAC) on Dermatopathology, Chair of RCPath Examiners for the Diploma in Dermatopathology, Dermatopathologist Member of Skin Cancer Guidance Development Group for NICE, Deputy Editor of *British Journal of Dermatology)* and Dr Maureen Walsh (previously Chair of RCPath Joint SAC on Dermatopathology, President of the British Society for Dermatopathology, Chair of RCPath Examiners for the Diploma in Dermatopathology), on behalf of the College's Working Group on Cancer Services.
Date active	May 2014
Date for abridged review	May 2015
Date for full revision	May 2016
Comments	This dataset has been revised to include updated references and changes to reporting proformas, including standardisation of terminology, SNOMED coding and clearer reporting division of *in-situ* and invasive melanoma (in particular to avoid confusion between the clinical terms 'lentigo maligna' and 'lentigo maligna melanoma'). In accordance with the College's pre-publications policy, this document was on the College website for an abridged consultation from 4–18 February 2014. Eighteen items of feedback were received. The authors considered them and amended the document as appropriate. Please email publications@rcpath.org if you wish to see the responses and comments. **Dr Suzy Lishman** **Vice-President for Advocacy and Communications**

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What is included?

- Core dataset items
  - Required for melanoma staging and prognosis
  - Level of scientific evidence for each core item included
  - Also includes how samples should be handled and processed in the laboratory
- Non-core items
  - Local or research requirements
- No standardised way to present report

Core dataset items

- Subtype of melanoma
- Breslow thickness
- Ulceration
- Mitotic index
- Lymphovascular invasion
- Microsatellites
- Perineural invasion
- Growth phase
- Tumour infiltrating lymphocytes
- Regression
- Clark level
- Margins
- Lymph nodes

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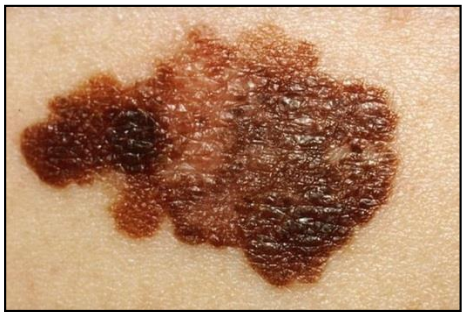
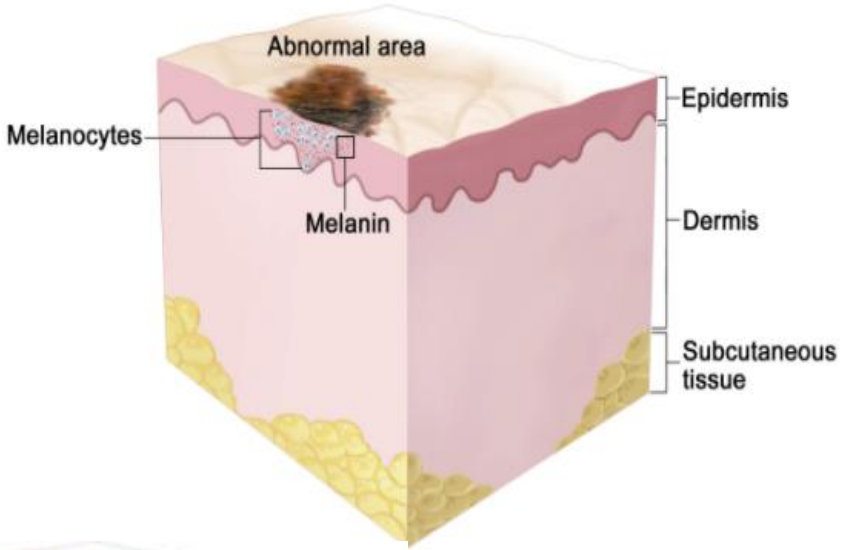
T classification	Thickness (mm)	Ulceration status/mitoses
T1	≤1.0	a: without ulceration and mitosis <1/mm^2 b: with ulceration or mitoses ≥1/mm^2
T2	1.01–2.0	a: without ulceration b: with ulceration
T3	2.01–4.0	a: without ulceration b: with ulceration
T4	>4.0	a: without ulceration b: with ulceration

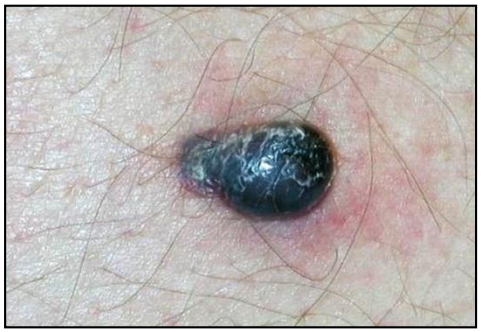
Subtype of Melanoma

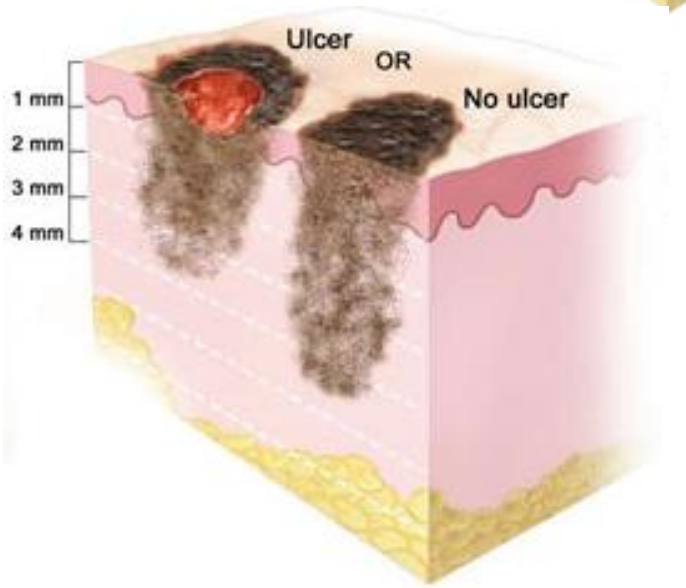
- Superficial Spreading



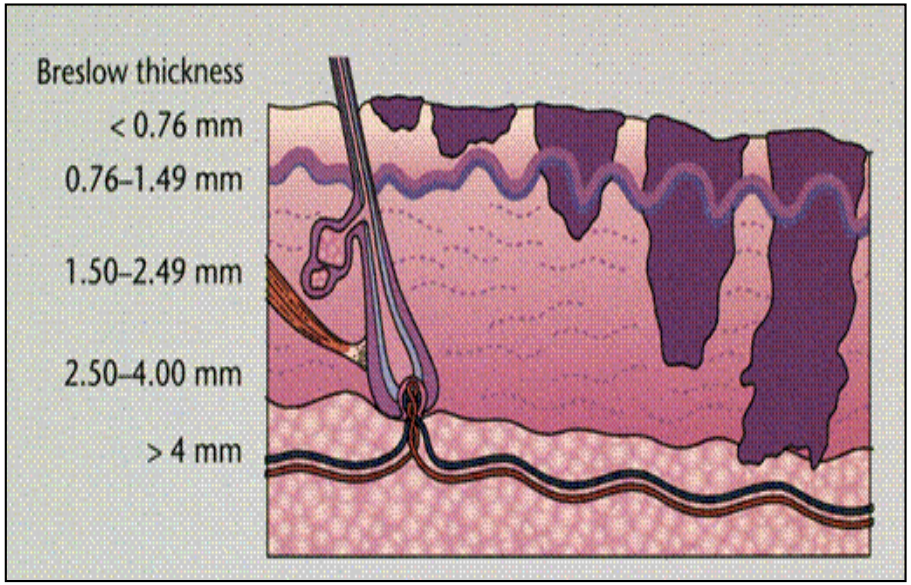


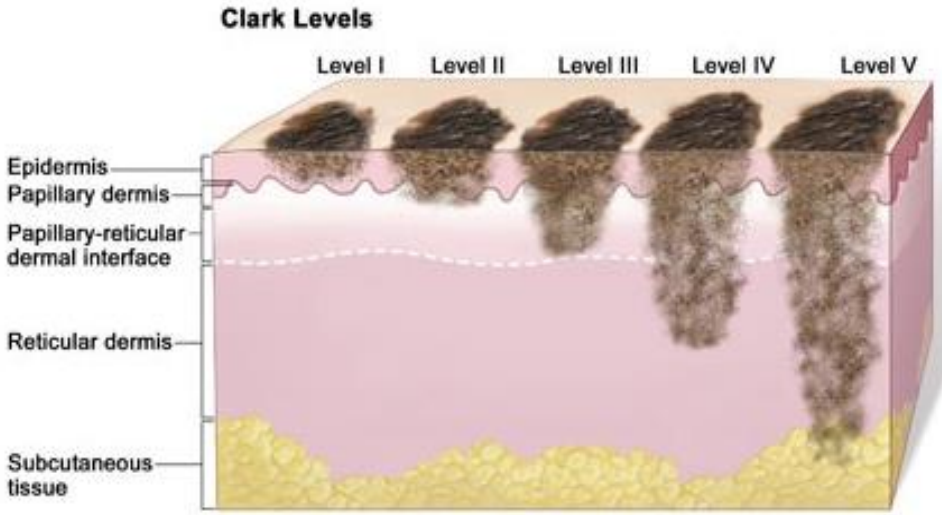
- Nodular





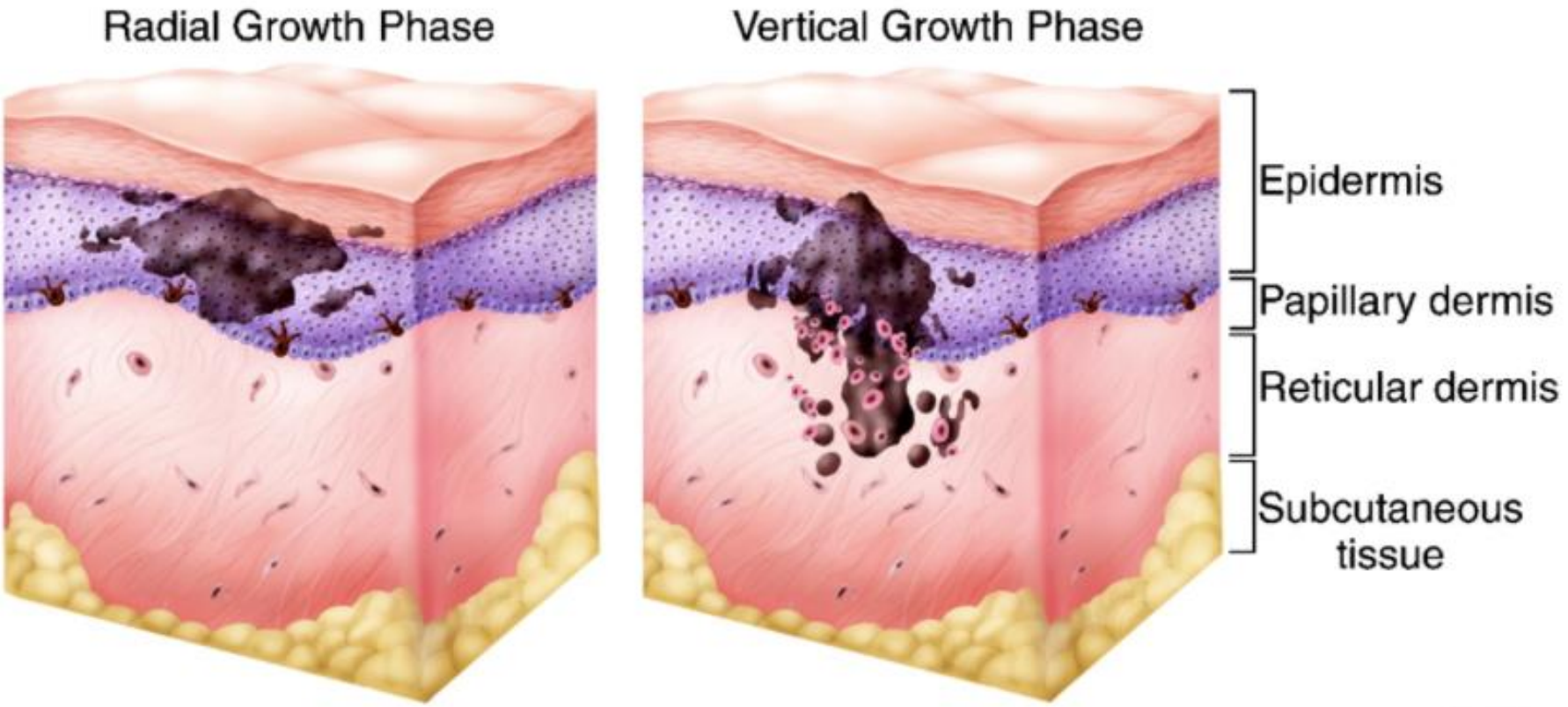
Breslow Thickness and Clark Level





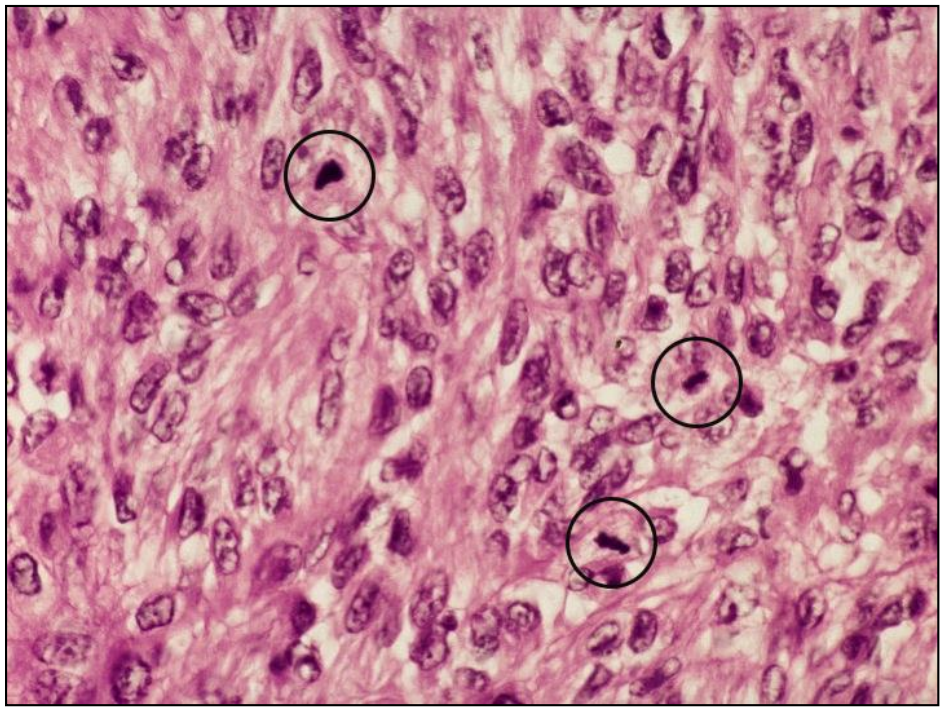
- Vertical tumour thickness in mm (Breslow)
- Determines pathological T stage
- Sentinel lymph node procedure for Breslow >1mm

Growth Phase



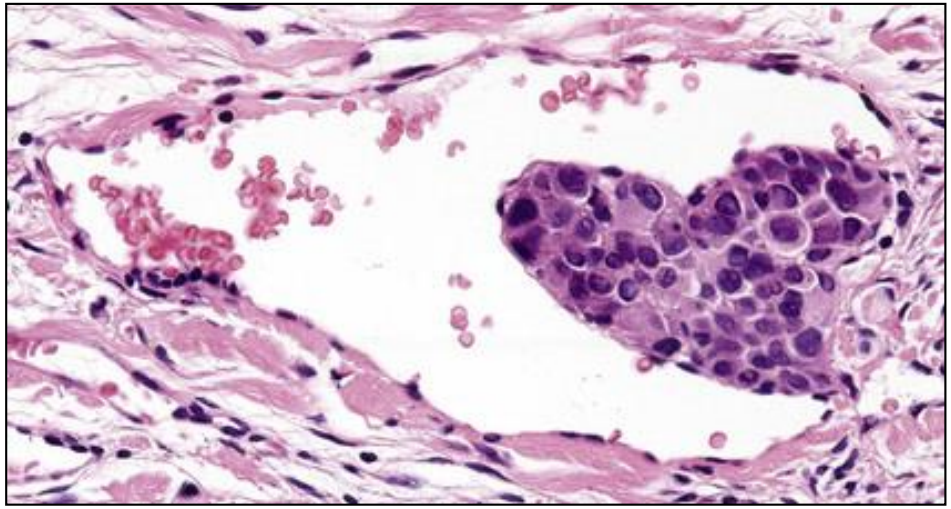
- Generally applies to superficial spreading type of melanoma
- Vertical growth phase associated with worse prognosis

- Ulceration
  - Tumour causes a break in the skin surface
  - Survival rates for ulcerated melanomas are proportionally lower
  - Determines pathological T stage (a vs b)
- Mitotic index
  - Number of actively dividing cells seen per mm^2
  - >1 per mm^2 = poor prognosis



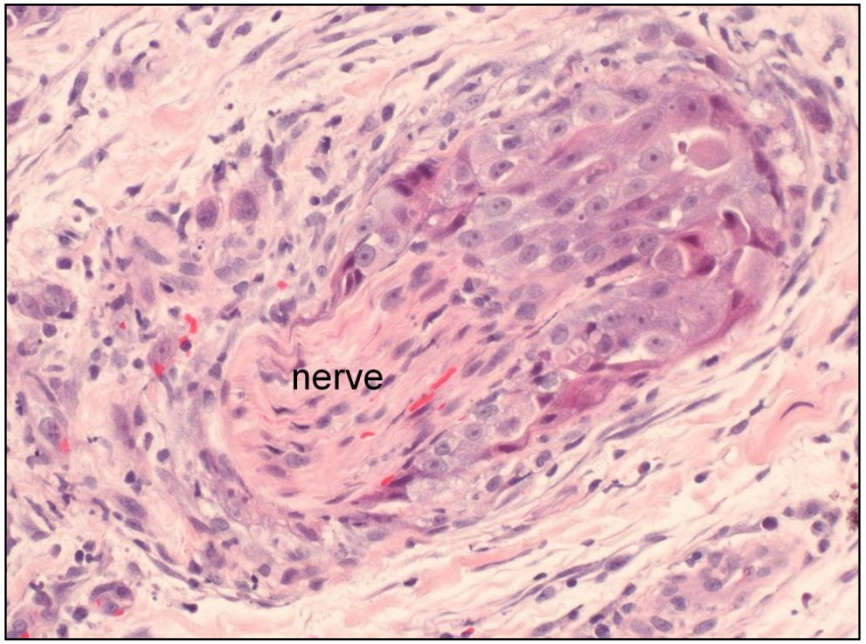
- Lymphovascular invasion

➢ The tumour has invaded blood or lymphatic vessels



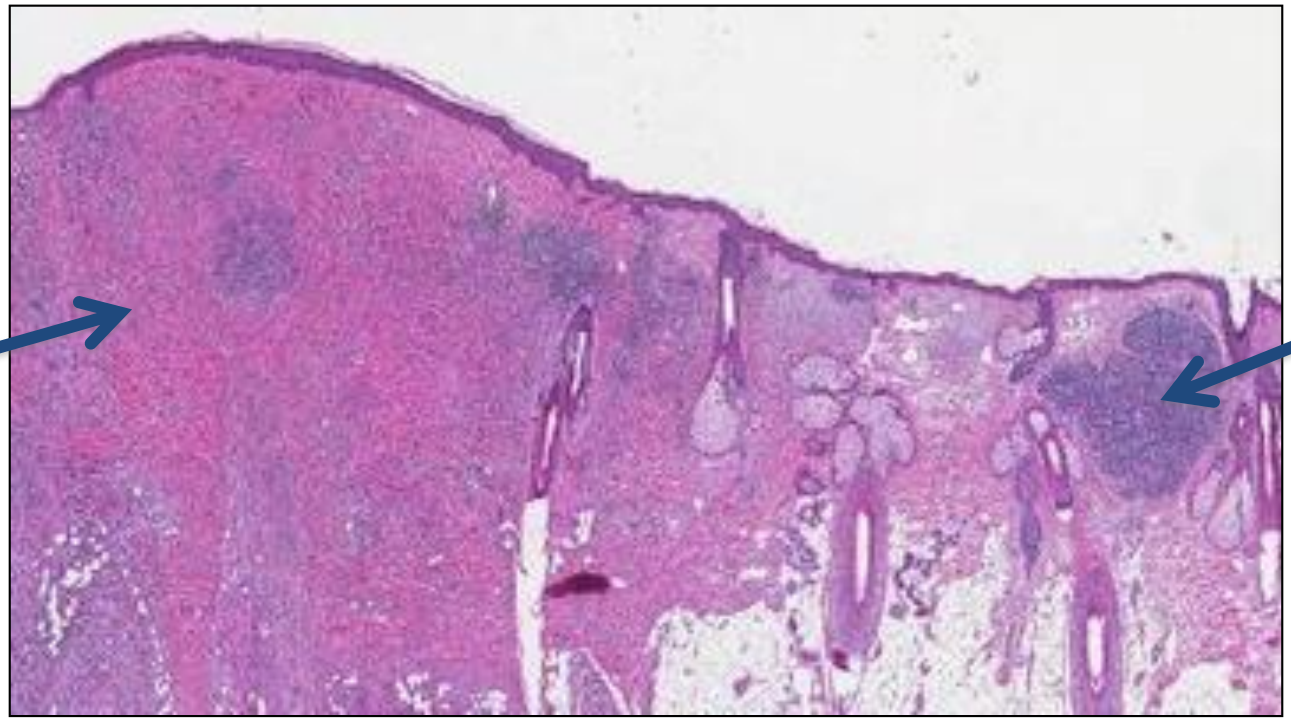
- Perineural invasion

➢ The tumour has invaded nerves

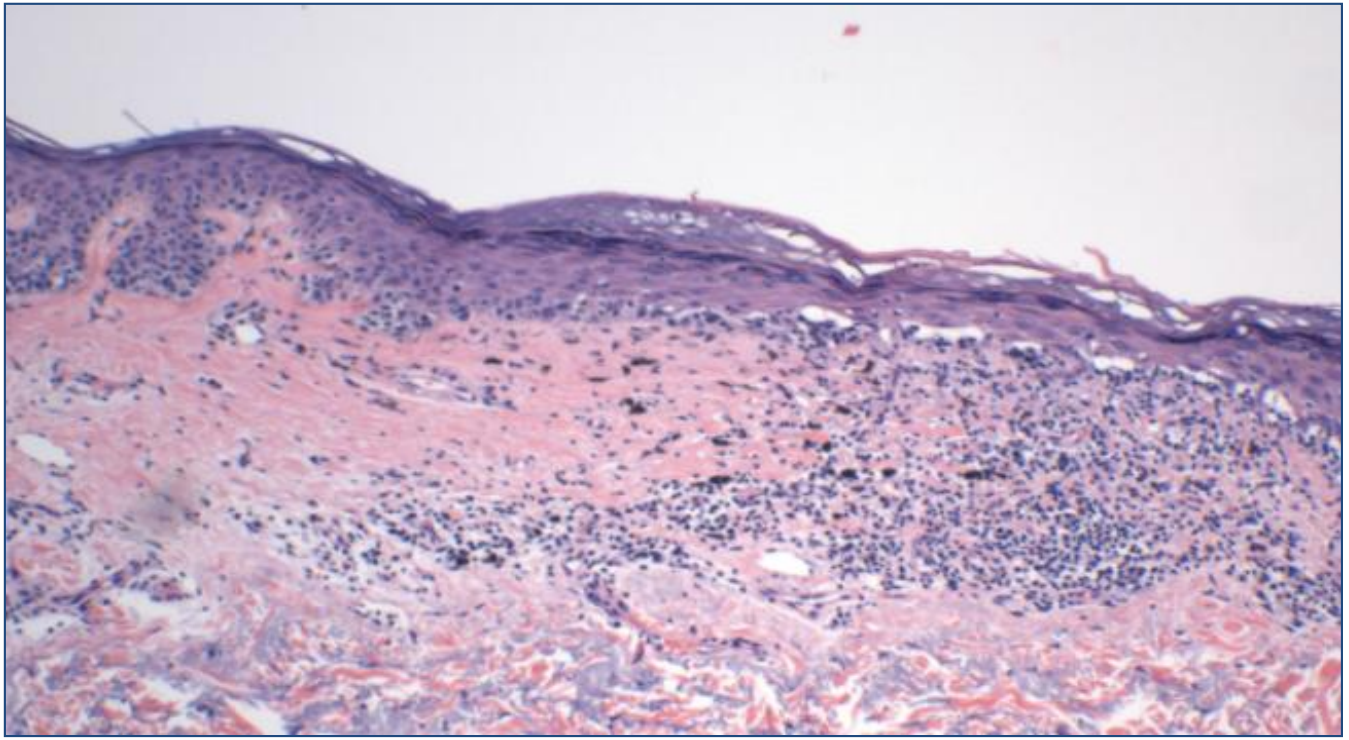


If present = poorer prognosis

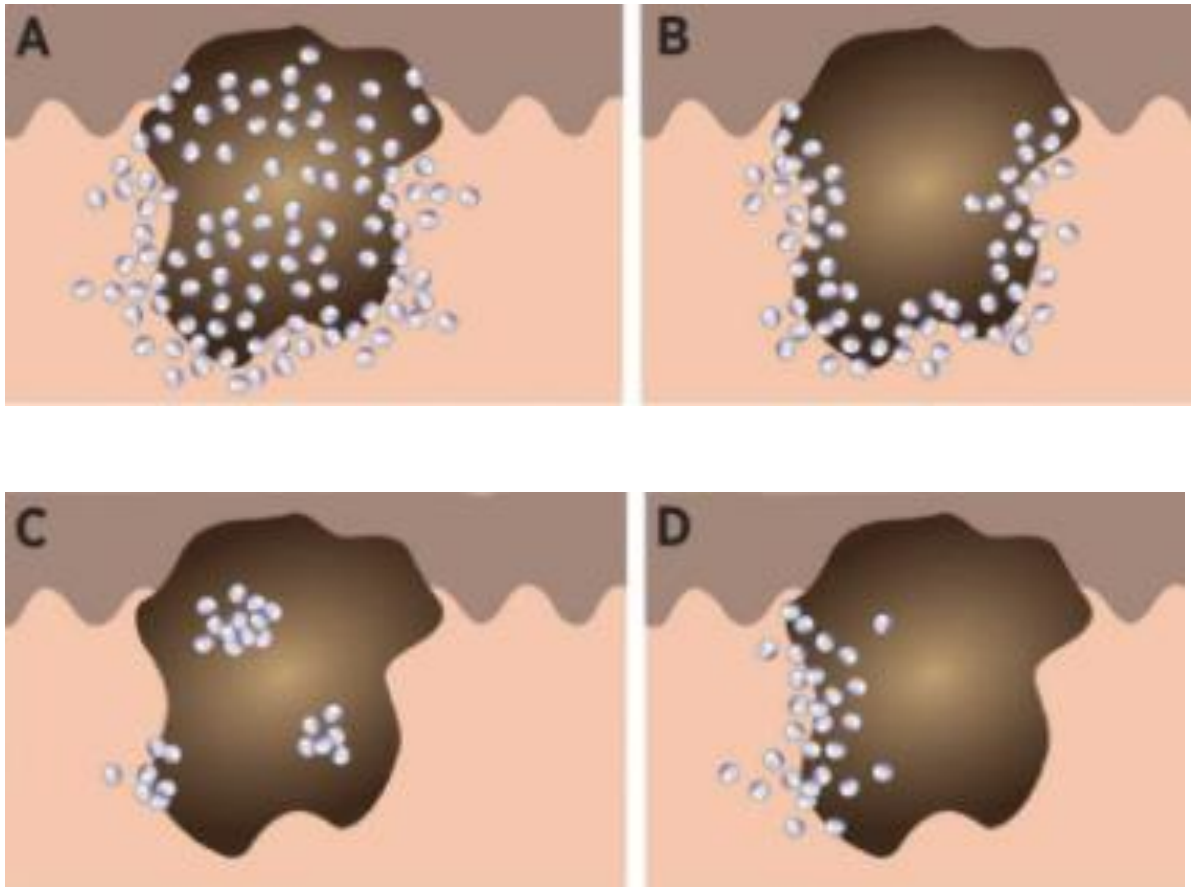
- Microsatellites
  - Separate tumour growth <20mm from main tumour
  - If >20mm referred to as ‘In transit metastasis’
  - Associated with increased local recurrence and reduced overall survival (affect ‘N’ stage in TNM)



- Regression
  - Presence of scarring and inflammation within tumour
  - Large areas of regression = poor prognosis



- Tumour infiltrating lymphocytes
  - Immune system cells within the tumour
  - Fewer lymphocytes in tumour = poor prognosis

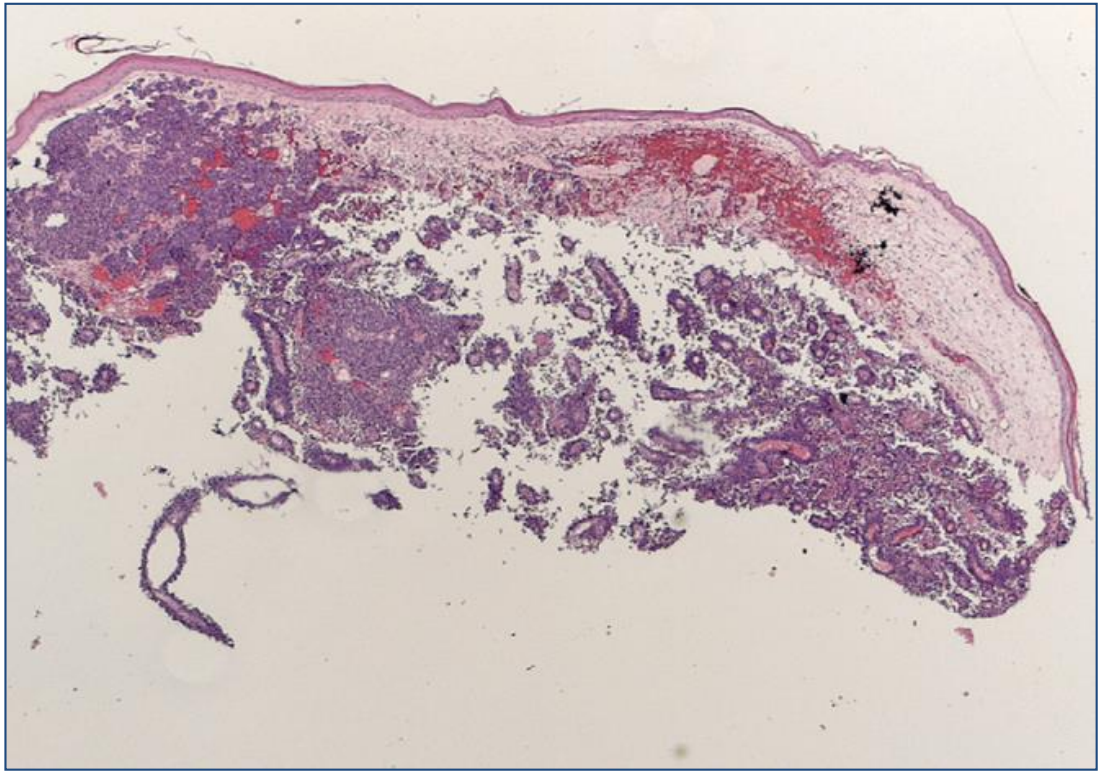


BRISK PATTERN

NON-BRISK PATTERN

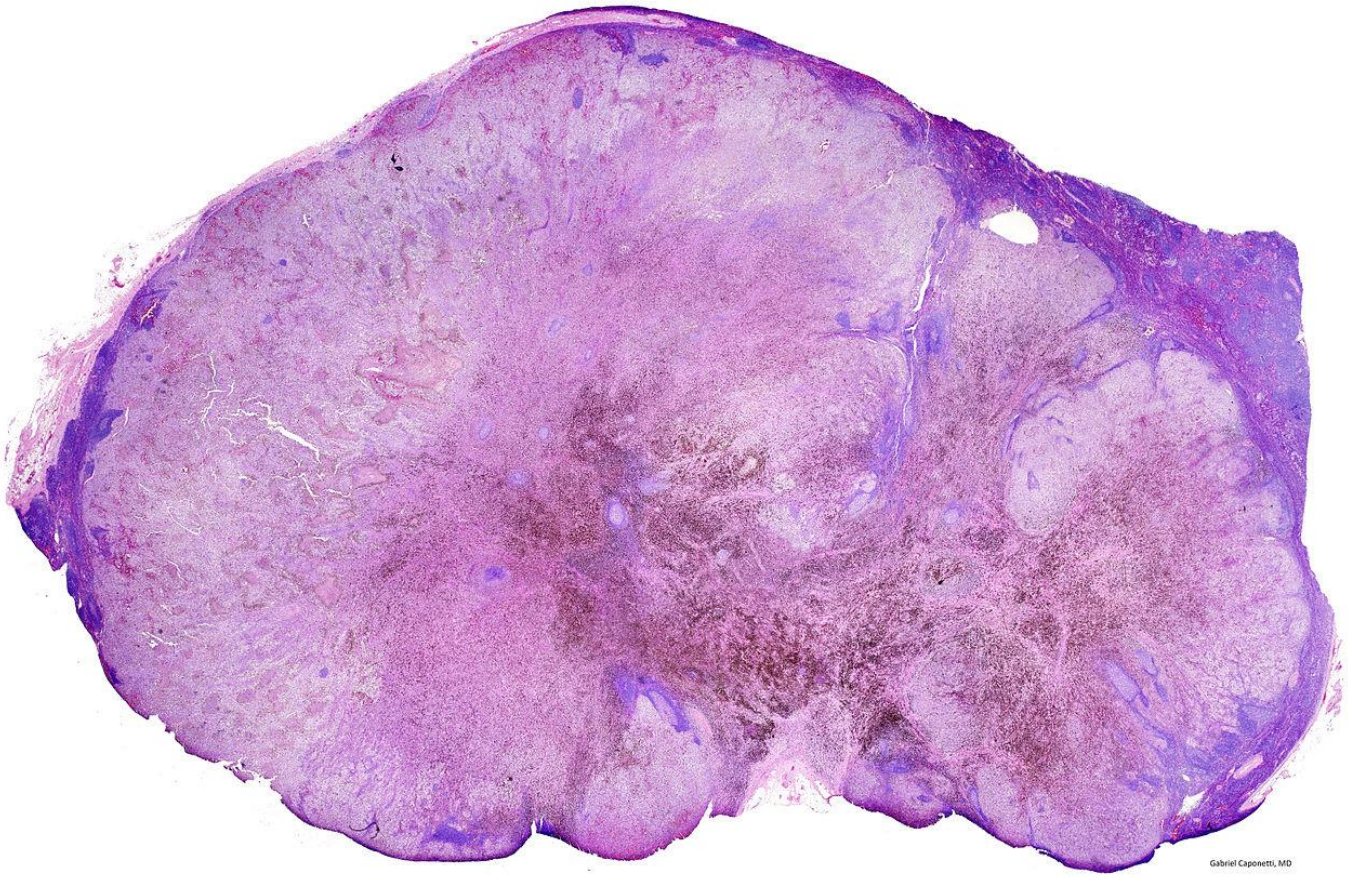
Margins

- Peripheral and deep margins
- Influences local recurrence
- Wide local excision undertaken in all cases and the scar from original excision examined to look for residual tumour



Lymph nodes

- Number of nodes involved determines N stage of TNM
- Size of the deposit
- Spread outside of the lymph node



Non-core data items

- Molecular markers (BRAF gene mutation)

- Description of appearance of the melanoma
  - Symmetry and border of the tumour
  - How the cells look
  - Special stains
    - S100, MelanA, HMB45
      - Proteins present in the melanoma cells
      - Can help with measurements

- Increase patient and public awareness of the role of pathologists in patient care and research
- Maximise opportunities for tissue based research within the NHS and academic centres
- Drive progress in translational research.

http://cmpath.ncri.org.uk