NEOPLASIA

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MCWH

References:

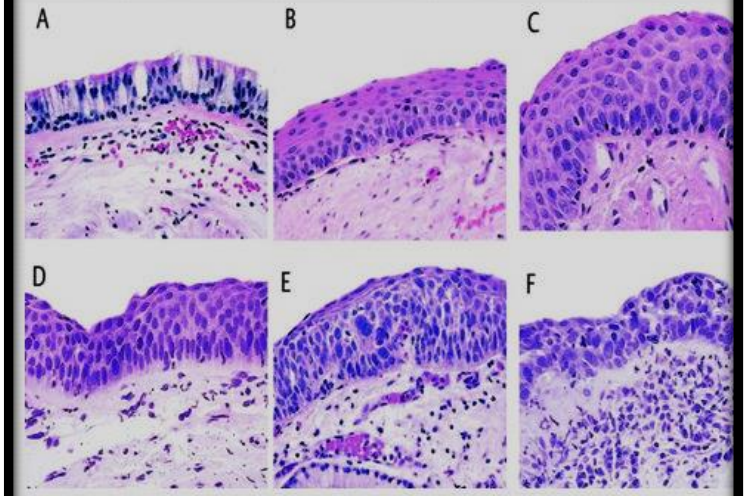
- **Robbins & Cotran Pathologic Basis of Disease- 9th edition**
- **IMAGES- Above mentioned book & internet**

GRADING AND STAGING OF TUMOURS

GRADING AND STAGING

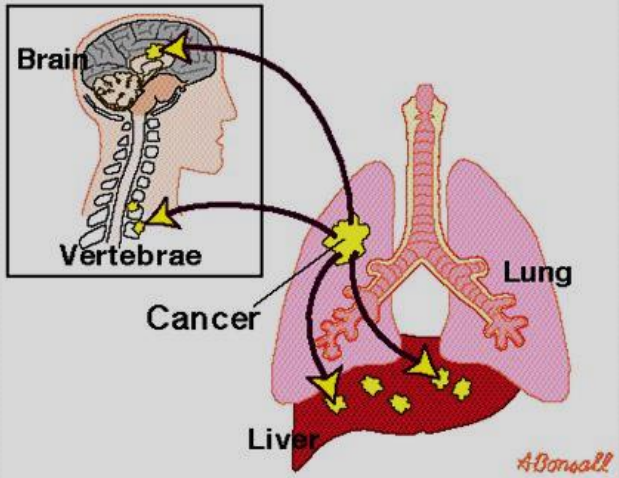
GRADE

- Tumor grade is the description of a tumor based on how abnormal the tumor cells and the tumor tissue look under a microscope. It is an indicator of how quickly a tumor is likely to grow and spread.



STAGE

- Cancer stage refers to the size and/or extent (reach) of the original (primary) tumor and whether or not cancer cells have spread in the body.



LUNG CANCER and METASTASIS

TUMOUR GRADING

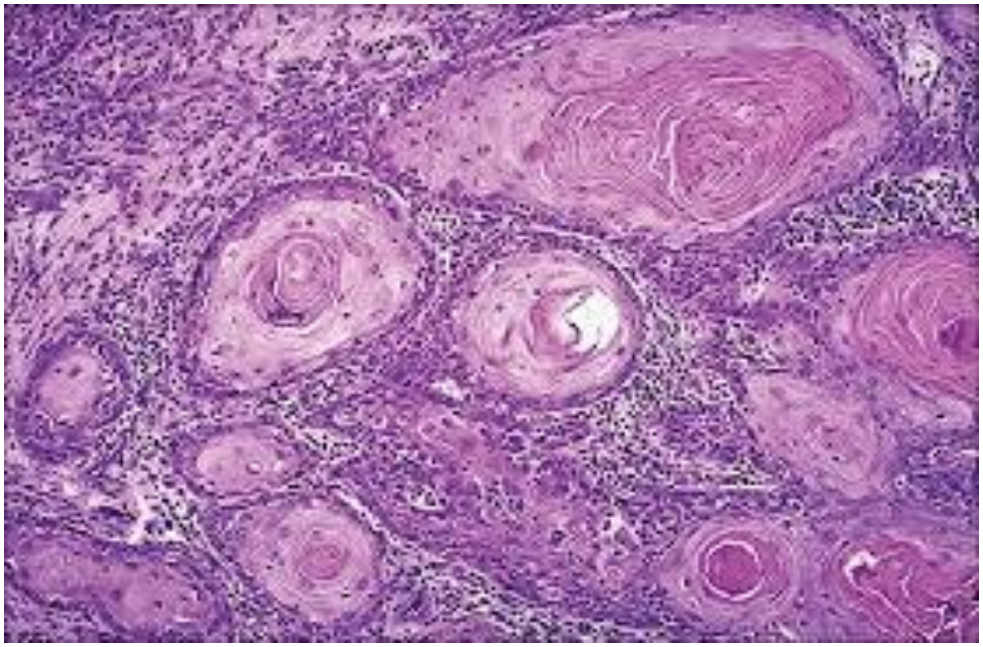
GRADING (histological)

- Degree of **differentiation** of the tumour cell
- Number of **mitoses** within the tumour/ architectural features

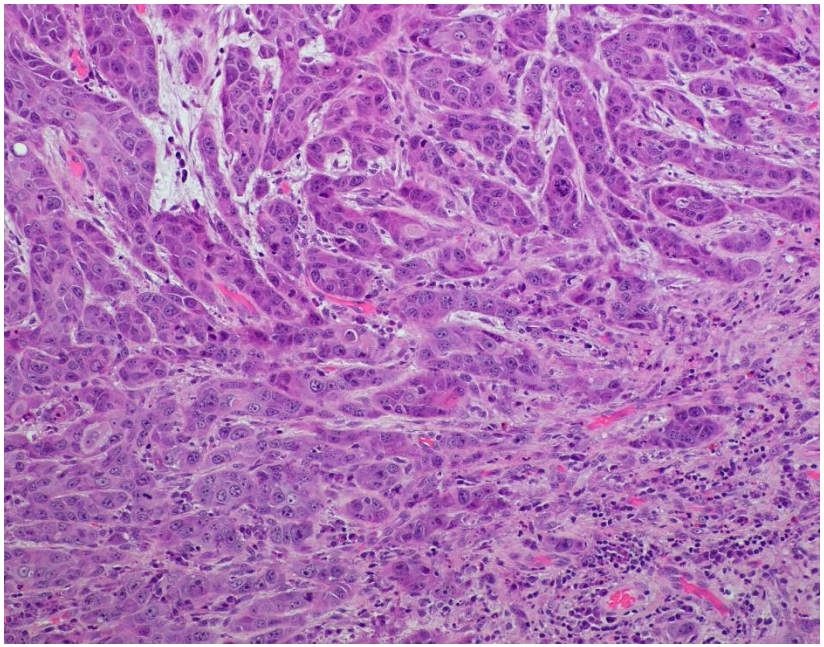
Correlates with the aggressiveness of tumour

TUMOUR GRADING

Degree of differentiation



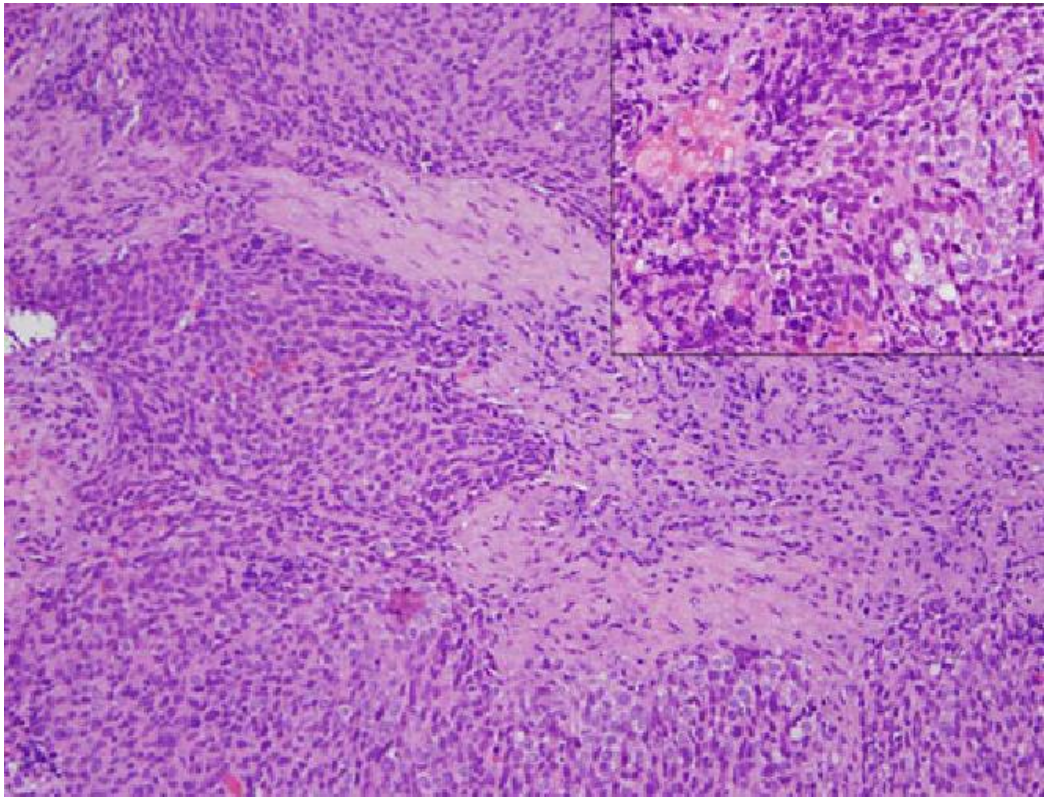
Well differentiated squamous cell carcinoma



Moderately differentiated squamous cell carcinoma

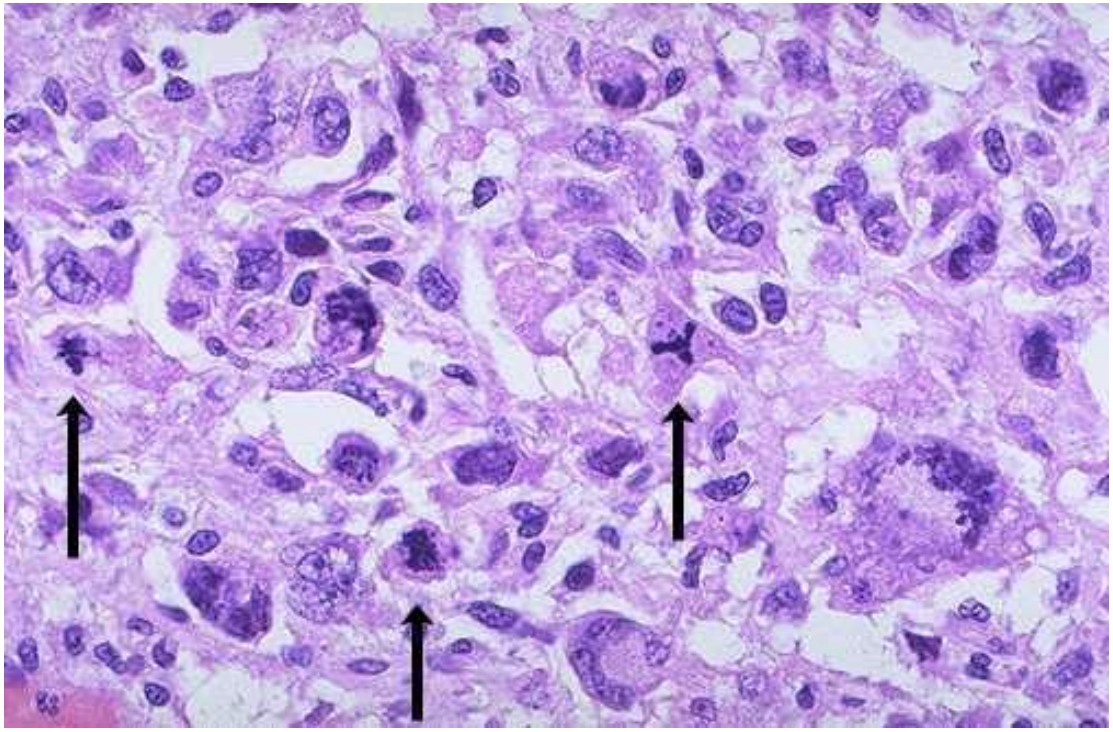
TUMOUR GRADING

Degree of differentiation



Poorly differentiated squamous cell carcinoma

TUMOUR GRADING



Mitosis

TUMOUR GRADING

- Tumour grade helps in treatment plan
- Predict the prognosis

TUMOUR GRADING

The tumour can be graded as

- Well, moderately or poorly differentiated
- Grade 1,2,3
- Grade I,II,III,IV

TUMOUR GRADING

- **Broder's grading for squamous cell carcinoma**
- **Gleason system for prostate cancer**
- **Bloom Richardson for breast cancer**
- **Fuhrman nuclear grading for renal cell carcinoma**
- **WHO grading for CNS tumours**

TUMOUR STAGING

STAGING (Clinical assessment)

- **It signifies the extent of tumour**
- **Staging is based on**
  - The **size** of the primary lesion
  - Extent of spread to **regional LN**
  - Presence/absence **blood borne metastasis**

TUMOUR STAGING

Done by

- Clinical examination
- Imaging
- Surgical exploration

TUMOUR STAGING

STAGING (Clinical assessment)

- The major staging system currently in use is the American Joint Committee **(AJC)** on Cancer Staging

- This system uses a classification called the **TNM** system

- **T** – for primary tumor
- **N** – for regional lymph node involvement
- **M** – for distant metastases

The TNM Staging System

The TNM staging system shows the anatomic extent of disease and is based on three components

- A number is added to each letter to indicate the size or extent of the tumour and the extent of spread.

Numerical Subsets of TNM

T- Tumour size

- **TX** Primary tumor cannot be assessed
- **T0** No evidence of primary tumor
- **Tis** Carcinoma in situ
- **T1-4** Increasing size and/or local extent of the primary tumor

Numerical Subsets of TNM

N- Involvement of Regional Lymph Nodes

- **NX** Regional lymph nodes cannot be assessed
- **N0** No regional lymph node metastasis
- **N1-3** Increasing involvement of regional lymph nodes

Numerical Subsets of TNM

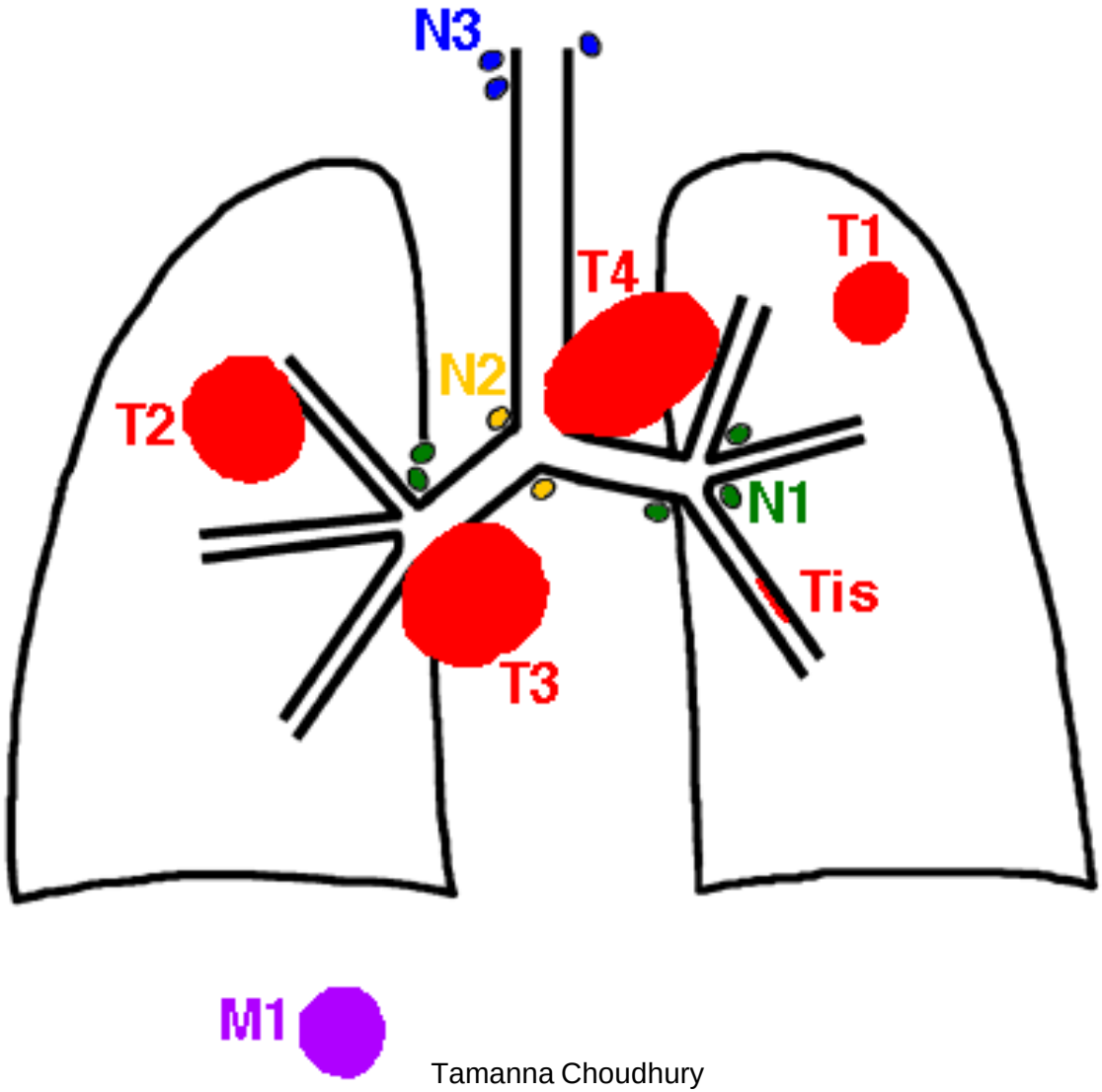
M- Distant Metastasis

- **MX** Distant metastasis cannot be assessed
- **M0** No distant metastasis
- **M1, M2** Distant metastasis

TNM staging

- For example, **breast** cancer **T3 N2 M0** refers to a large tumor that has spread outside the breast to nearby lymph nodes, but not to other parts of the body.
- **Prostate** cancer **T2 N0 M0** means that the tumor is located only in the prostate and has not spread to the lymph nodes or any other part of the body.

TNM: Staging of tumor:



AJC System

The cancers are divided into stages 0-IV

- **Stage 0**- carcinoma in situ
- **Stage I,II,II-** higher numbers indicate more extensive disease; greater tumour size, and/ or spread to nearby lymph nodes and/ or organs adjacent to the primary nodes
- **Stage IV-** the cancer has spread to another organ

Purposes and principles of staging

- Aids the physician in **planning treatment**
- Gives some indication of **prognosis**
- Assists in **evaluating the results of treatment**
- Facilitates the exchange of information between treatment centers

GRADE AND STAGE

- Both have prognostic value
- Staging is valuable as it indicates the extent of disease at presentation
- **Staging has greater clinical value than grading**


Thank you.