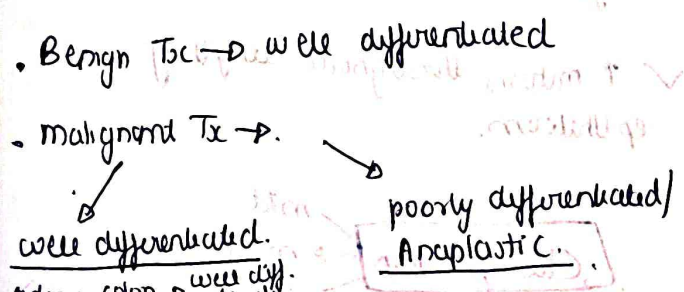


Figure 1
Differentiation And Anaplasia.

Differentiation refers to which Neoplastic parenchymal cells resemble the corresponding normal parenchymal cells both morphologically & functionally.

lack of differentiation is known as anaplasia and is characteristic of malignancy.



- well - grade - 1
- moder - grade - 2
- poorly - grade - 3

Grading is based on differentiation.

features associated with Anaplasia.

Figure 1 in txt

1) pleomorphism

defined as variation in cell shape & size. ranges from

small cells with undifferentiated appearance to tumour giant cells.

2) Abnormal Nucleus Morphology.

- Normal N:C ratio - 1:4 - 1:6
- In malignancy N:C → 1:1.
- ② large, ③ hypochromatic ④ variable size/shape
- ⑤ irregular nuclear membrane
- ⑥ prominent nucleolus.

3) mitoses.

- abundant mitotic figures.
- Atypical, bizarre mitotic figures {Tri, quadrs, multipolar}

4) Loss of polarity.

refers to orientation of cells with each other / to supporting structures like BM.

↓
 if polarity is lost
 ↓
 malignancy.

5) Growth pattern

- Disorganized.
- Sheets of large masses of TxC cells grown in disorganized fashion.

6) Bizarre cells

like tumour giant cells with single large polymorphic nucleus or 2 or more hyperchromatic nuclei.

Functional changes.

well diff. TxC continue to produce characteristic hormone / E / proteins of cell of origin.

hormones eg:
 steroids from adrenocortical adenoma.

Keratin (horn pearls)
 Sq. cell carcinoma.

poorly diff CA / Anaplastic IA

fetal proteins

CEA by adenocarcinoma of GI

produce H/E/P that are not normally produced in cell of ori or loose of functional capacity

ectopic hormone

bronchogenic ca → ACTH
 PTH like hormone

Dysplasia

"disordered growth".

- disordered cell growth & maturation
- m/c occur in epithelium.

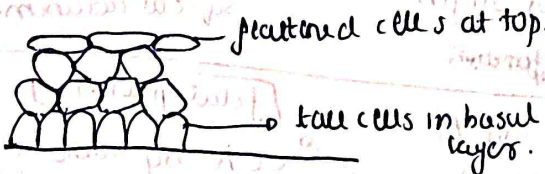
Features of dysplasia

- cellular & nuclear pleomorphism
- large hyperchromatic nuclei
- ↑ N:C ratio.
- loss of polarity.
- ↑ mitotic activity.

Sites of dysplasia

- m/c → Squamous epithelium of:
 - uterine cervix, resp tract, skin.
- Others → columnar mucosal cells in ulcerative colitis.
 - ductal lining cell in breast.
 - metaplastic epithelium of Barrett's.
 - prostate
 - urothelium.

Normal



→ mitosis usually only in basal layer.

Dysplastic epithelium



- ✓ Replacement of epithelium by basal like cells with hyperchromatic nucleus
- ✓ ↑ mitosis throughout length of epithelium.

Classification

- mild
- mod
- severe

① mild - moderate dysplastic changes.

- do not involve entire thickness of epithelium.
- may be reversible if cause is removed.

② Carcinoma-in-situ

- Severe dysplasia involving entire full thickness of epithelium.
- ↓
- preinvasive neoplasms.
- ↓
- Carcinoma in situ.

- Bm - intact.
- if Bm break → Invasive.

To be continued...