

Neoplasia 2019/20

lecture 3 activity

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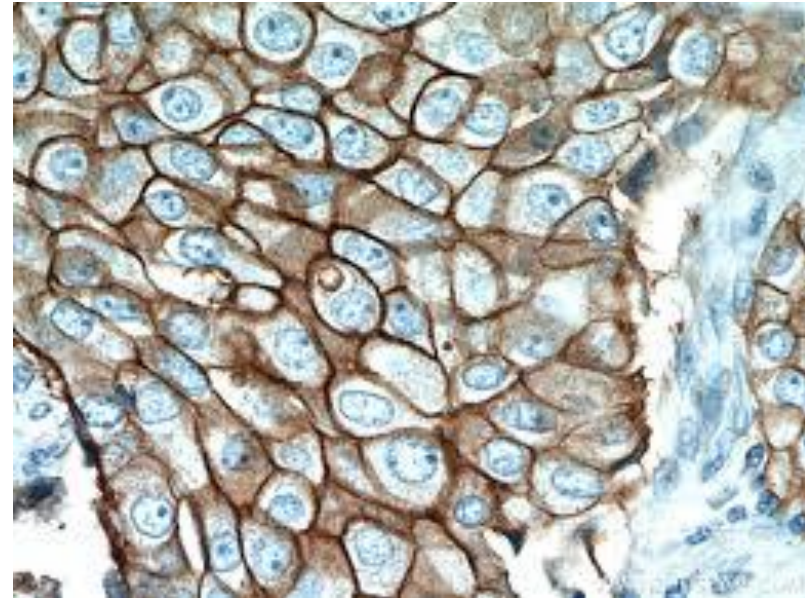
MD, FRCPath

Case study: Application of today's lecture

- A 66 year old lady had a breast lump.
- A biopsy was taken and examined histologically.
- The biopsy reported as follows: the breast biopsy shows infiltration by glandular structures lined by epithelial cells showing large hyperchromatic nuclei.
- Questions:
 - 1. Does this description indicate a benign or malignant tumor?
 - 2. Can you indicate the type of this malignancy from the description??

- The pathologist then mentions that they did a stain for EGFR(epidermal growth factor receptor) which is an epidermal growth receptor. And in this patient the EGFR was positive.
- What does this mean????

- EGFR is a receptor, so it is expressed on the cell membrane
- In the pic below you see brown color around the cells (membrane staining). This means this tumor has high level of this receptor.
- How this increase happened?



- EGFR is a protein.. So in this tumor its production is increased.
- This increase was found to be due to amplification of the gene encoding this protein (HER2/neu)
- This is an example of an increased oncoprotein due to amplification of an oncogene.
- Patients with this mutation can be treated by a drug that targets and inhibits this gene which will decrease the EGFR production. This will deprive the tumor cells from the receptor which increases the proliferation.
- This is an example of why we need to know the genetic mutations in cancers.. We can develop specific treatments that target the mutation.



**KEEP
CALM
AND
LOVE
PATHOLOGY**