

BREAST DISEASES

*90% of them are benign, while cancer tends to increase with age; so it goes from 10% up to 60% in women >50 yrs.

*50 asym. :50 sym. So a lot are asymptomatic which have to be screened by mammography (X-ray of breast). {symptoms: palpable mass, pain, nipple discharge, inflmn}

*mammographic screening detects early (≈ 1 cm), nonpalpable asymptomatic carcinomas before metastasis. It becomes more efficient bcz of increasing radiolucent fatty tissue in older women. (when the background is more radiolucent (\downarrow white) so any mass (white : \uparrow density) will be distinguished more easily.

Clinical presentation of breast diseases:

1.Pain (mastalgia or mastodynia): common, related to menses (cyclic pain), localized, indicate benign except for 10% only related to cancer. (cancer is related more to masses than pain , also its usually asymptomatic as we said.

2.inflammation: rare, mostly by infxn, mimic of inlmtry breast cancer which is due to lymphatic obstruction by the cancer.

3.Nipple discharge:

- Normal: when small in quantity and bilateral.

- Milky discharges (galactorrhea): associated with elevated prolactin levels (pituitary adenoma),hypothyroidism, or endocrine anovulatory syndromes, patients taking OCPs, tricyclic antidepressants, methyldopa, or phenothiazines.

- Bloody or serous discharges: commonly due to large duct papillomas.

- During pregnancy, result from the rapid growth (progressive proliferation) and remodeling of the breast.

- **BUT *spontaneous, unilateral, and bloody discharge increases concern for malignancy. (SHOULD BE INVESTIGATED, BECAUSE IT IS CONSIDERED A MALIGNANCY SIGN)***.

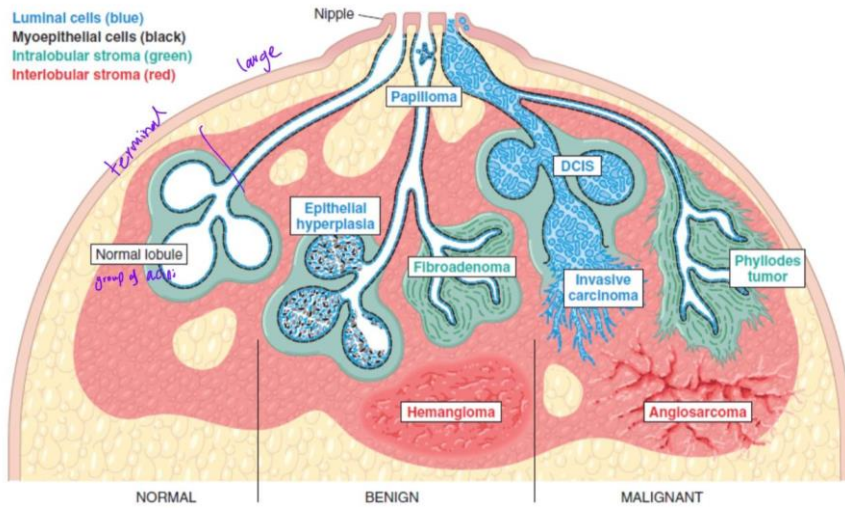
4. Palpable masses:

- 95% are benign

- all palpable masses require evaluation.

- The most common palpable lesions are cysts, fibroadenomas (both are completely benign), and invasive carcinomas.

5.gynecomastia: the only common symptom in males; \uparrow estrogen, \downarrow androgen \rightarrow \uparrow breast tissue.



So let's start with these diseases:

1. stromal diseases:

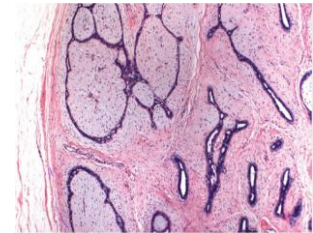
a. intralobular: *fibroadenoma and phyllodes* : Biphasic (composed of stromal (neoplastic) and epithelial (reactive) cells), we know the lobule and its surrounding stroma is the functional unit of the breast that contains the glands producing milk and so it is hormonal dependent site.

b. interlobular: *lipoma (fat) and angiosarcoma (BV)*; and arising more commonly from the breast (pseudoangiomatous stromal hyperplasia and myofibroblastomas): Monophasic

MC malignancy arise in interlobular is angiosarcoma causing slit-like spaces (look above).

■ **Fibroadenoma**: The MC benign neoplasm of the female breast. Arises from the hormonal responsive intralobular stroma, and growth is expected during times when estrogen levels are elevated (menstrual cycle, pregnancy). So its peak is in 20-30 yrs.

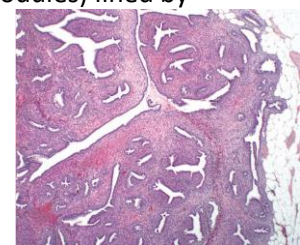
-discrete solitary free mobile mass in breast. **NO increase risk for cancer.**



■ **phyllodes**: less common, age >60, exhibit exaggerated stromal proliferation (Nodules) lined by epithelial cells in a leaf-like shape.

» Classified according to the histologic findings into:

- Benign (most common 60—75%) rare recurrence & do not metastasize.
- Borderline (15-26%) higher risk of local recurrence, low risk of metastasis.
- Malignant (8-20%): 23-30% risk of local recurrence, 9% risk of distant metastasis (M/c sites Bone, CNS).



Feature: *Stromal proliferation, very busy stroma bulging into ducts shaping them in leaf-like shape. Also 1- Tongues(of tumor) between fat //2- Not well circumscribed //3- Related to Recurrence.

Classification according to:

1- Cellularity 2- Atypia 3- Stromal overgrowth 4- Mitosis 5- Malignant components 6- Border sharpness

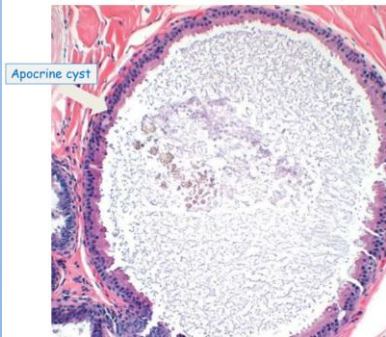
Benign epithelial tumors

• **Nonproliferative changes: not** associated with an increased risk of breast cancer:

Cysts with apocrine metaplasia but not associated with cancer!

, fibrosis and adenosis

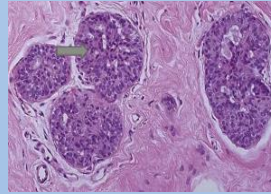
Nonproliferative disease. cyst



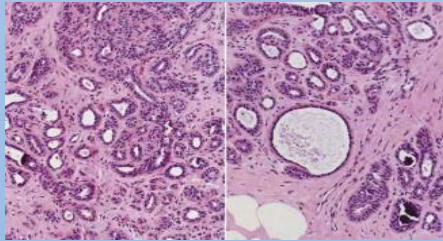
• Proliferative disease without atypia:

polyclonal hyperplasia & associated with 1.5-2 folds increased risk of breast cancer.

☒ epithelial hyperplasia:

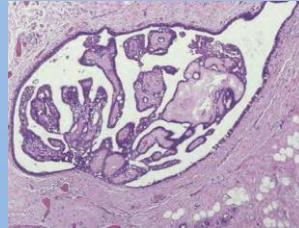


☒ sclerosing adenosis:



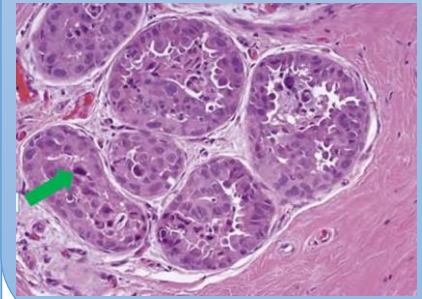
☒ complex sclerosing lesion

☒ Papilloma ->



• Proliferative disease with **atypia**:

monoclonal "precancers" & associated with 4-5 fold (Moderate) increased risk of breast cancer in both breast, like Atypical Ductal Hyperplasia and Atypical Lobular Hyperplasia



breast cancers: *i'll skip the intro sry

A. Noninvasive :

1. Ductal carcinoma in situ (DCIS)
2. Lobular carcinoma in situ (LCIS)

B. Invasive :

1. Invasive **ductal** carcinoma-NOS → 70% to 80%
2. Invasive lobular carcinoma → 10% to 15%
3. Carcinoma with medullary features → 5%
4. Mucinous carcinoma (colloid carcinoma) → 5%
5. Tubular carcinoma → 5%

BREAST CANCER

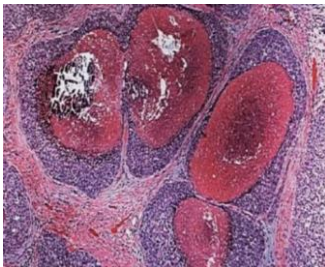
NONINVASIVE

LOBULAR carcinoma in-situ (LCIS)

- Malignant clonal proliferation of cells within lobules and ducts
- Cells grow in a discohesive fashion → an acquired loss of the tumor suppressive adhesion protein E-cadherin.
- The term “lobular” was used to describe this lesion because the proliferation takes an appearance resembling lobules

Ductal carcinoma in-situ (DCIS)

- malignant clonal proliferation of epithelial cells within ducts and lobules.
- DCIS has a wide variety of histologic appearances including: solid, comedo, cribriform, papillary, and micropapillary

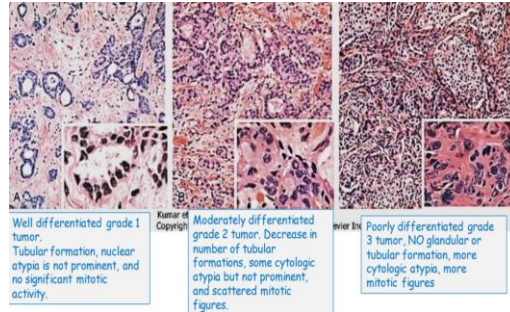


This is the comedo one!

INVASIVE

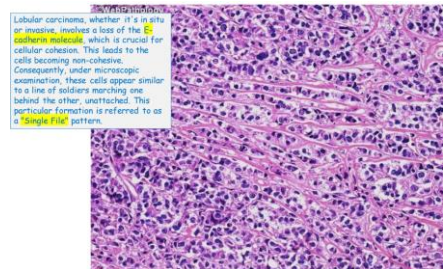
Invasive **ductal** carcinoma

- 70% to 80%
- ER, PR (+),
- HER2 (-)



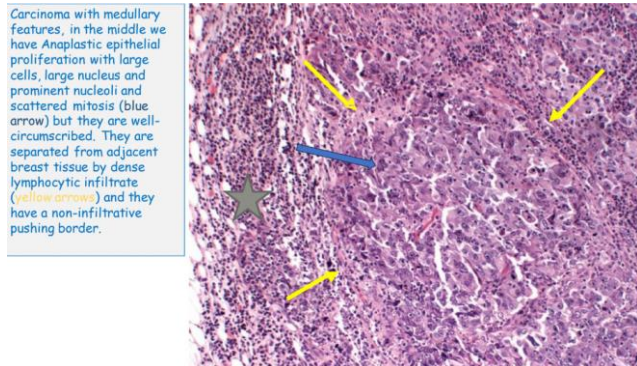
Invasive **lobular** carcinoma

- 10-15%
- ER, PR (+),
- HER2 (-)
- “single-file”



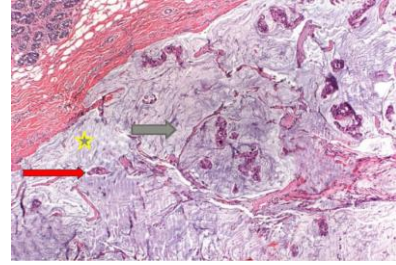
carcinoma with **Medullary** features: 5%

- Microscopically: large anaplastic cells with pushing, well-circumscribed borders. With a pronounced **lymphocytic** infiltrate.
- Precancerous lesions. usually **absent**
- increased frequency in women with **BRCA1** mutations,
- receptor profile: **Triple** negative (ER, PR, and HER2 all -).



Colloid (mucinous) carcinoma: RARE 5%

- Grossly the tumors are usually soft and gelatinous.
- ER (+) , HER(-)



Tubular carcinomas :RARE 5%

- Clinical presentation. Almost always detected as irregular mammographic densities, incidentally.
- Microscopically, well-formed/well differentiated tubules with low-grade nuclei.
- Lymph node metastases: rare
- Prognosis: excellent.
- Receptor profile: ER (+), HER2 (-)

Tubular carcinomas, Tubular proliferation (The arrows) which is lined by a single layer of cells with NO prominent atypia. Between the tubules there is a desmoplastic reaction as a result of the tumor cells infiltration.

