



- Acute mastitis:

- ↳ breastfeeding leads to stress on the skin resulting in fissures & entry of *S. aureus*
- ↳ Presentation: warm breast, nipple discharge (pus)
- ↳ Treatment:
  - ↳ Continue breastfeeding
  - ↳ Antibiotics (dicloxacillin).

- Periductal mastitis:

- ↳ Smoking → vitamin-A deficiency → squamous metaplasia of subareolar / lactiferous duct → keratin blocking the duct → inflammation.
- ↳ Presentation:
  - ↳ Subareolar mass
  - ↳ Nipple retraction

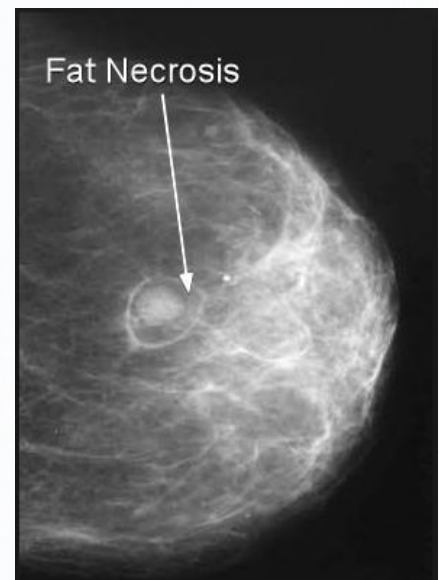
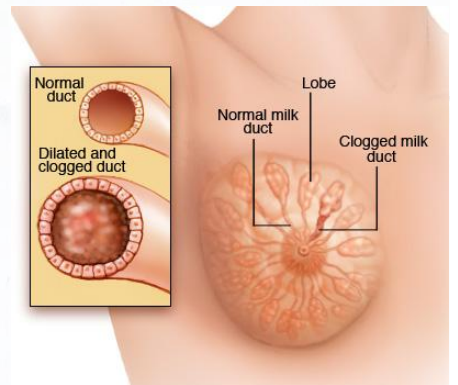
- Mammary duct ectasia (توسع القنوات اللبنية)

- ↳ Inflammation of duct results in its dilation and green-brown nipple discharge.
- ↳ Common in multi-parous postmenopausal women.

- Fat necrosis:

- ↳ necrosis of breast fat usually related to trauma.
- ↳ Presentations:
  - ↳ mass on examination
  - ↳ Calcification on mammography

• Subareolar ducts:  
↳ lined by columnar epithelial cells and myoepithelial cells

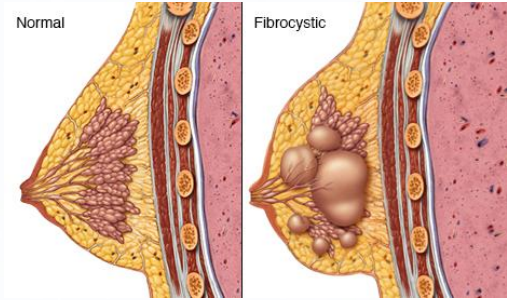
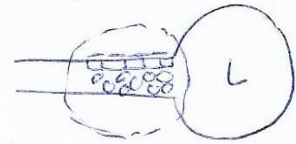




- Fibrocystic changes (benig):

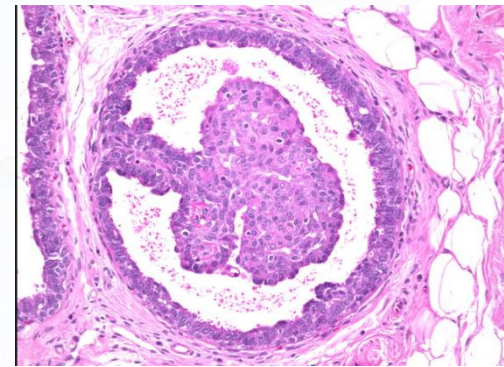
- There is development of fibrosis & cysts
- In premenopausal females (due to ↑ estrogen).
- On examination, there will be a lumpy breast in upper outer quadrant (مَحْقَر)
- Cysts have blue-domed appearance on gross exam.
- ↑ risk of <sup>invasive</sup> carcinoma:
  - Ductal hyperplasia → X2
  - Sclerosing adenosis (increased number of glands in the lobule) → X2
  - Atypical hyperplasia → X5

\* Ductal hyperplasi-



- Intraductal papilloma (benign):

- in a large duct → there will be papillary growth (finger like projection with fibro-vascular stroma and lined with <sup>columnar</sup> epithelium & myoepithelial cells)
- In premenopausal women with bloody nipple discharge



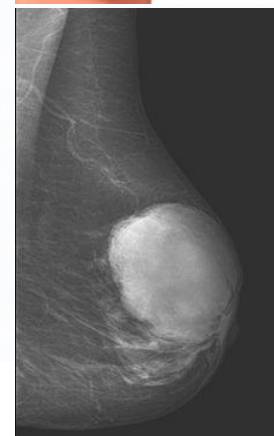
- Fibroadenoma (most common benign tumor):

- This is a tumor of fibrous tissue & glands
- Seen in premenopausal females with sensitivity to estrogen
- Lesion: well-circumscribed, mobile, marble-like mass



- Phyllodes tumor (Can be malignant):

- Fibroadenoma-like tumor with overgrowth of fibrous component forming leaf-like projections.
- Seen in postmenopausal females







- Breast cancer:

↳ Risk factors:

- ↳ Female gender (99%): due to estrogen
- ↳ Age: post-menopausal women
- ↳ Early menarche & late menopause
- ↳ Obesity: adipose tissue converting androgen to estrone.
- ↳ Atypical hyperplasia: X5
- ↳ ⊕ family history of 1<sup>st</sup> degree relative.

1] Ductal carcinoma in situ (DCIS):

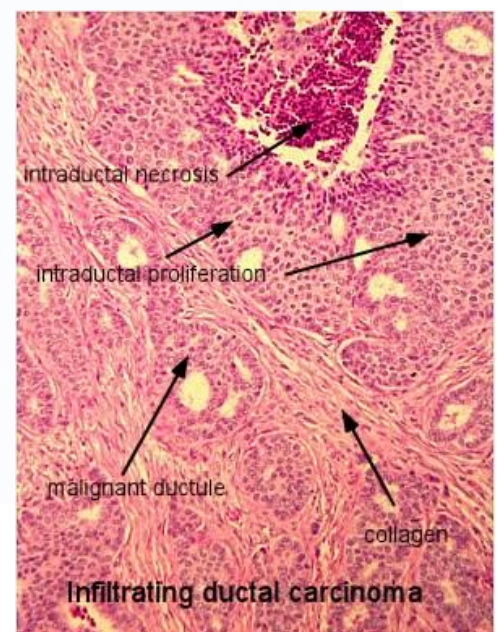
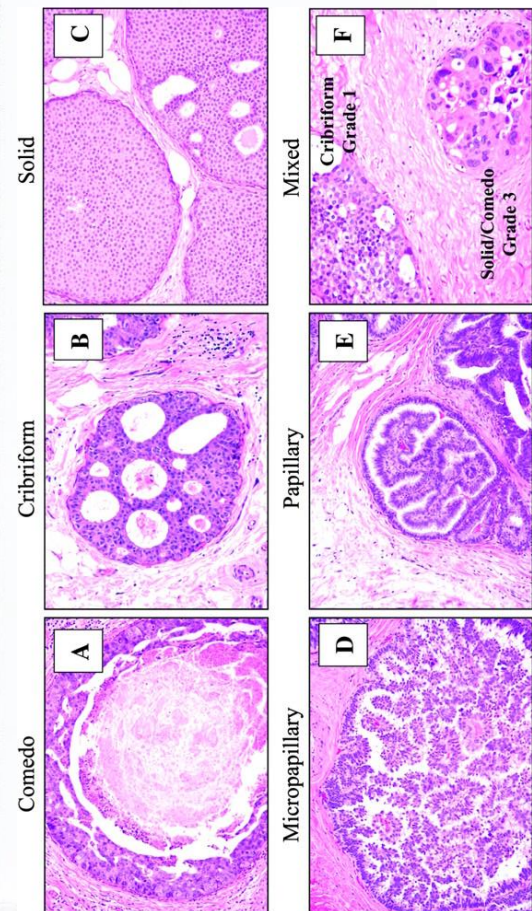
- ↳ Malignant proliferation of epithelial cells in ducts with no invasion to basement membrane.
- ↳ Because growing in ducts → there is no mass detection is by calcification on mammography
- ↳ Comedo type: many malignant cells in the duct with necrosis & calcification

2] Paget disease:

- ↳ DCIS extending up to skin of nipple.
- ↳ Presentation: nipple ulceration & erythema

3] Invasive ductal Carcinoma (most common type of invasive carcinoma):

- ↳ Malignant cells are invading basement membrane of ducts
- ↳ Presenting as a mass on physical examination or mammography
- ↳ There will be dimpling of skin or retraction of nipple
- ↳ Biopsy: duct-like structures in desmoplastic stroma.







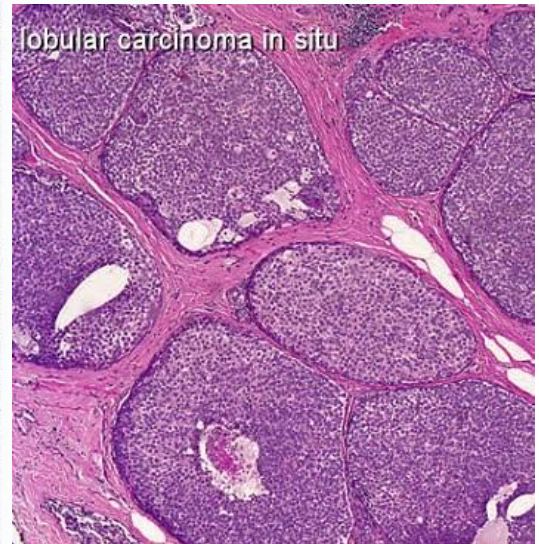
### [3] Invasive ductal carcinoma (continued):

#### ↳ Subtypes:

- ↳ \* Tubular carcinoma
  - ↳ Cancer will produce tubules in desmoplastic stroma with 1 cell type.
  - ↳ Very good prognosis 😊
- ↳ \* Mucinous carcinoma
  - ↳ Malignant cells present in pools of mucus
  - ↳ Very good prognosis 😊
  - ↳ Seen in old women
- ↳ \* Inflammatory carcinoma
  - ↳ Breast is swollen & erythematous (resembling acute mastitis).
  - ↳ Malignant tumors in dermal lymphatics
  - ↳ Very poor prognosis
- ↳ \* Medullary carcinoma:
  - ↳ High-grade malignant cells in an inflammatory background
  - ↳ BRACA-1 mutations

### [4] Lobular carcinoma in situ (LCIS):

- ↳ Malignant proliferation of cells in lobules with no invasion of basement membrane.
- ↳ No mass or calcification
- ↳ Dyscohesive cells lacking E-cadherin (malignant cells are not stuck to each other)
- ↳ multifocal (in different places within same breast) and bilateral (in both breasts).





[4] Lobular Carcinoma In situ (continued):

↳ Treatment: low-risk of developing into invasive carcinoma; Therefore, managed with Tamoxifen with close follow up

[5] Invasive lobular carcinoma:

↳ Malignant proliferation of cells in lobules with invasion of basement membrane.

↳ No duct-like structures (in contrast to invasive ductal carcinoma) due to lack of E-cadherin.

- TNM - Staging:

↳ T: size of tumor

↳ N: spread to lymph nodes (especially axillary)

↳ M: metastasis (important prognostic factor)

- Predictive factors (response to tamoxifen):

↳ ER & PR → responding to (tamoxifen)

↳ HER2/neu → responding to (trastuzumab)

- Triple-negative carcinoma:

↳ no ER, PR or HER2/neu

↳ Poor prognosis.

- Hereditary breast cancer:

↳ BRCA-1: breast & ovarian carcinoma

↳ BRCA-2: breast carcinoma in males

\* Tamoxifen: antiestrogenic agent.

\* ER: nucleus of cell staining brown with immunohistochemistry

\* HER2/neu: cytoplasm of cells staining brown with immunohistochemistry