

Breast Disorders:

Female Breast: • Terminal duct-lobular unit (TDLU) • Large duct system

TDLU: lobule + intralobular & extralobular duct

→ each lobule has terminal ductules/acini embedded in intralobular stroma

Large Duct System: intralobular duct → extralobular duct → subsegmental duct → segmental duct → collecting (lactiferous/galactophorous) duct → lactiferous sinus → exterior of nipple

Microscopy: normal ducts & lobules have two specialized cell type lining:

- 1) inner epithelium with secretory & absorptive function
- 2) outer myoepithelial cell

Benign Epithelial Lesions:

Nonproliferative breast changes
Proliferative breast disease
Atypical hyperplasia

→ do not progress to cancer

Nonproliferative Breast Changes (Fibrocystic Changes): no increased risk of carcinoma breast

→ primarily affects TDLU

Morphological Features:

① Cysts: microscopic/grossly visible; small cysts may coalesce to form larger cysts

→ cysts contain turbid, cloudy yellow, semi-translucent fluid; some cysts externally appear brown/blue (blue dome cysts of Bloodgood)

→ cysts are lined by flattened atrophic epithelium or by metaplastic apocrine cells

② Apocrine metaplasia: most often seen in dilated ducts & cystic structures

→ apocrine cells → abundant granular eosinophilic cytoplasm & round nuclei with prominent nucleolus & apical portion of cytoplasm shows apocrine snout

③ Calcification: line the bottom of a rounded cyst

④ Fibrosis: contributes to firmness of the breast during palpation

⑤ **Adenosis**: increase in the number of acini per lobule

→ acini are often enlarged (blunt-duct adenosis)

→ acini are lined by columnar cells which may show flat epithelial atypia

→ mild increase in risk of carcinoma

Proliferative Breast Disease Without Atypia: proliferation of ductal epithelium &/or stroma without cytologic features of carcinoma

Morphological Features:

① **Epithelial hyperplasia**: presence of more than 2 cell layers

→ additional cells consist of both luminal & myoepithelial cells; they fill & distend ducts & lobules

→ irregular lumens can be seen at the periphery of the masses

② **Sclerosing adenosis**: number of acini per lobule is increased & at least double the number

→ lobular arrangement is more cellular centrally than peripherally

→ Centrally: acini are compressed & distorted; peripherally: acini are dilated

③ **Complex Sclerosing lesion**: sclerosing adenosis + papillomas + epithelial hyperplasia

④ **Papillomas**: multiple branching central fibrovascular core lined by luminal & myoepithelial cells

→ papillae grow within a dilated duct

→ papillomas are usually single in large ducts & found in lactiferous sinus & are multiple in the small ducts

→ large papillomas usually present with nipple discharge

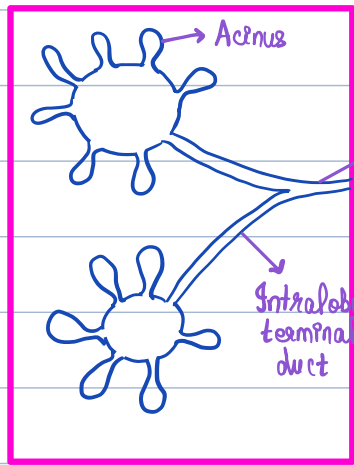
→ moderate increase in risk of carcinoma

Proliferative Breast Disease With Atypia:
→ atypical ductal hyperplasia
→ atypical lobular hyperplasia

Morphology: cellular proliferation that resembles carcinoma in situ

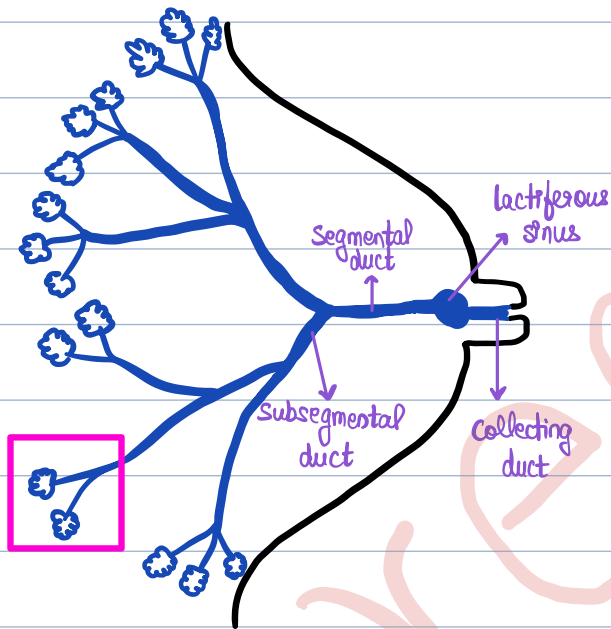
• **Atypical Ductal Hyperplasia**: monomorphic proliferation of regularly spaced cells ⇒ resembles ductal carcinoma in situ (DCIS), but distinguished from it by being limited in extent & only partially filling ducts.

• **Atypical Lobular Hyperplasia**: identical to lobular carcinoma in situ (LCIS), but cells do not fill/distend more than 50% acini within a lobule



Extralobular terminal duct

Intralobular terminal duct



Segmental duct

Subsegmental duct

Lactiferous sinus

Collecting duct