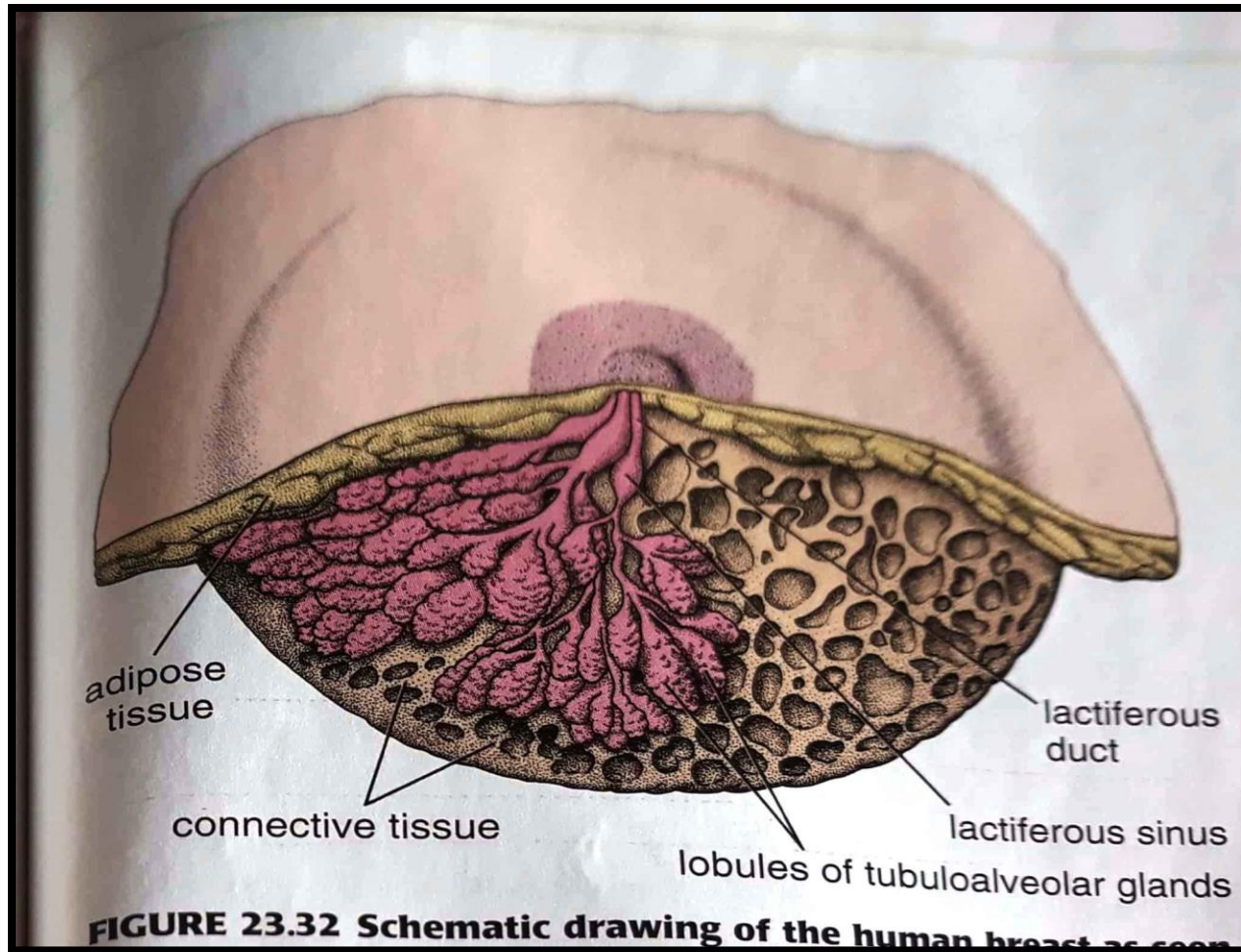


Female Reproductive System-3

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Mammary gland:



Mammary gland–

- ▶ Mammary gland- /breast is a distinguishing feature of mammals.
 - ▶ Modified apocrine sweat glands gland that develop under the influence of sex hormones
 - ▶ The secretory portion of the mammary gland varies with the menstrual cycle
- 

- ▶ Consists of 15 – 20 lobes.
 - ▶ Each **lobe** is a compound tubulo-alveolar gland with its own lactiferous duct, which emerges onto the surface of the nipple.
 - ▶ Each lobe consists of many **lobules**.
 - ▶ **Interlobar stroma** – Connective tissue and fat separating lobes from each other.
 - ▶ **Interlobular connective tissue** is present between lobules.
- 

Inactive mammary gland–

Glandular tissue –

- ▶ The glandular component is sparse and consists of chiefly the ducts.
 - ▶ Lactiferous ducts are lined by stratified squamous epithelium.
 - ▶ The epithelial lining of the duct shows the gradual transformation from stratified squamous to two layer cuboidal cells in the lactiferous Sinus to simple cuboidal or columnar in rest of duct.
- 

Connective tissue –

- ▶ Abundant. Intralobular connective tissue is loose, fine with fibroblasts, lymphocytes, plasma cells and eosinophils.
- ▶ Interlobular connective tissue – dense connective tissue with adipose tissue.

Inactive mammary gland–

- ▶ During menstrual cycle inactive mammary gland undergoes slight cyclic changes.
 - ▶ Early in the cycle the duct appears as a cord with little or no lumen.
 - ▶ Under oestrogen stimulation, at about the time of ovulation-
 - the secretory cells increase in height
 - lumen appears in the ducts
 - small amount of secretion accumulates , and fluid accumulates in the connective tissue.
- 

Inactive mammary gland:



Active mammary gland–

Mammary gland undergo dramatic proliferation and development during pregnancy.

- ▶ It exhibit number of changes in preparation for lactation.
 - ▶ Changes in the granular tissue (increases) accompanied by decrease the amount of connective tissue and adipose tissue.
 - ▶ Plasma cells, Lymphocytes, eosinophils infiltrate the fibrous component of the connective tissue.
- 

Active mammary gland–

Often development of glandular tissue is not uniform and variation in the degree of development is seen even within single lobule.

- I. The cells vary in shape from flattened to low columnar.
 - II. Ducts branch
 - III. Alveoli begins to develop
- 

Alveoli –

- ▶ Active alveoli – Low epithelium with milk secretion in the lumen.
 - ▶ Milk – Eosinophilic material with vacuoles of dissolved fat droplets.
 - ▶ Inactive alveoli – Empty with taller epithelium.
 - ▶ Alveoli in intermediate stage of activity - Show cells containing secretions and vacuolated apices.
 - ▶ Myoepithelial cells are flattened cells between alveolar cells and their basal lamina. Contraction of these cells helps in milk expression from alveoli.
- 

▶ **Ducts –**

- ▶ Ducts also show presence of secretions in their lumina.
- ▶ **Interlobular ducts** – Taller columnar cells.
- ▶ **Lactiferous ducts** – Low pseudostratified columnar epithelium

Active mammary gland–

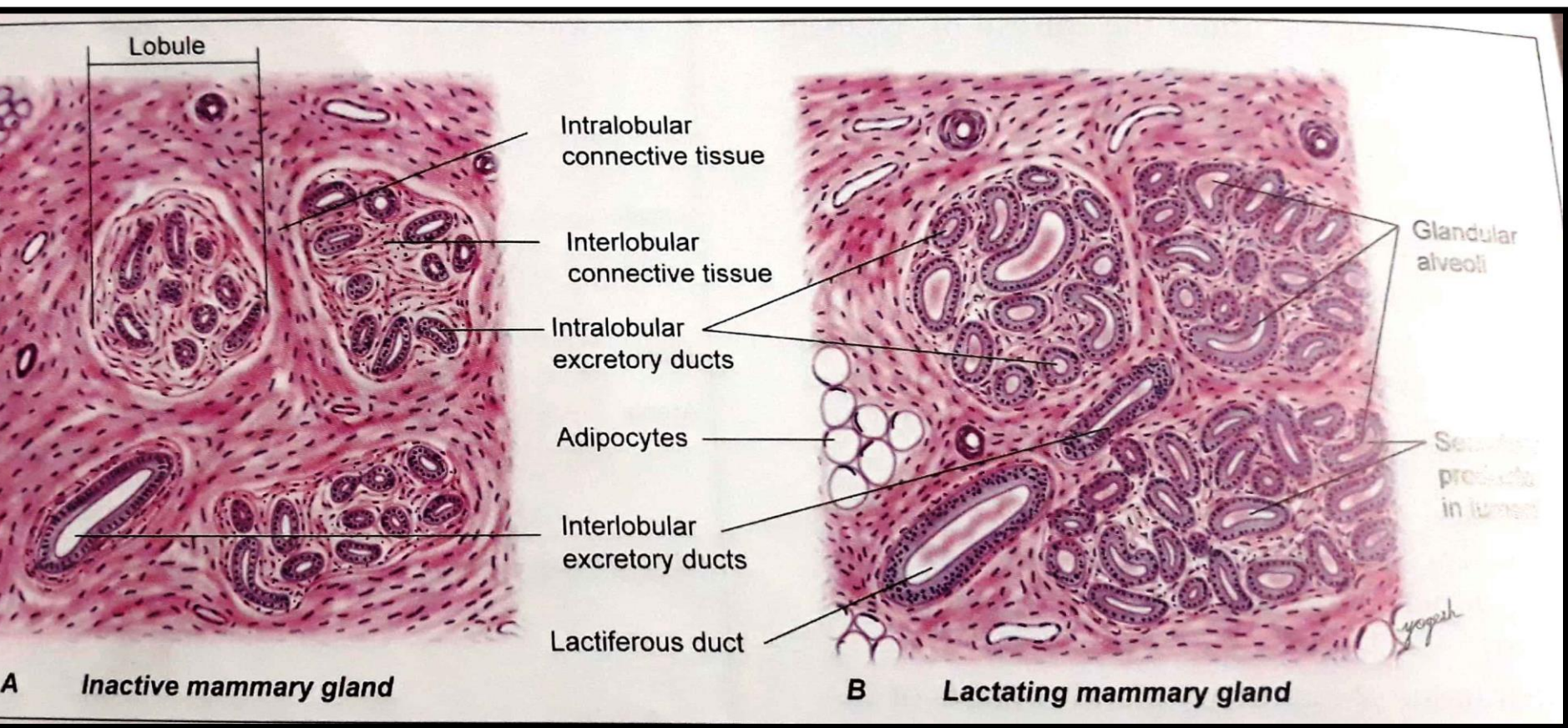
In later stage of pregnancy development becomes more prominent.

- ▶ Stromal proliferation declines
- ▶ Large enlargement of breast occurs through the hypertrophy of secretory cells and accumulation of the secretory products in the alveoli.
- ▶ Both merocrine and apocrine secretion are involved in the production of milk.
- ▶ Merocrine secretion- the protein component of the milk
- ▶ Apocrine secretion- fatty or repeat component of milk

Colostrum-1st immunisation

Active mammary
gland:





Assignment–

- ▶ Draw & describe microscopic structure of mammary gland in different phases.

THANK
YOU

