

# HISTOLOGY PRACTICAL LECTURE - 2 -

## GLANDULAR EPITHELIUM

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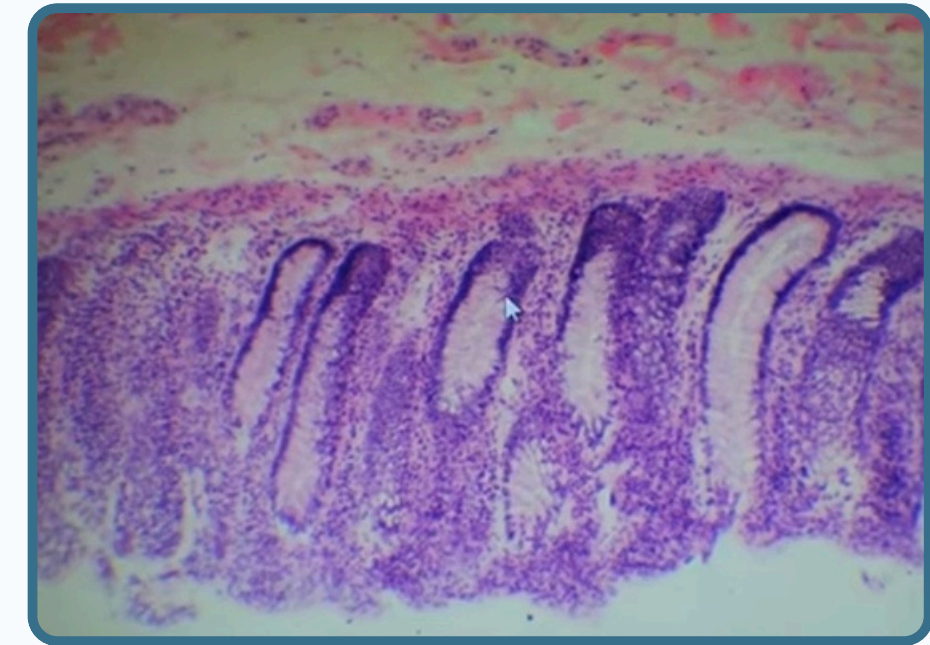
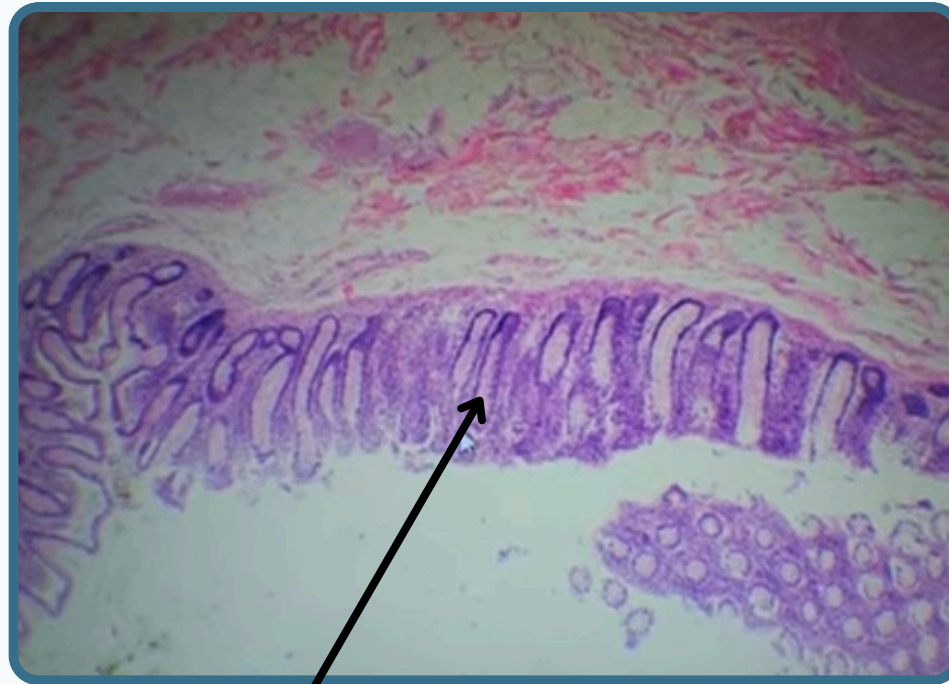




# GLANDULAR EPITHELIUM

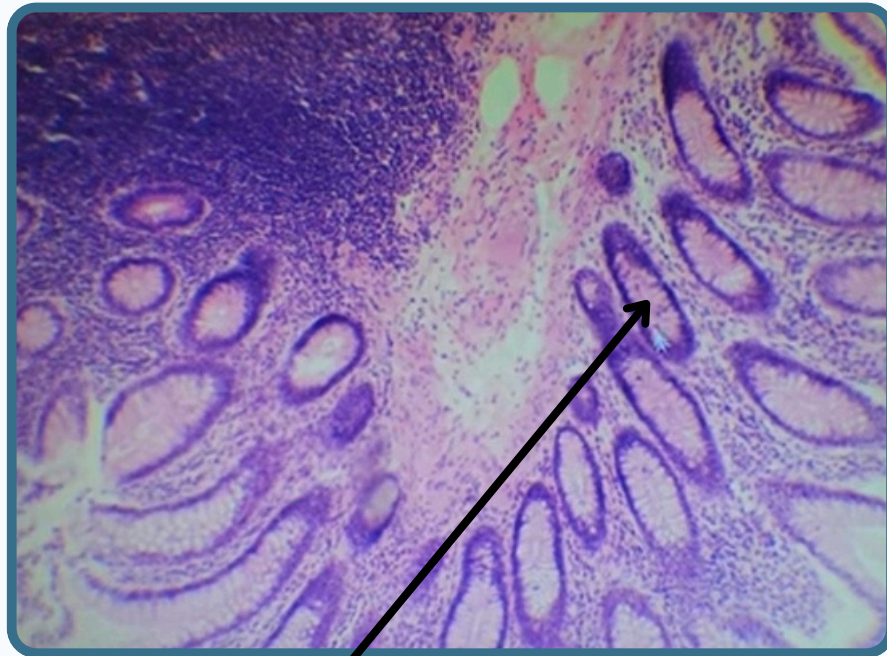


## Section in the large intestine

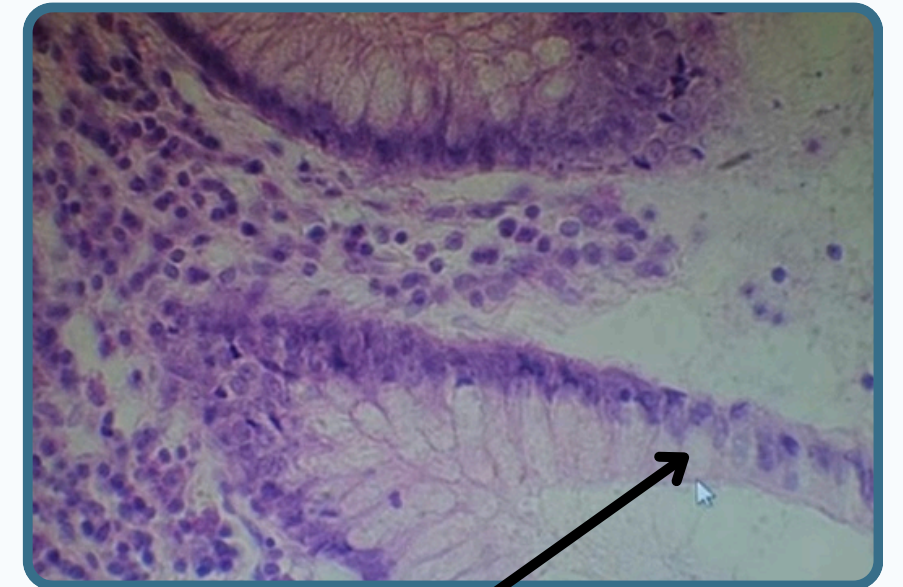
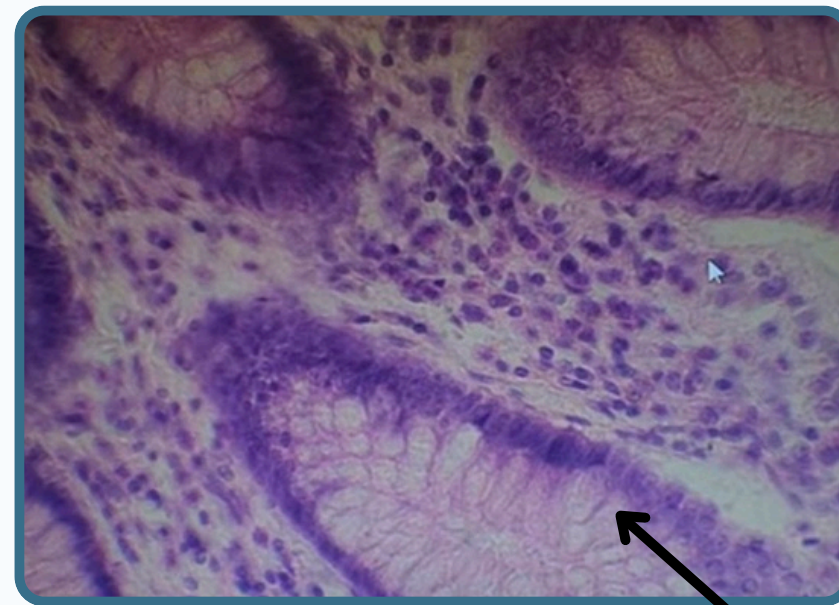


simple tubular gland (intestinal gland)

# GLANDULAR EPITHELIUM



**intestinal gland lined with simple columnar epithelium similar to the surface epithelium**



**unicellular gland (goblet cell)**

-these cells mucus secreted cells found in the epithelium of small and large intestine also in the epithelium of respiratory air ways

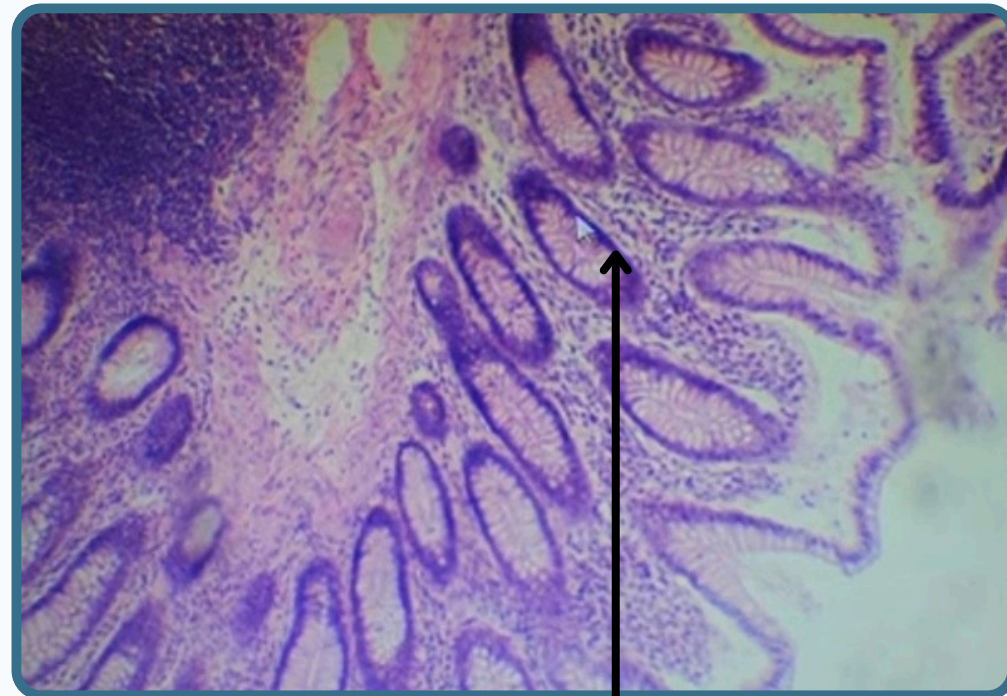




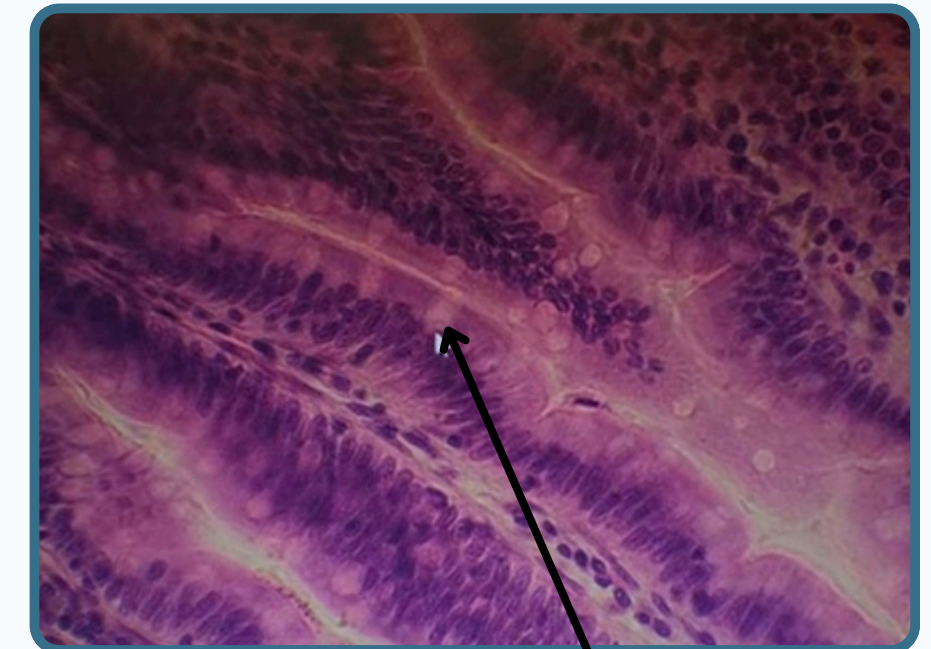
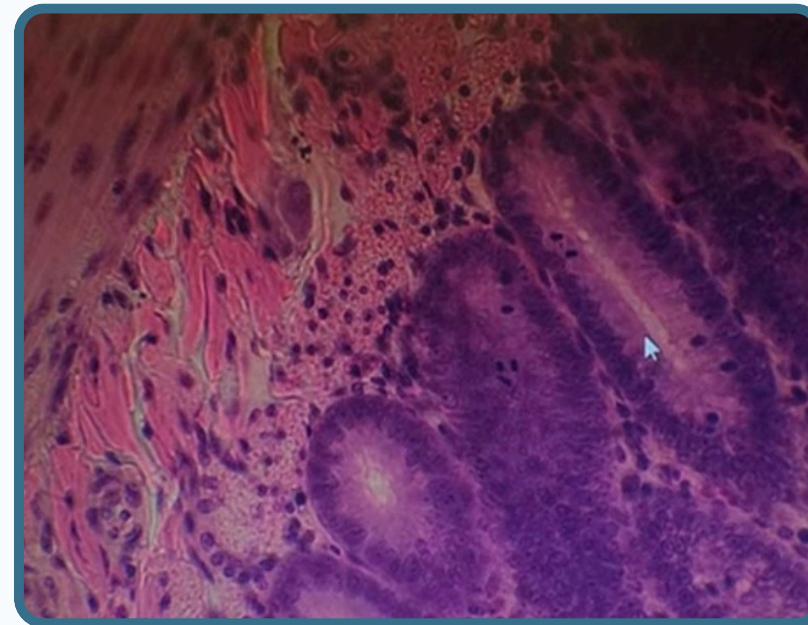
# GLANDULAR EPITHELIUM



**intestinal gland lined by simple columnar epithelium (Jejunum-Small Intestine)**



**simple columnar epithelium with goblet cells**



**goblet cell**

**Note:-**

The lining epithelium of the intestinal glands similar to the surface epithelium

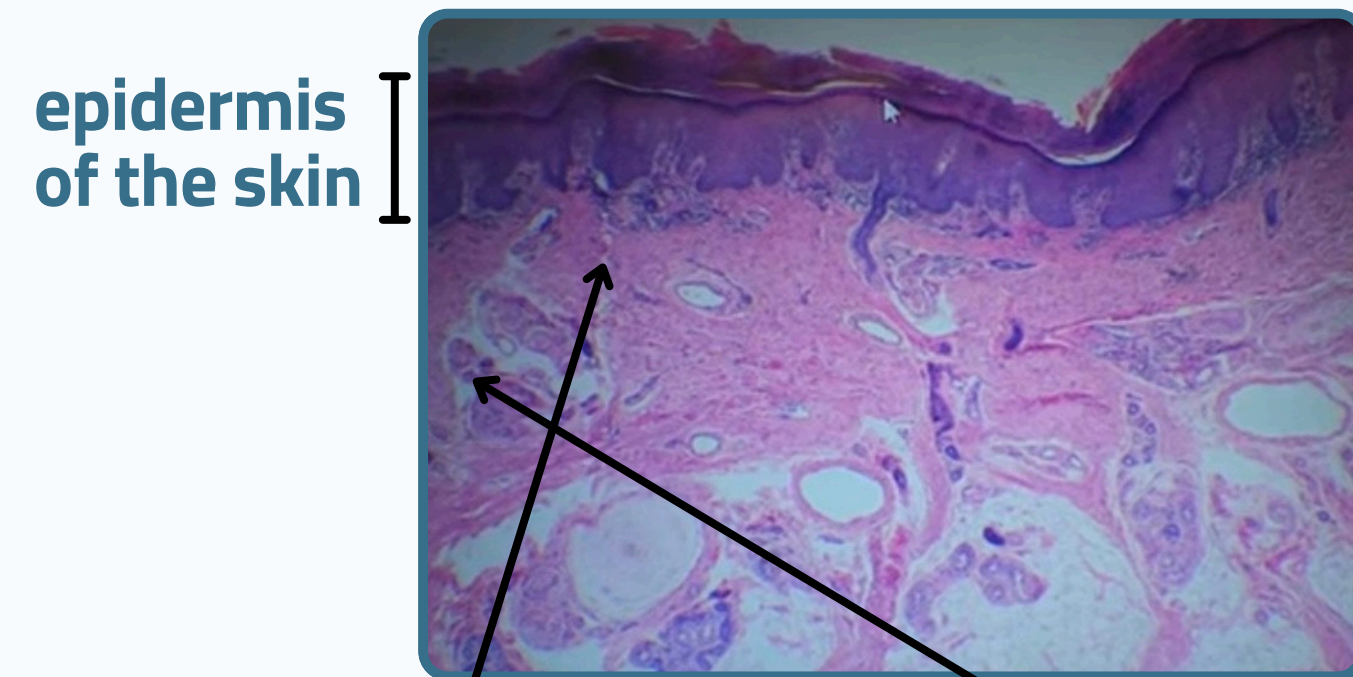




# GLANDULAR EPITHELIUM



## Section in the skin

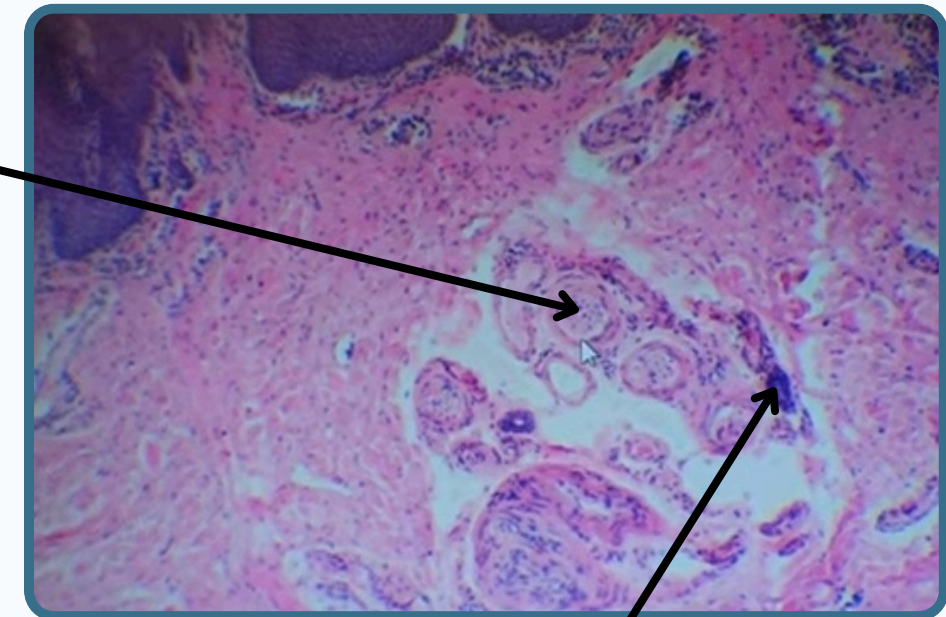


epidermis of the skin

dermis of the skin (layer of CT)

sweat gland (another example of exocrine gland)  
-simple coiled tubular gland

secretory portion lightly stained structure



duct portion of sweat gland lined with stratified cuboidal epithelium and appear dark stain structure (2 layers)



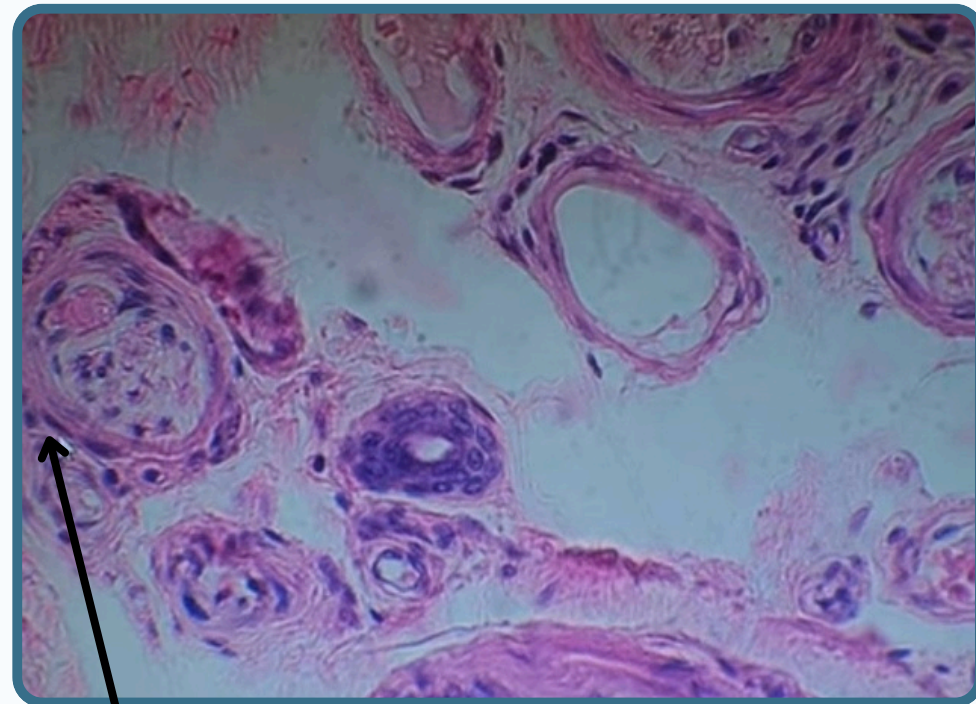


# GLANDULAR EPITHELIUM



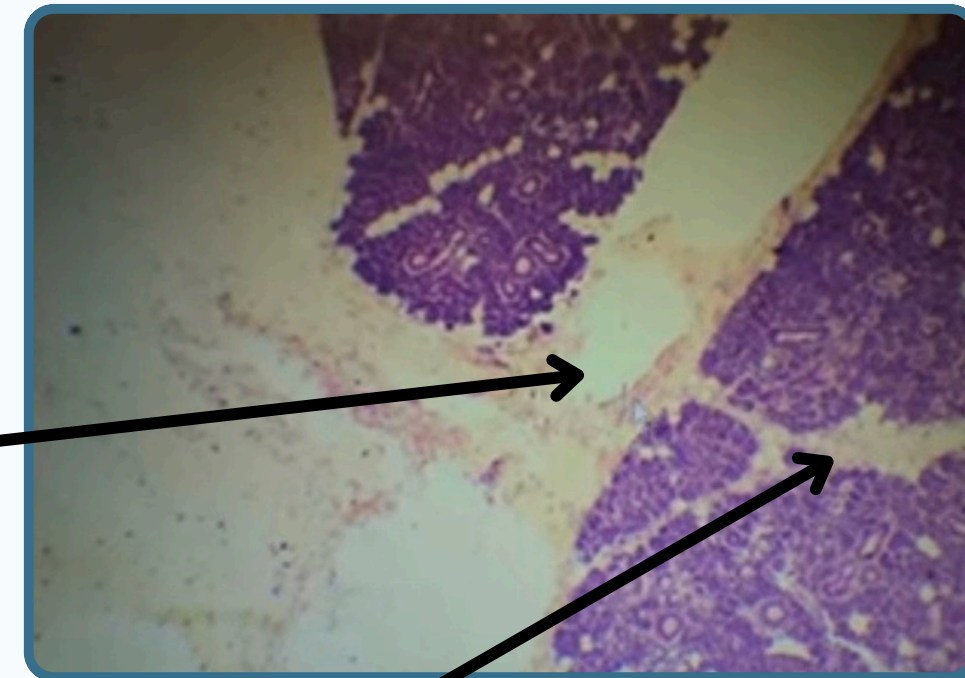
We have three type of the salivary glands:-

Note:- each gland covered by connective tissue capsule send septa that divide the gland into lobules



specific or modified epithelial cells called (myoepithelial cell)

submandibular or submaxillary glands



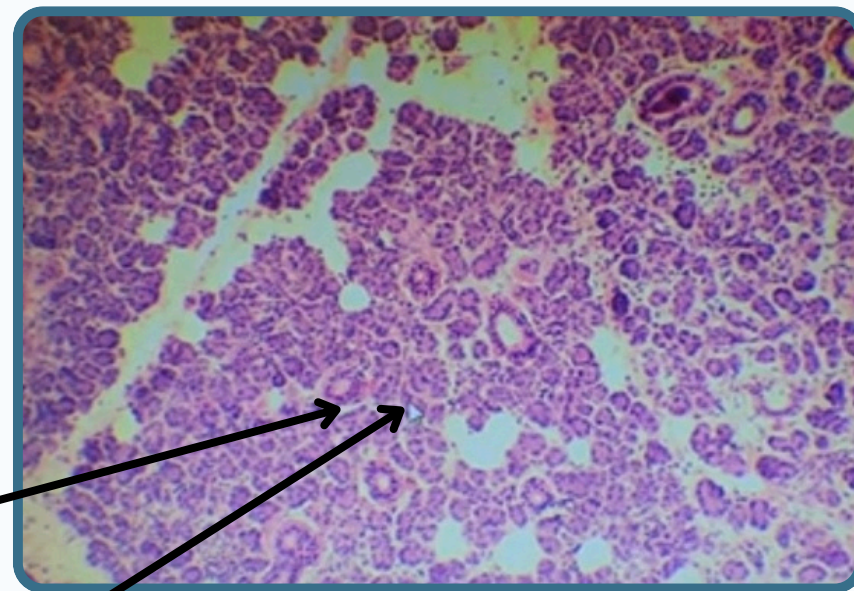
connective tissue capsule

septa that divide gland into lobules





# GLANDULAR EPITHELIUM



**serous**

**mucus**

**serous cells pyramidal in shape with spherical (rounded) central nucleus**

-they are arranged in spherical structure called (an acini)



**The sub maxillary gland is branch tubuloacinar gland it's mix gland contain both serous& mucus secretory cells**

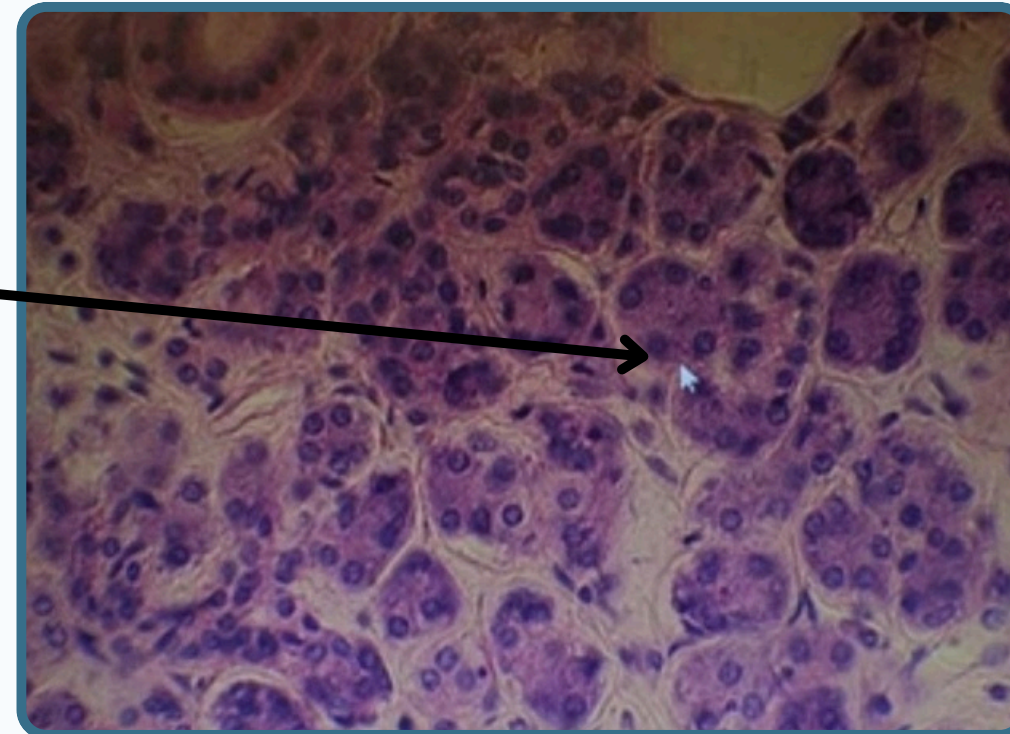




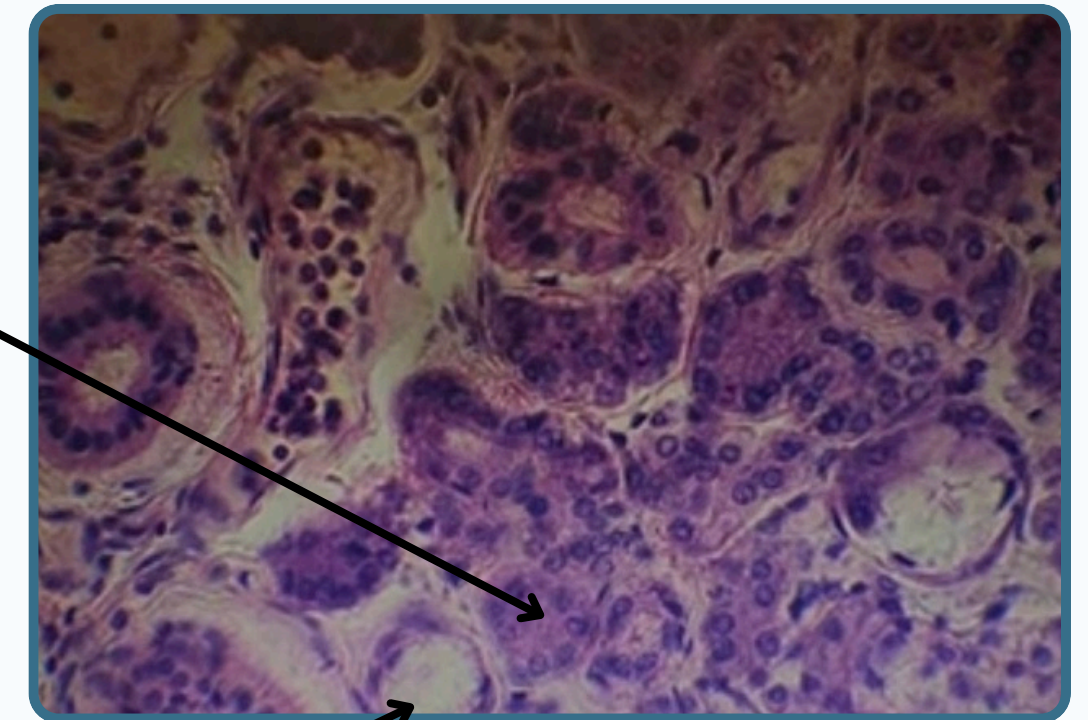
# GLANDULAR EPITHELIUM



-at the tip of the pointer this is serous acinus consist of serous cells



serous acini



mucous secreting unit consist of mucous cell

-mucous cells are more columnar in shape with base located nucleus  
-mucus cells organized as cylindrical tubule rather than acini

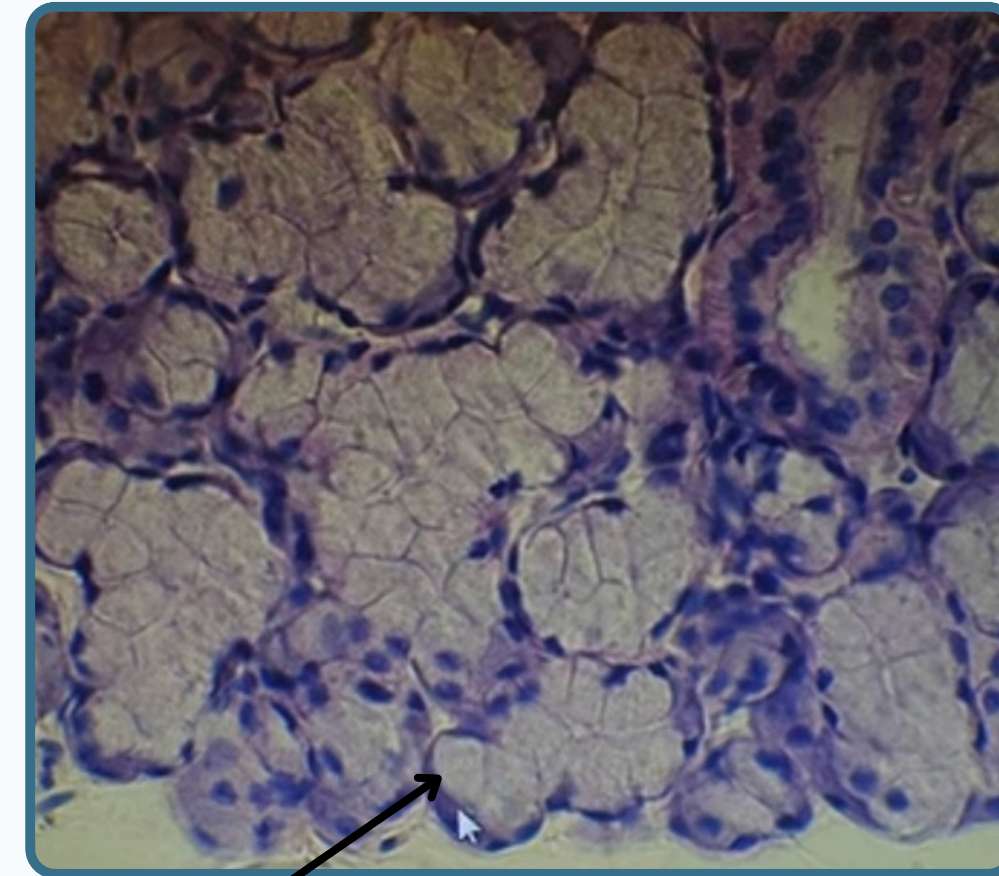
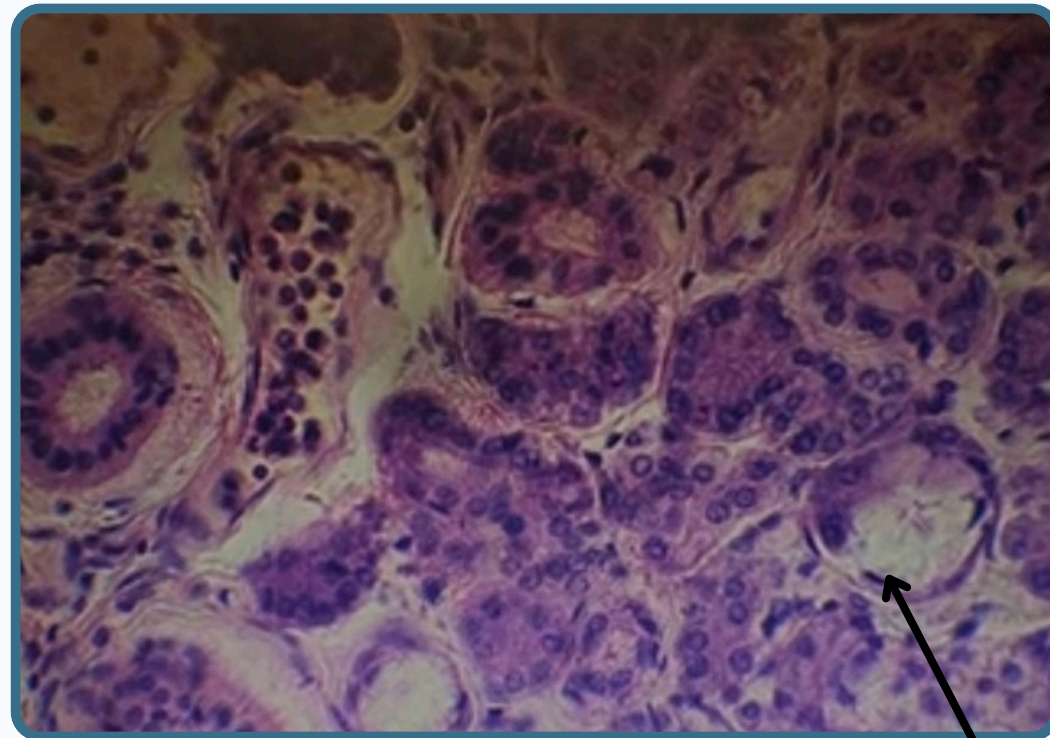
**note:**

-the serous acini is dark stain structure as shown in the picture they secret enzymes and other proteins and the mucus is lightly stained structure they secret the mucous for lubricating and protective properties





# GLANDULAR EPITHELIUM



## Serous demilunes

Serous demilunes it consist of mucus with crescent shape groups of serous cells (mixed)

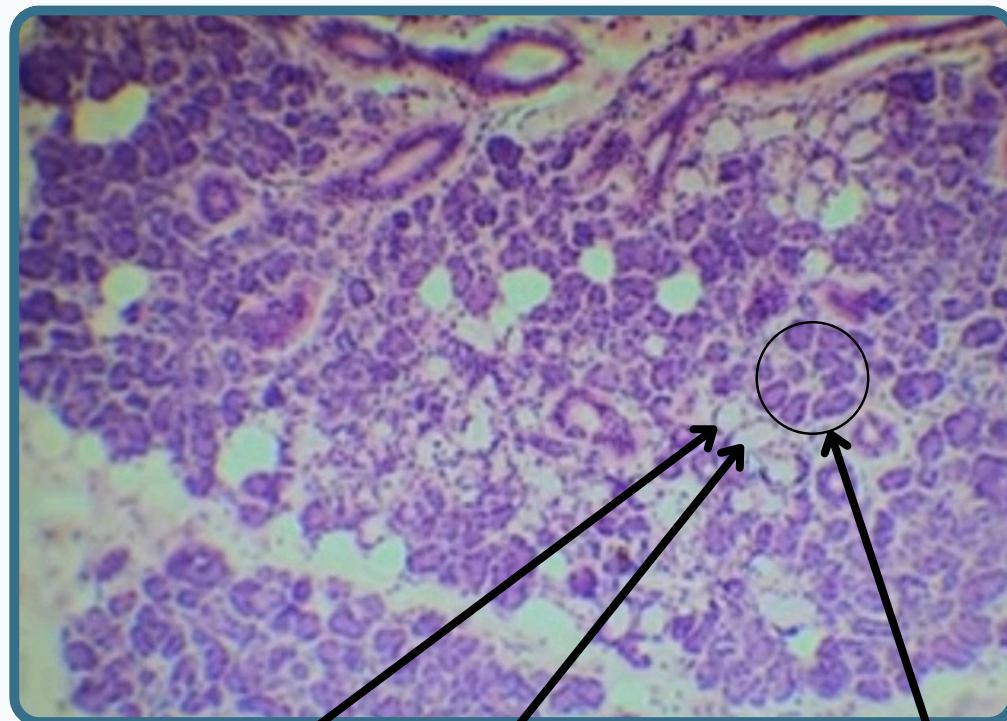




# GLANDULAR EPITHELIUM



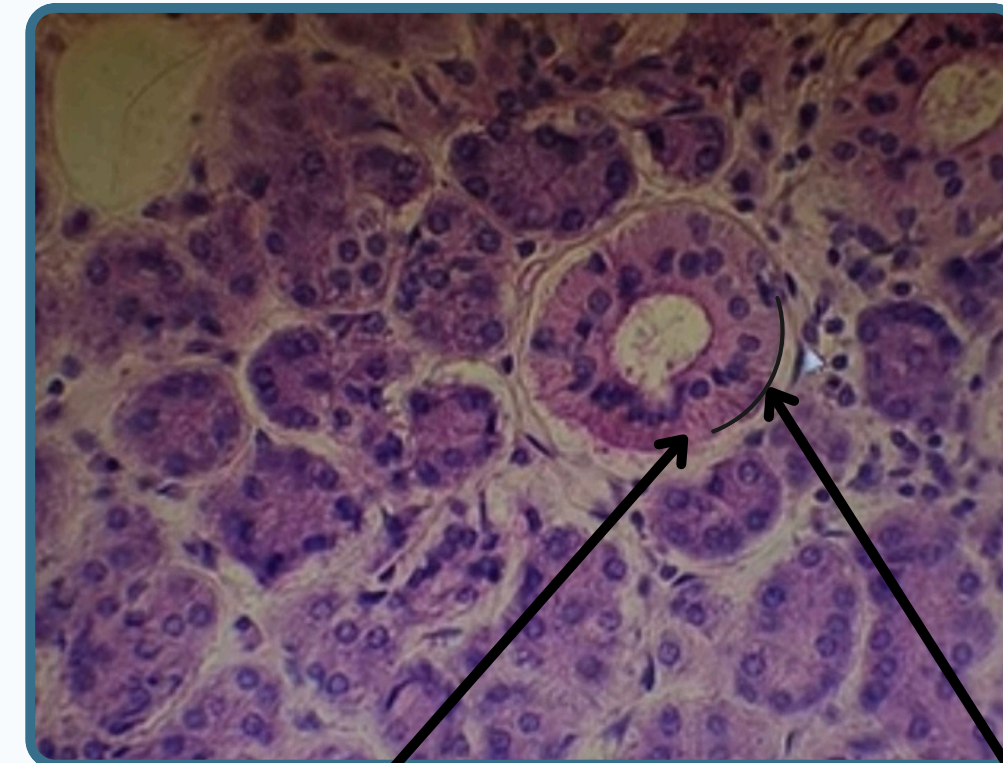
The secretory unit empty into duct system start with the \*Intercalated ducts:-smallest lining by simple cuboidal epithelium Several of them are joined to form another intralobular duct called (the striated duct) lining by columnar epithelium This duct characterised by Basel radiation



mucous tubule

serous demilune

serous acini



striated duct

these columnar cells have numerous mitochondria lined with basolateral membrane foldings forming basel striation radiate from the basement membrane toward their nuclei





# GLANDULAR EPITHELIUM

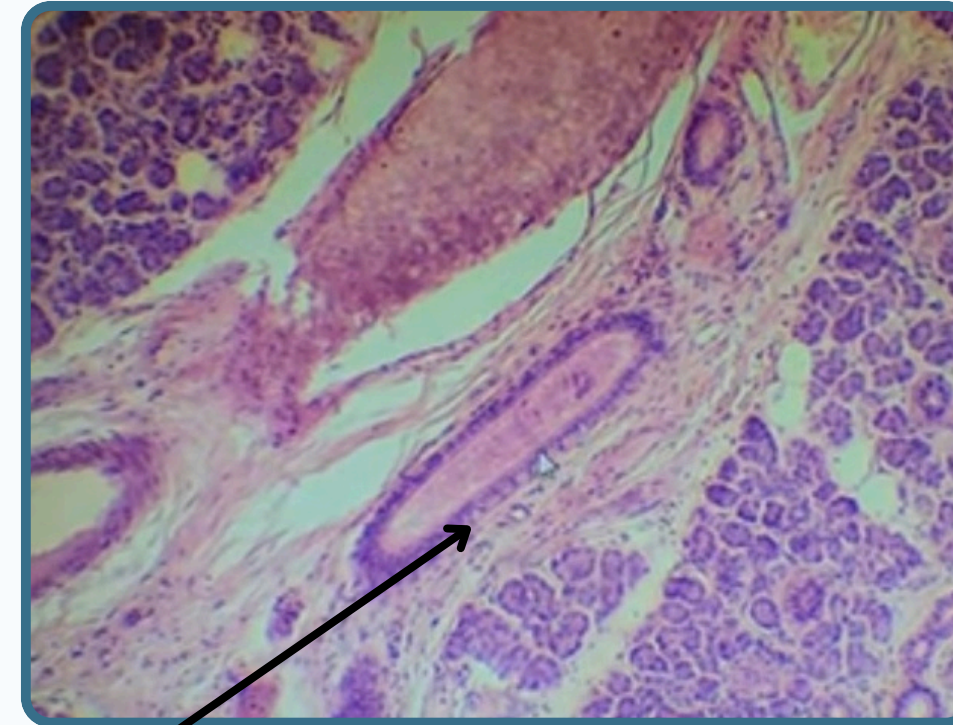
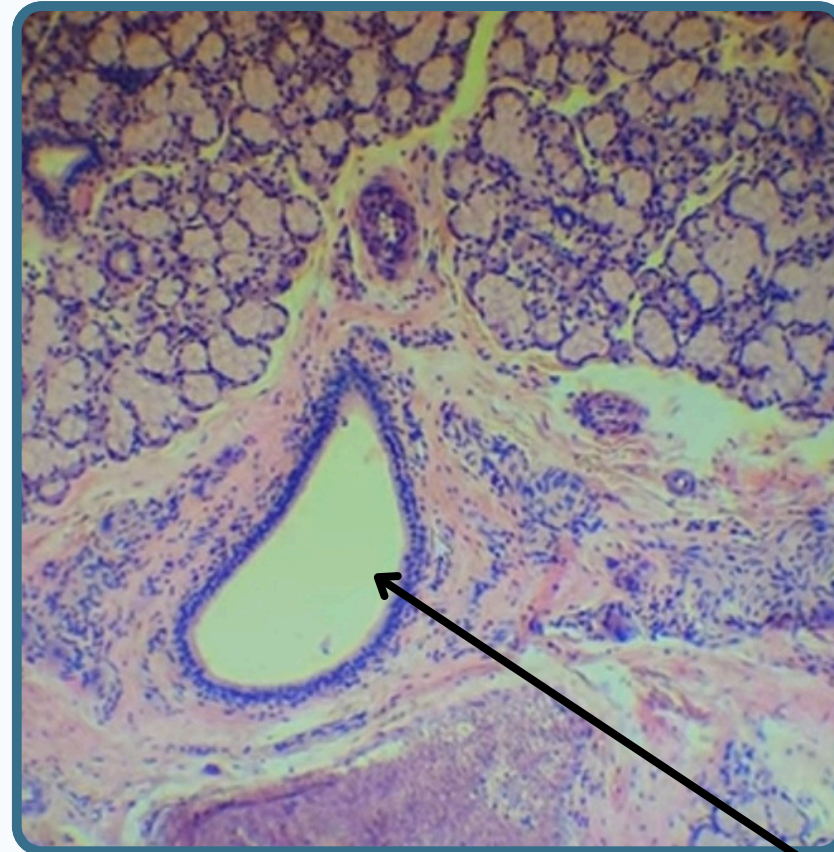


intralobular ducts converged and drained into "the interlobular or excretory duct"

1-the lining epithelium is unusual (stratified or columnar and some time pseudo stratified)

2-surrounding by connective tissue layers

3- found between the lobules \*the intralobular found within the lobules  
(intercalated and striated duct

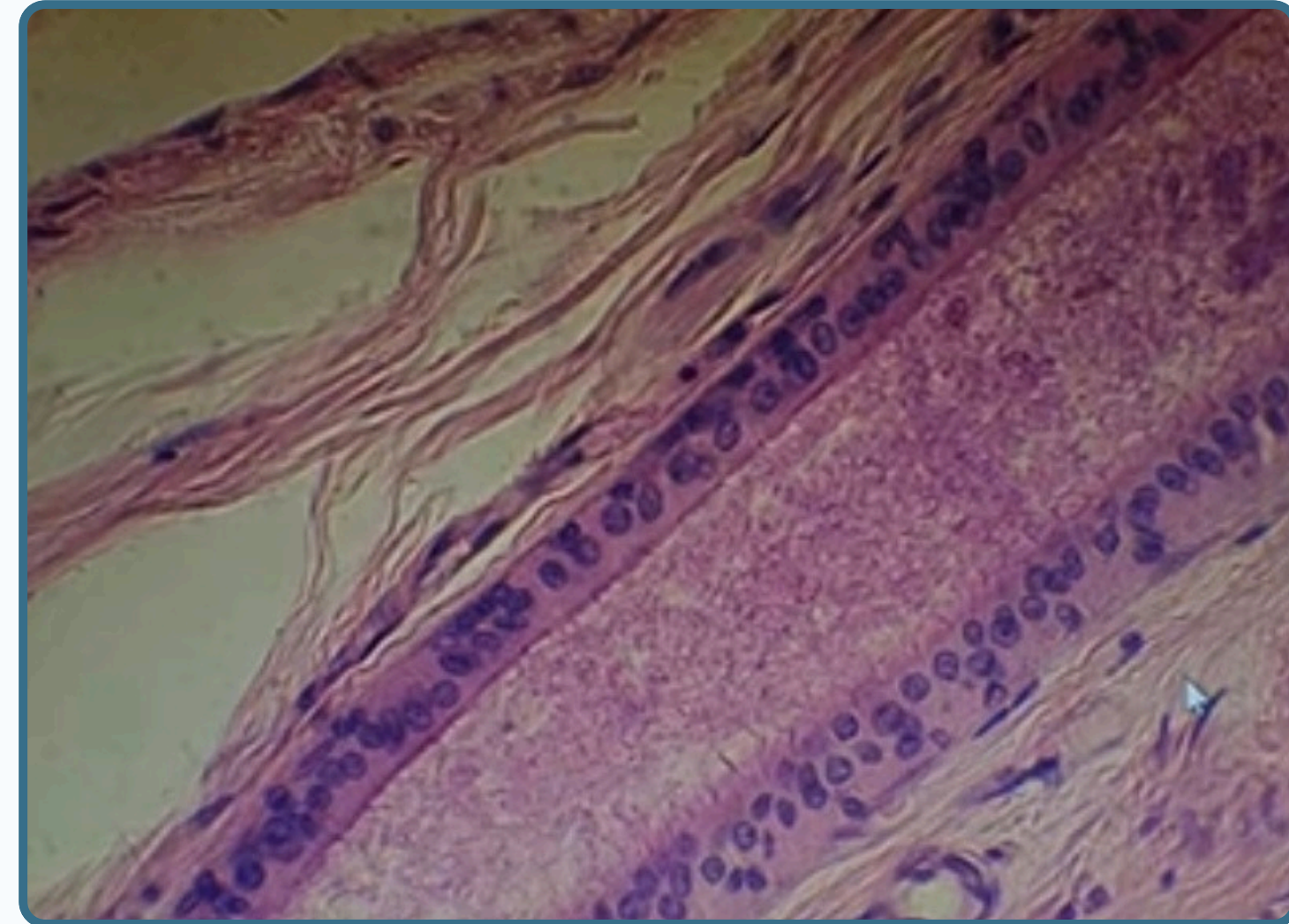
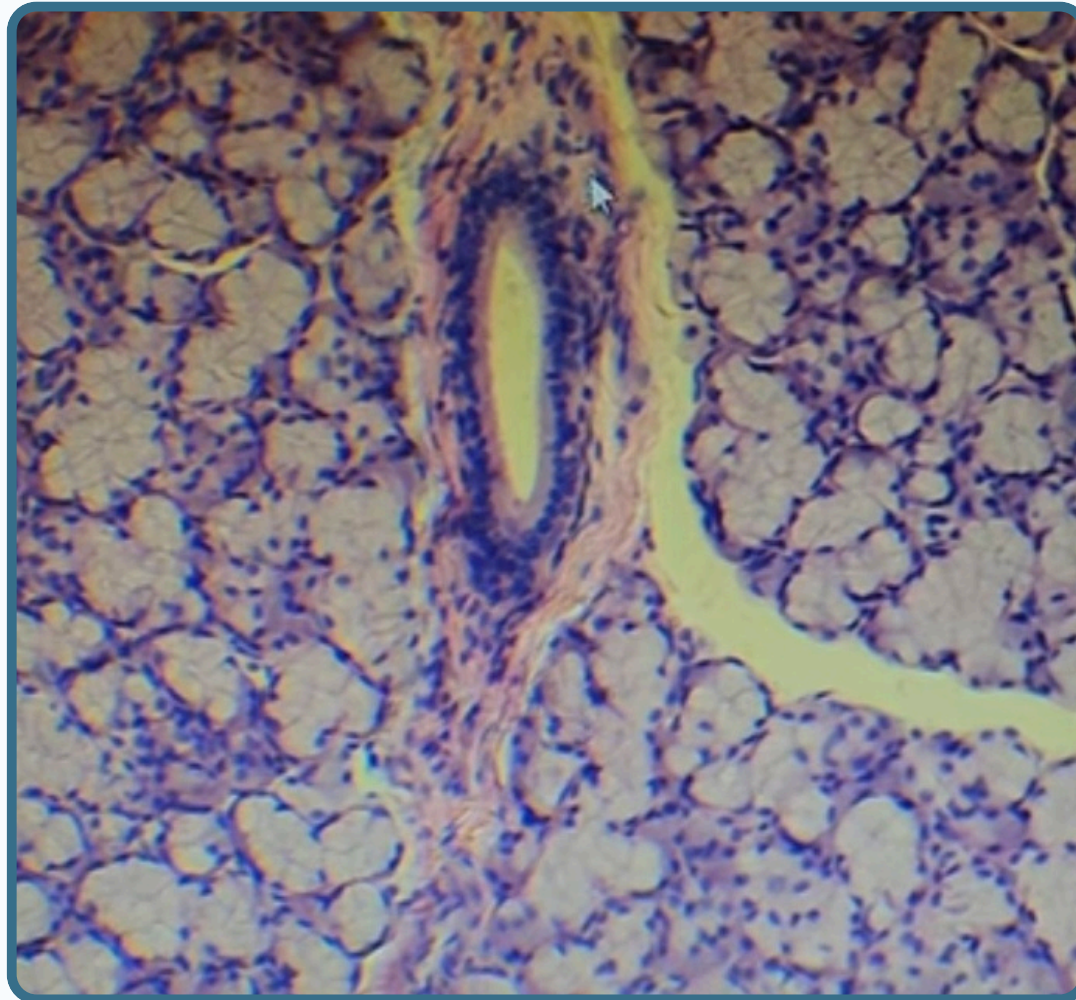


interlobular





# GLANDULAR EPITHELIUM



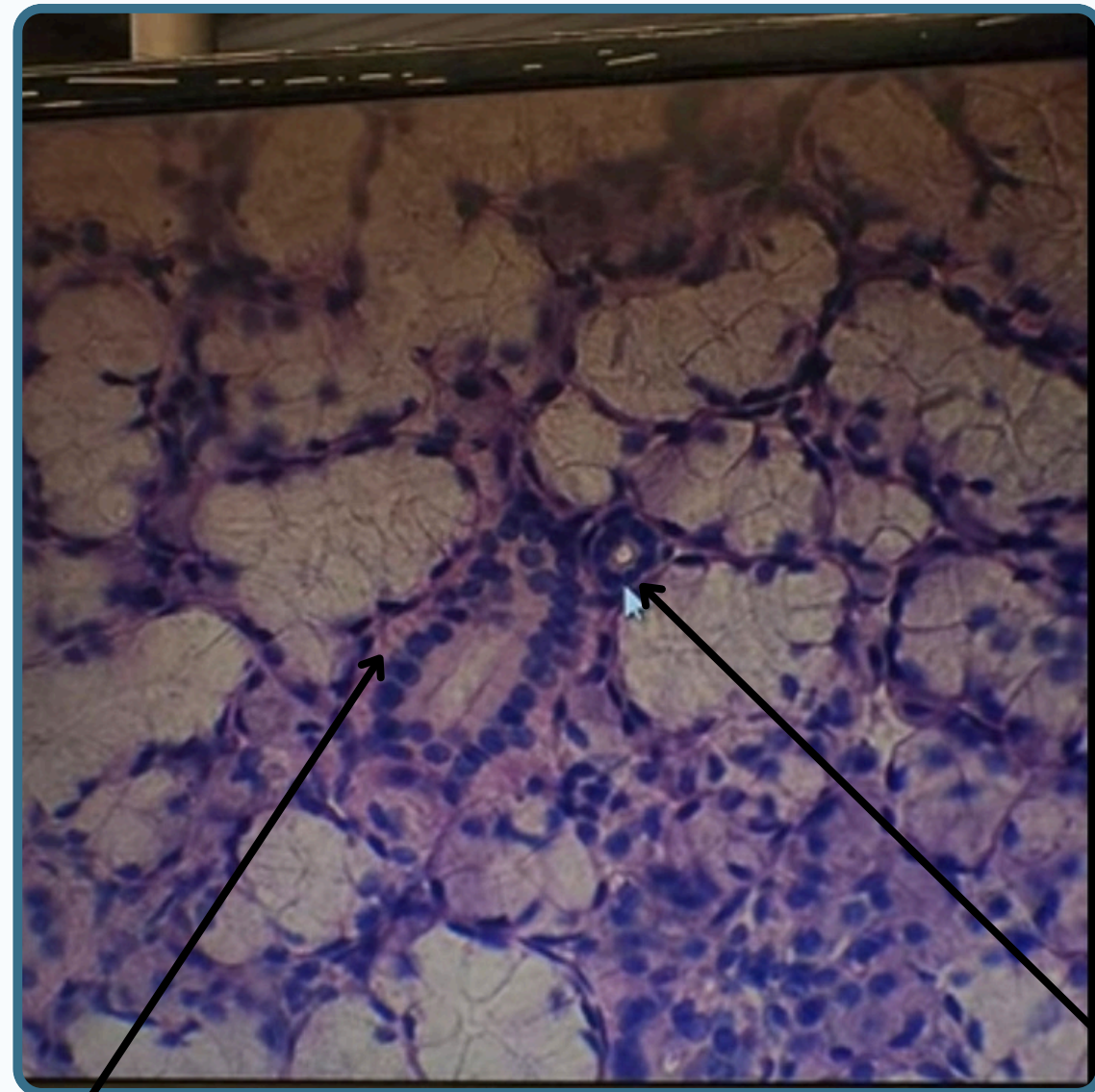




# GLANDULAR EPITHELIUM



Intercalated ducts smallest ducts lining by simple cuboid epithelium it has a central small lumen



**striated duct**

**intercalated ducts**

## Section in the sublingual gland



Sublingual gland is branched tubuloacinar gland it also have serous and mucus cells but we can see the mucus cells\* are predominant with few serous demilune

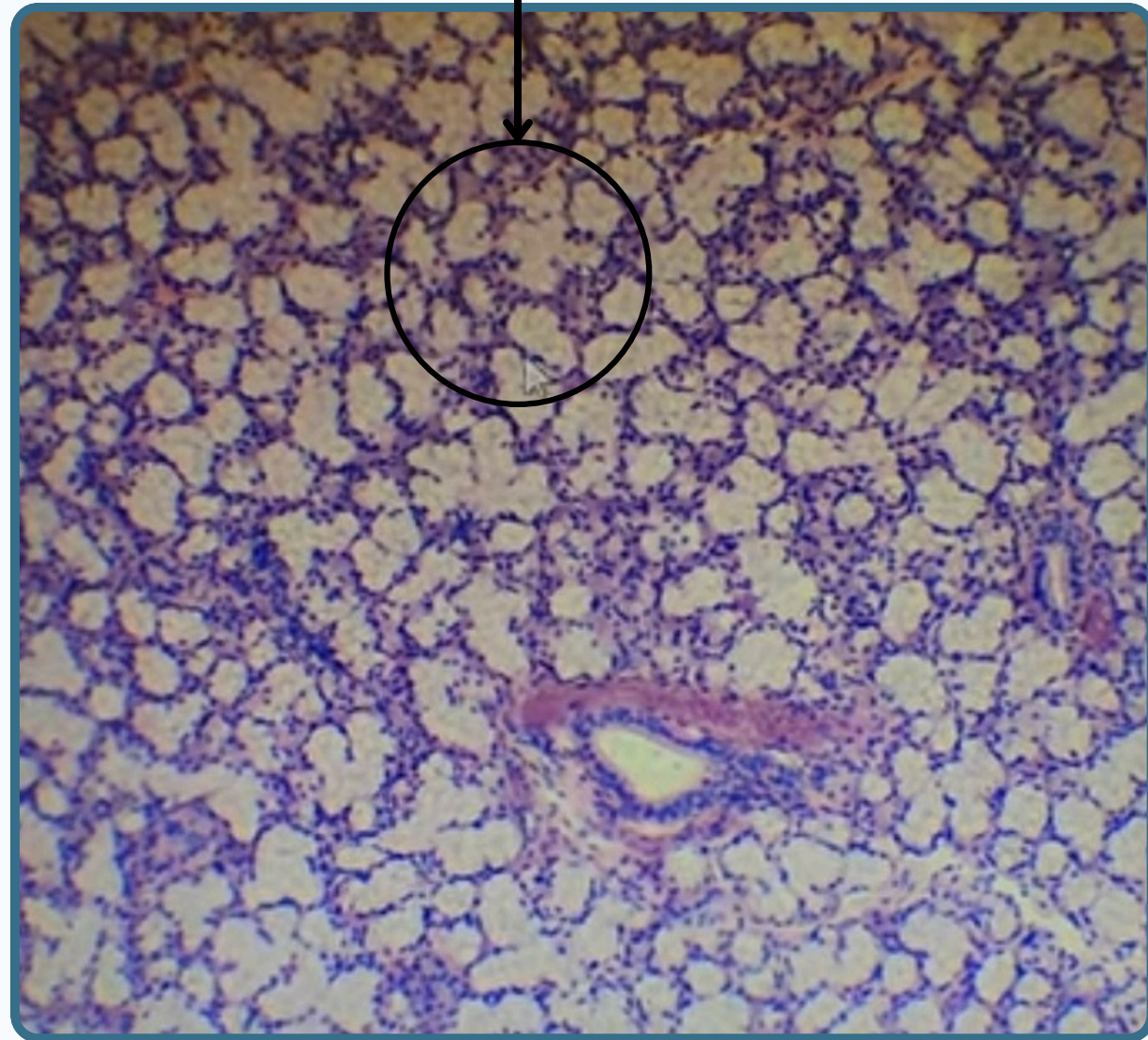




# GLANDULAR EPITHELIUM



Here we can see the mucus tubules each consist of mucus cells with basely located nuclei

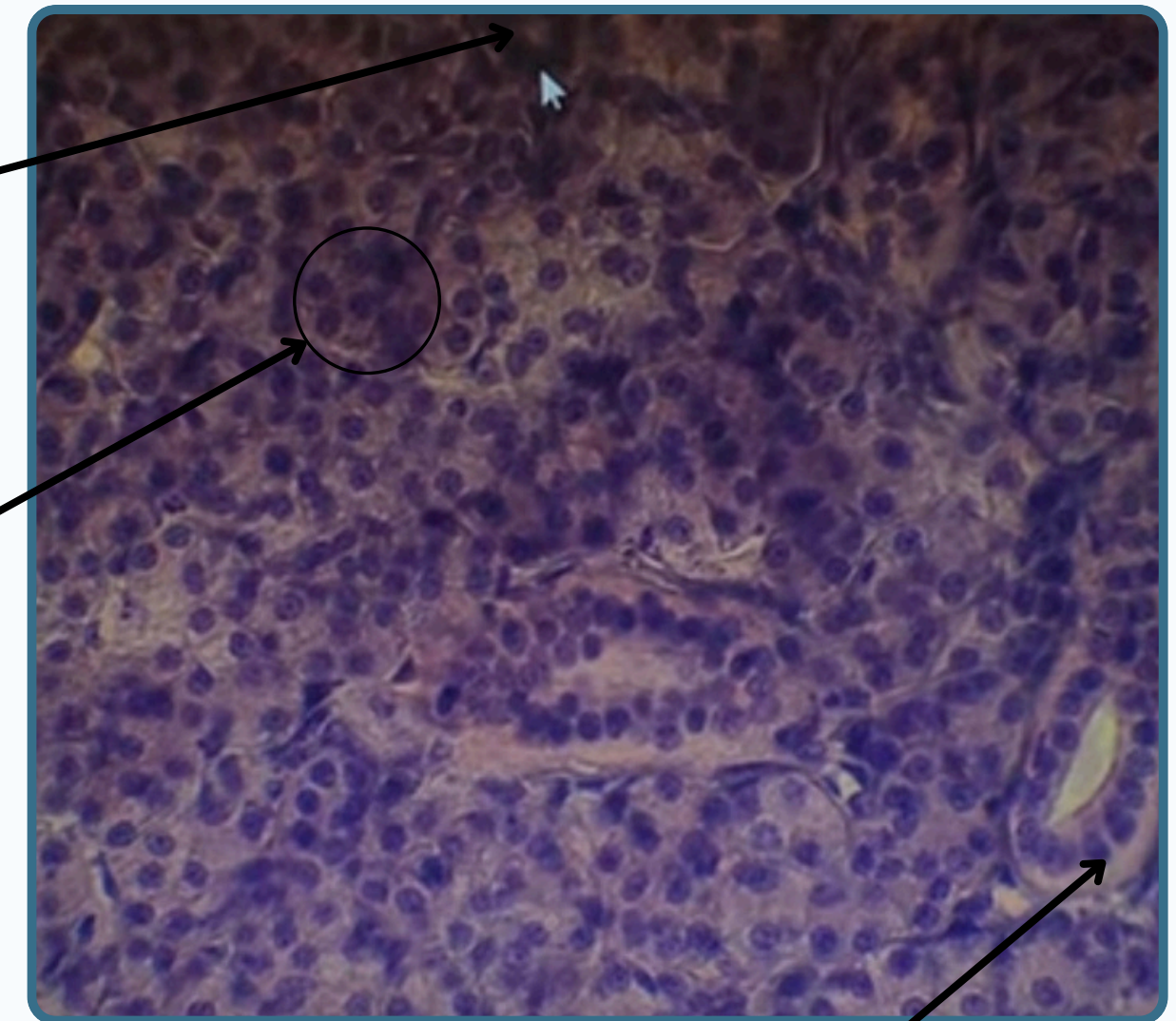


Parotid gland is compound of acinar gland it's completely serous

Note :- both the intercalated and striated are called intralobular duct

intercalated duct

serous acini

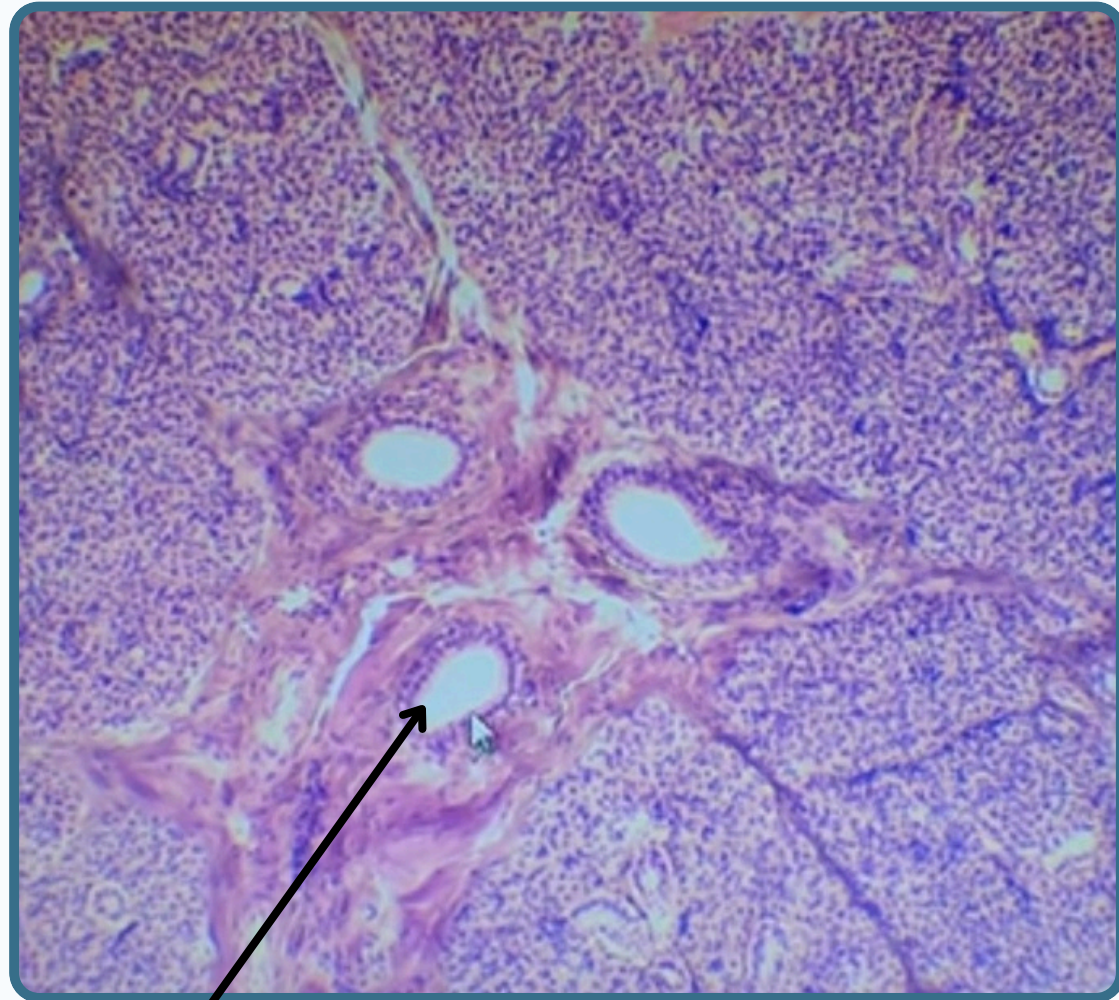


striated duct

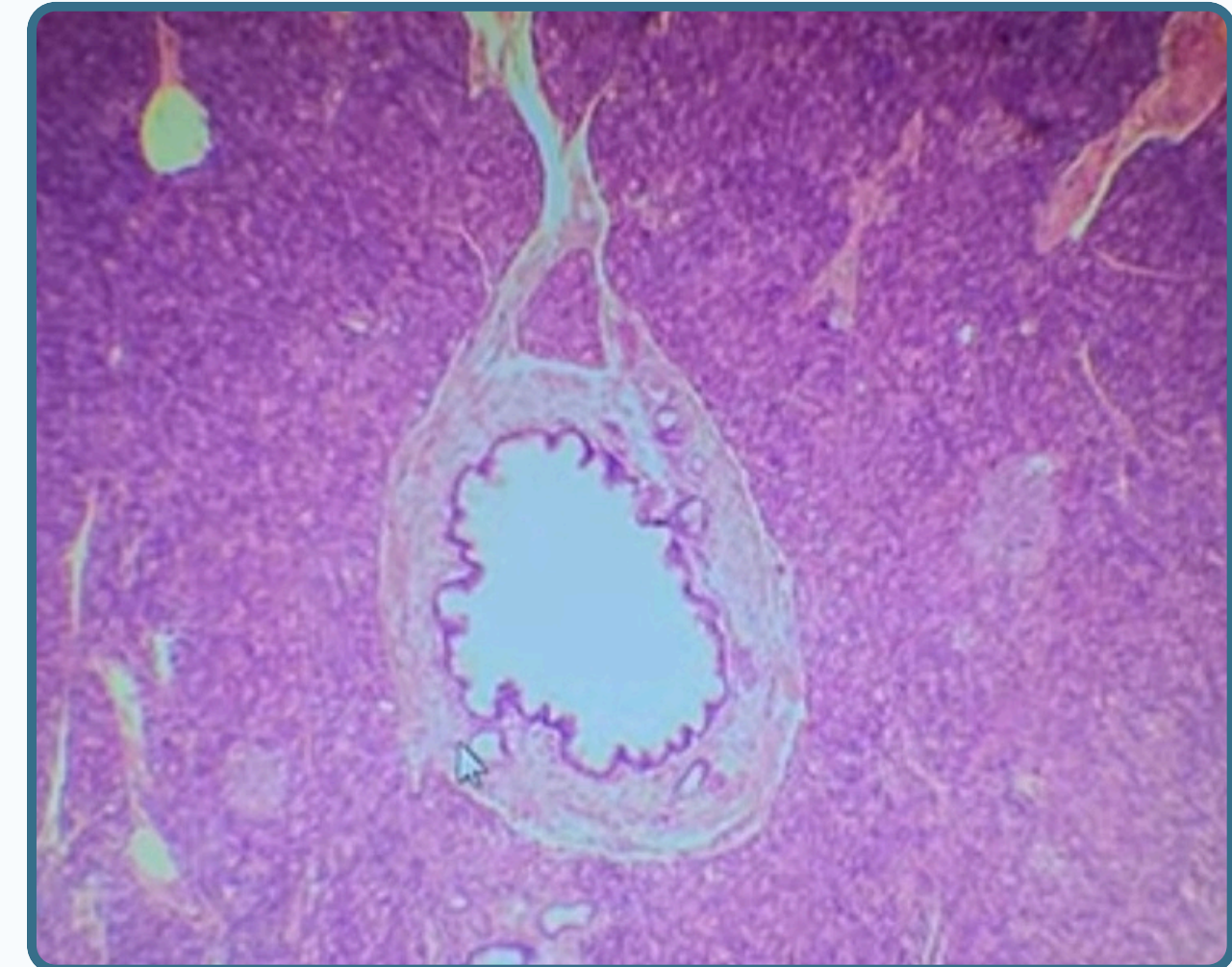




## Section in the Pancreas



**interlobular duct**



Pancreas is an elongated organ it's mix of exocrine and endocrine gland In the central we can see the major pancreatic duct The lining epithelium is pseudo stratified columnar epithelium surrounded by connective tissue layers The exocrine portion of the pancreas is compound of the acinar similar to the parotid gland (but the don't have straited duct like parotid gland)

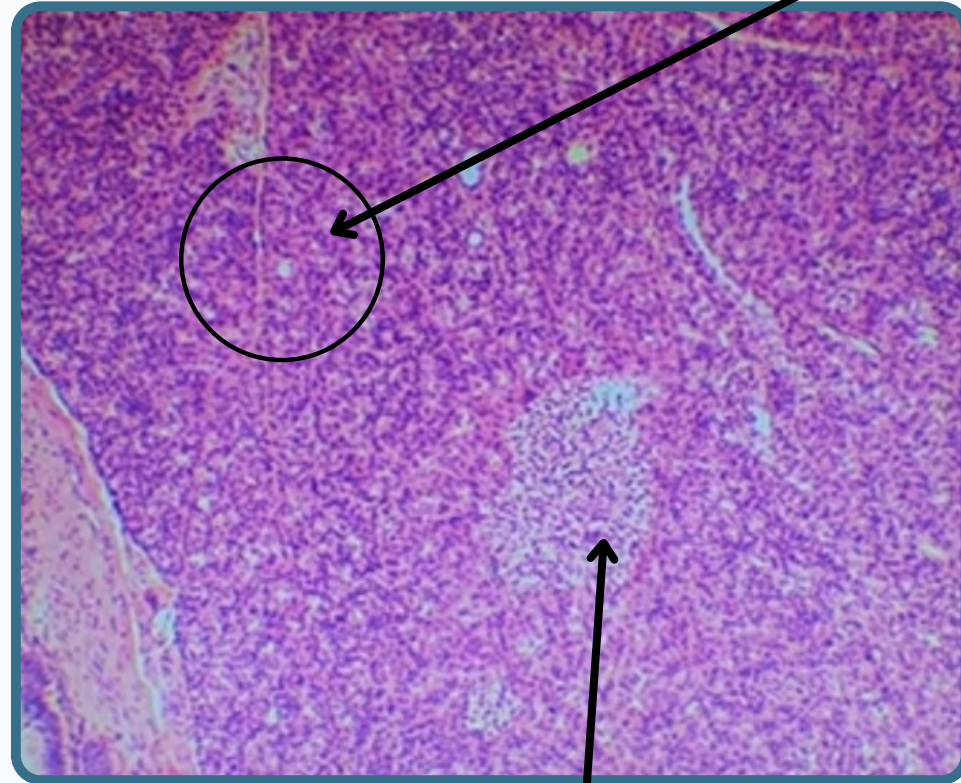




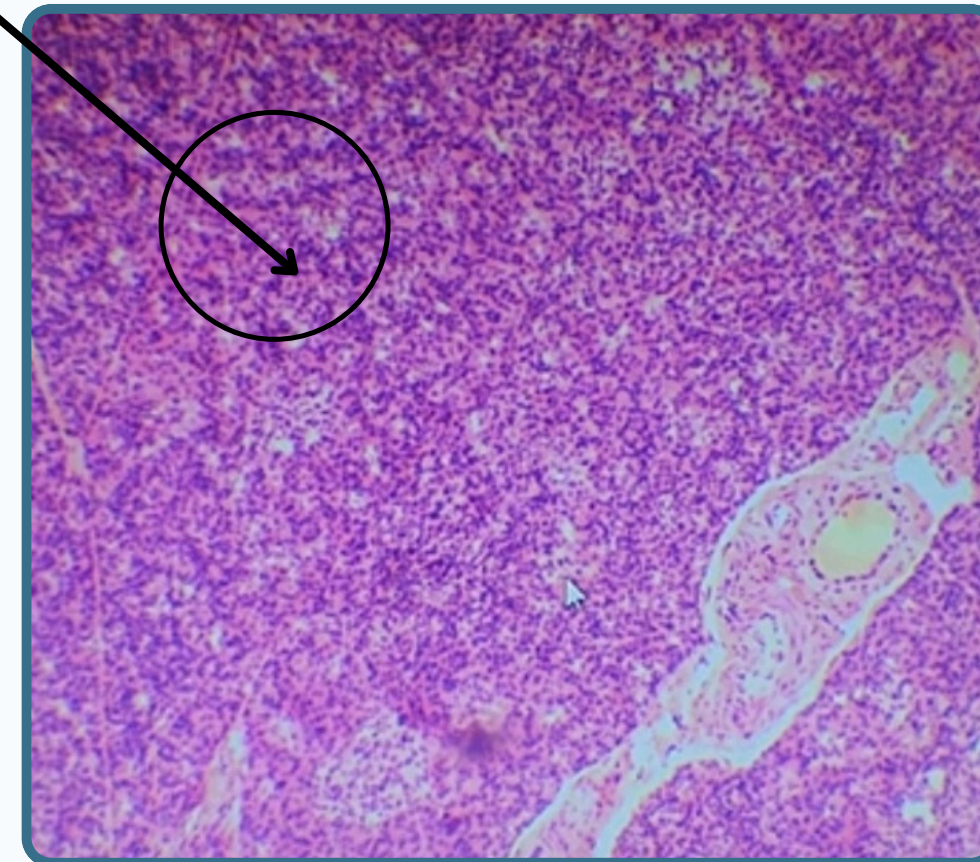
# GLANDULAR EPITHELIUM



**serous acini (exocrine portion)**



**endocrine portion called  
(islet of langerhans)**



**note: secrete digestive  
enzyme**



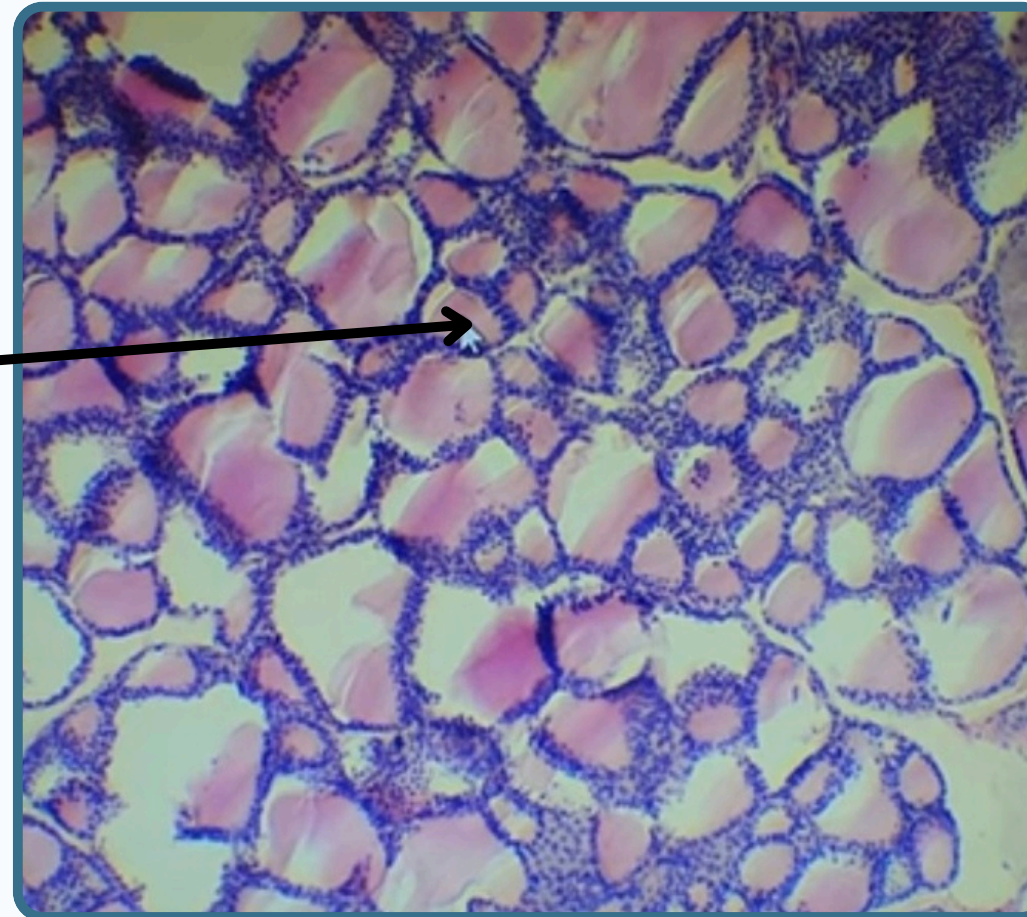


# GLANDULAR EPITHELIUM



The thyroid glands example of the endocrine glands The secretory cell or the parenchyma are arranged in the spherical structure called the thyroid follicles each one lining by simple cuboidal epithelium the lumen of the each one is filled by gelatinous substance called the colloid which is the thyroid globulin in active form of the the thyroid hormones Thyroid follicles each one is lined by simple cuboidal epithelium

**(colloid or thyroglobulin)  
acidophilic gelatinous material**



Section in the thyroid glands

Some notes :-

-glands are classified into Endocrine & exocrine

\*The exocrine glands are connect to the surface epithelium by excretory ducts into which they secret their secretion into the external surface.

\*Endocrine glands loss their connection with surface epithelium and secret their secretion directly to the capillaries in the connective tissue that surround them

-serous cells secret which type of secretion?  
Alpha amylase(hydrolysis to carbohydrates and it's an antimicrobial agent) and lysozyme

**All the slides of this lab stained by  
hematoxylin and Eosin**



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