



The human body consists of Four types of tissue:

- 1- Epithelial tissue
- 2- Connective tissue
- 3- Muscular tissue
- 4- Nervous tissue

Epithelial tissue: is a sheet of cells that covers the body surface or lines body cavity.

Functions of epithelia :

- 1- **Covering ,lining and Protection** surfaces (e.g., skin)
- 2- **Absorption** (e.g., the intestines)
- 3- **Secretion** (e.g., epithelial cells of glands)
- 4- **Contractility**(e.g myoepithelial cells)

Types of epithelia:

Epithelial tissues consist of two types :

A- Covering or lining epithelial tissues

B- Glandular epithelial tissues

A-**Covering epithelial tissues** covers the outer layers or **lining** of the organs ,according to the number of cells layers classified to:-



A.Simple epithelial tissue

- 1-Simple squamous epithelial tissue.
- 2- Simple cuboidal epithelial tissue.
- 3- Simple columnar epithelial tissue.
- 4- pseudostratified columnar epithelial tissue.

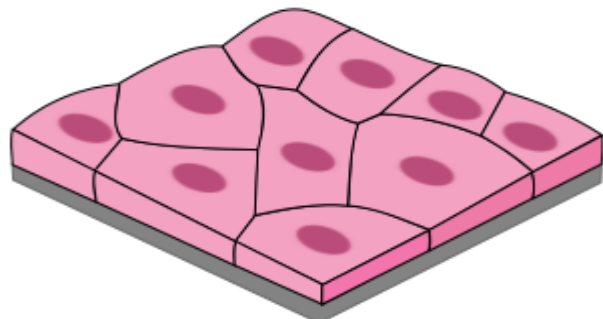
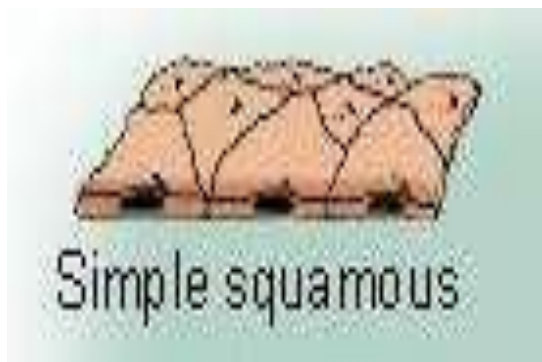
B.Stratified epithelial tissue

- 1- Stratified squamous epithelial tissue.
- 2- Stratified cuboidal epithelial tissue.
- 3- Stratified columnar epithelial tissue.
- 4- Transitional epithelial.

Simple epithelial tissue

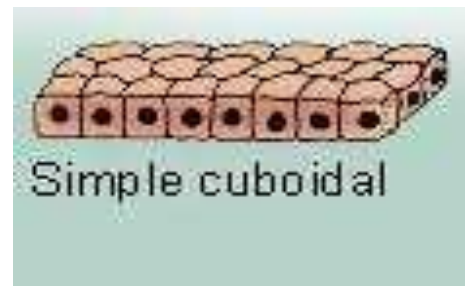
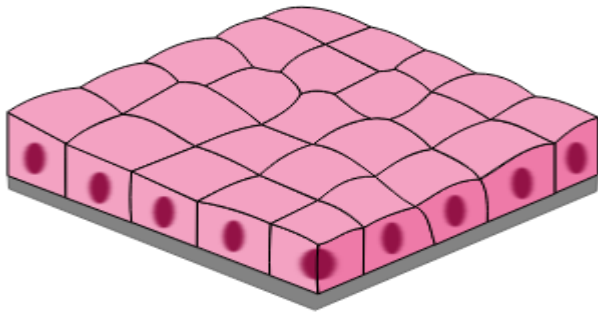
Composed of only one layer rest on basement membrane

- 1- **Simple squamous epithelial tissue**:- Composed of a single layer of cells which are flat and plate like , lining blood vessels being called endothelium and that lining the abdominal and plural cavities called mesothelium.



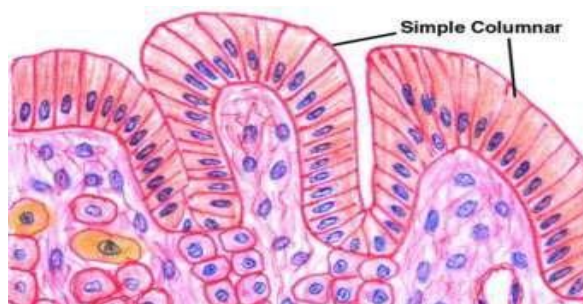
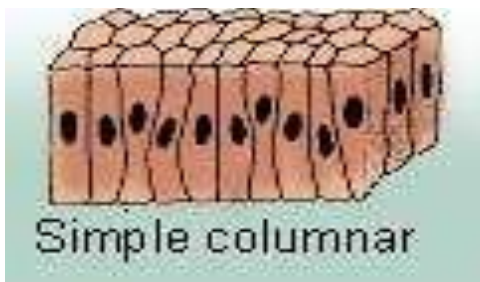


2) Simple cuboidal epithelial tissue:- Composed of a single layer of cells whose height , width and depth are the same and have centrally placed nucleus . Line small excretory ducts like proximal convoluted tubule kidney ...etc

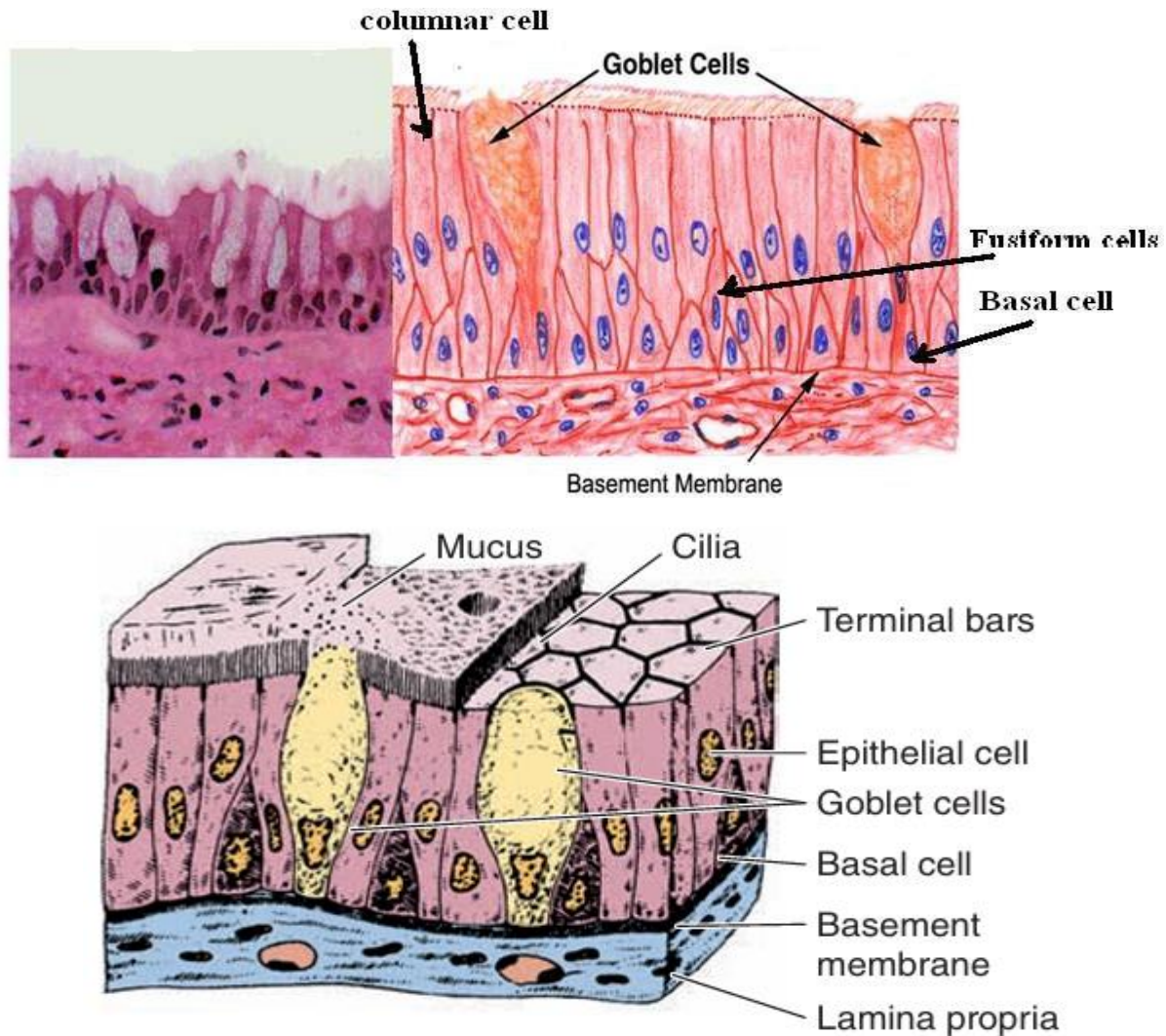


3)Simple columnar epithelial tissue :-

Composed of cells whose height 2-3 times greater than their width , the nuclei of columnar cells are basal layer , covers the digestive organs (stomach, small and large intestine) in the small intestine its called brush border. **Ciliated** Simple columnar epithelial tissue found in oviducts .



4) pseudostratified columnar epithelial tissue :- Several layers of nuclei suggest several layers of cells but in fact all cells are in contact with underlying extracellular matrix and show several layer of nuclei , composed of four types of cell.



Stratified epithelial tissue

Composed of more than one layer based on basement membrane ,
classified to :-

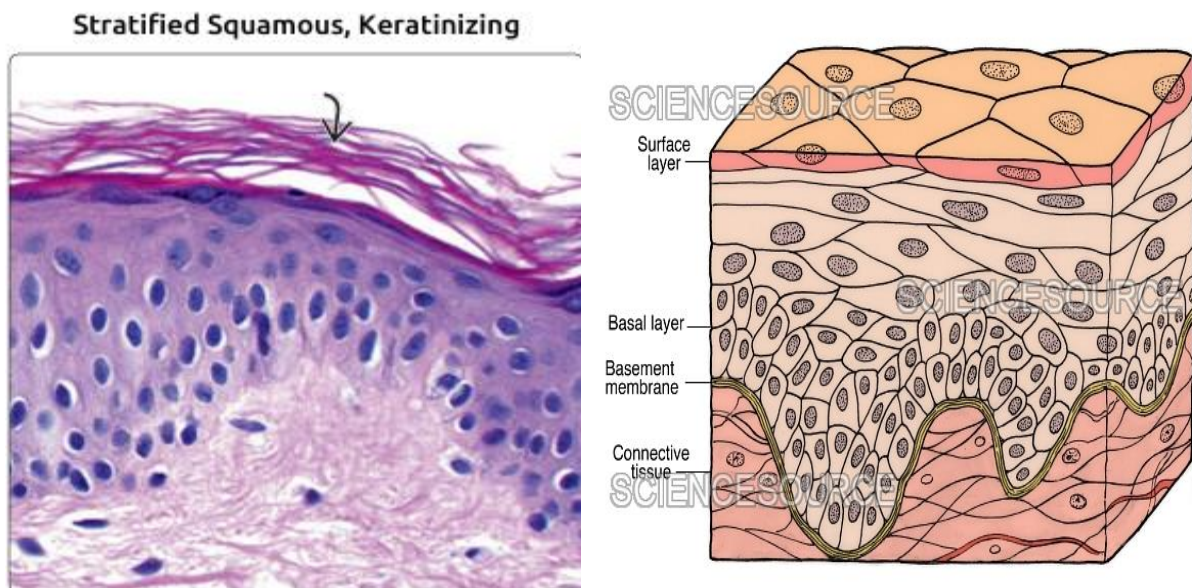
1- Stratified squamous epithelial tissue

Contains multiple cell layers , the basal cell are cuboidal to columnar ,
these cells give rise to cells that migrate to word the surface and become

squamous .

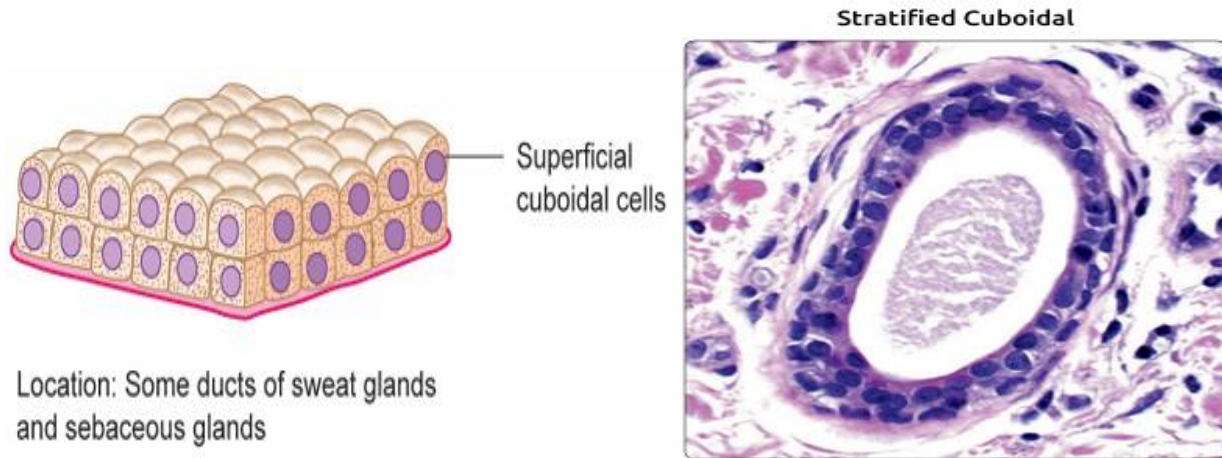
There are **two** types of stratified squamous epithelial tissue:

- Non keratinized squamous epithelial tissue** : which is covering moist cavities such as mouth , esophagus , pharynxetc.
- **Keratinized squamous epithelial tissue** : found on exposed surface of the body such as the skin .



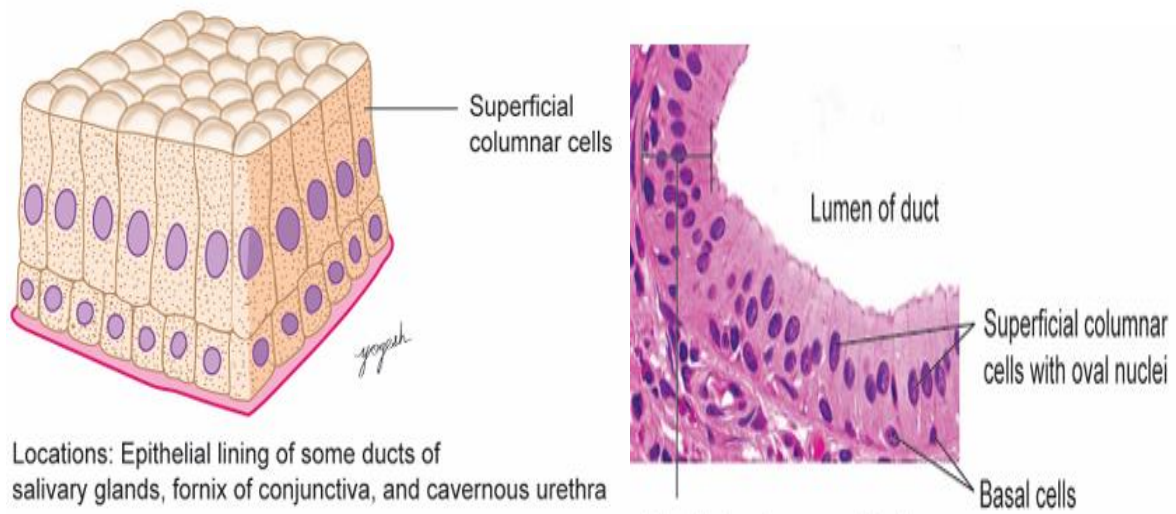
2-Stratified cuboidal epithelial tissue :-

The surface layer cuboidal in shape , found in the large excretory ducts in the salivary glands and pancreas .



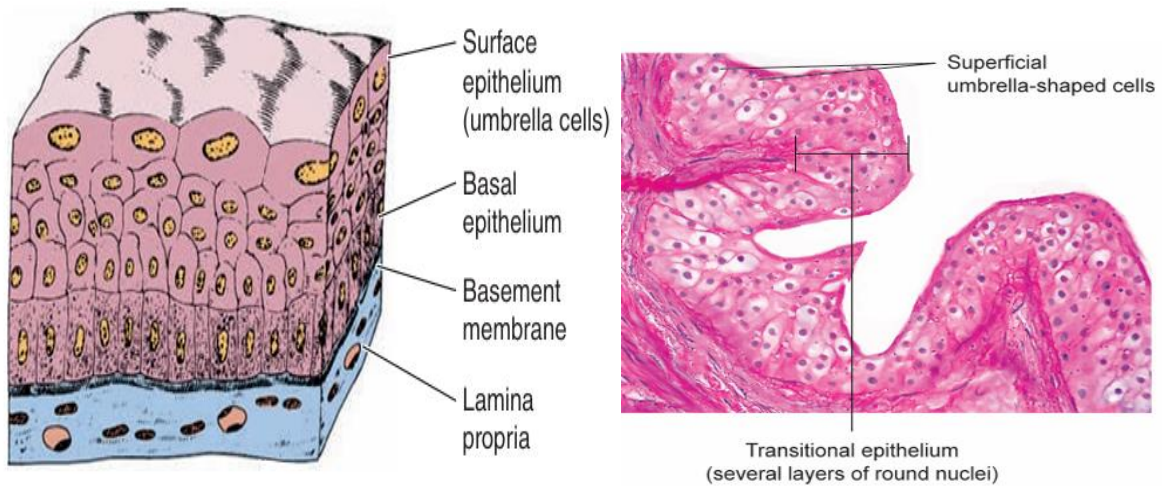
3-Stratified columnar epithelial tissue

Is found in the fornix of conjunctiva while the ciliated Stratified columnar epithelial tissue is found in the larynx.



4- Transitional epithelial tissue

Is found exclusively in the passages of the urinary system . Its composed of several layer of similar cells . this type of tissue allows distention of urinary organs during urine accumulation



Glandular tissue :

cells or parenchyma of the glands developed from epithelial tissue , according to the methods of secreted products of gland the glandular epithelial tissues classified to :

- A- **Exocrine glands** (excrete their product into ducts)like skin
- B- **Endocrine glands** (secrete their products direct into circulatory system)
- C- **Mixed glands** (like pancreas)

A- **Exocrine gland** :have a secretory portion which contains the cells specialized for secretion and ducts which transport the secretion out of the gland .

According to the structure of the ducts:

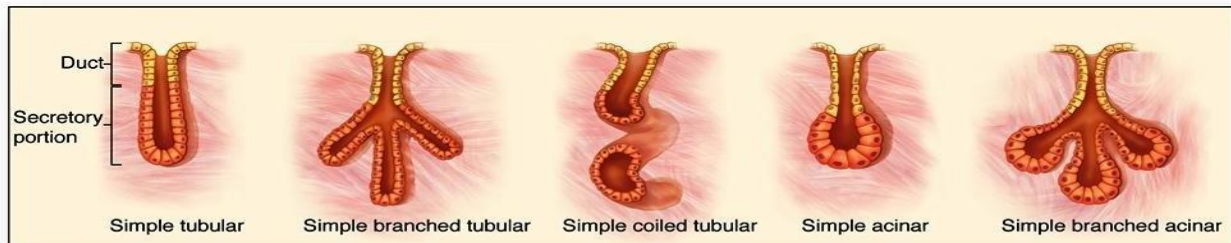
- **Simple(un branched)**.
- **Compound (two or more branched).**

According to the structure of secretory portion :

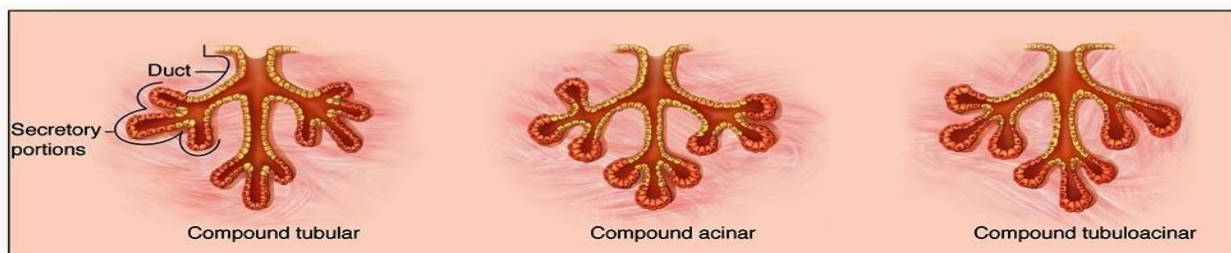
- **Tubular** (either short or long and coiled)
- **Acinar (round or globular)**.
Either type of secretory portion may be branched .

Compound gland can have tubular ,acinar, tubuloacinar

secretory portion



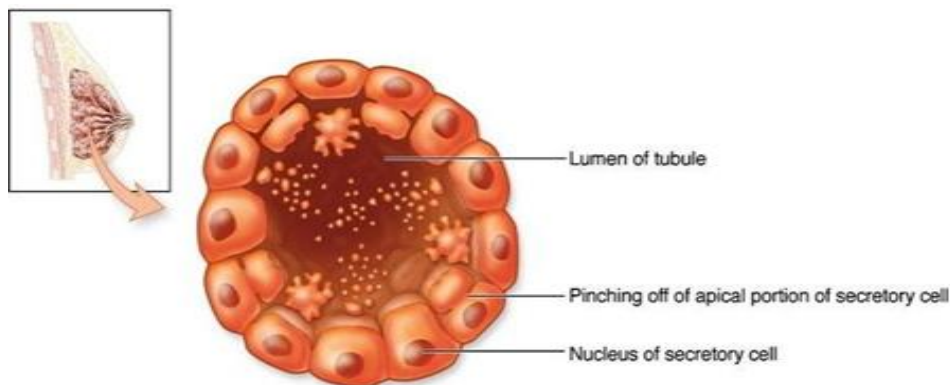
a Simple glands



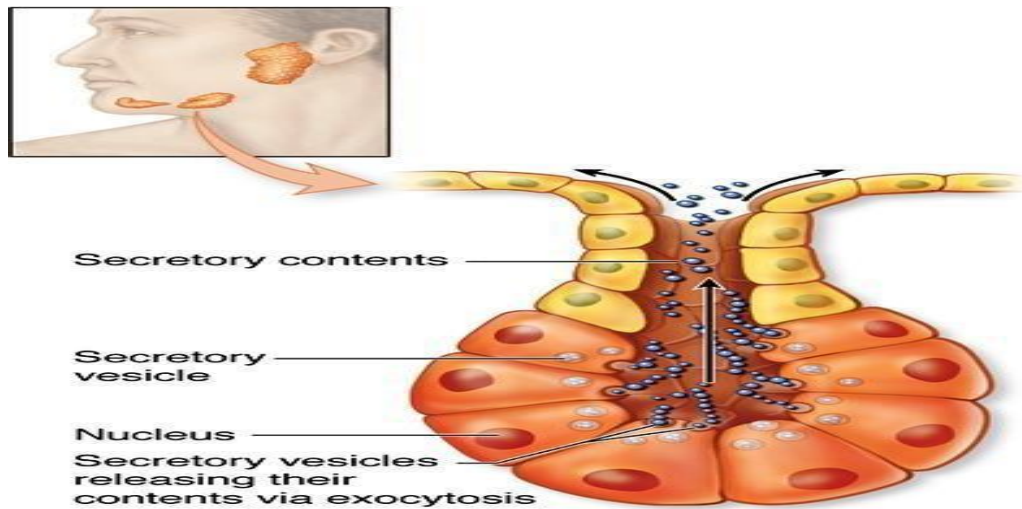
b Compound glands

According to the way the secretory products leave the cell ;

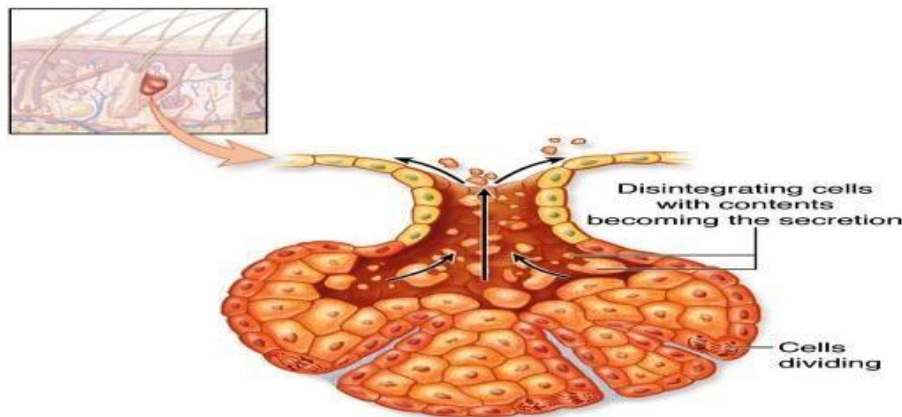
- **Apocrine** ; the secretory products is typically a large lipid droplet and is discharged together with some of the apical cytoplasm
- **Example: Mammary glands**



- **Merocrine / Eccrine**: secrete product usually containing proteins by means of exocytosis at the apical end of the secretory cells **Example;** (e.g. salivary glands)



- **Holocrine** : the cell filling with secretory product and then the whole cell being disrupted and shed .
- **Example: Sebaceous glands of skin.**



B. ENDOCRINE GLANDS

- Endocrine glands have not any ducts - *ductless*
- Their specific products – hormones are released directly into the bloodstream .
- The major endocrine glands include:
Pituitary, Hypothalamus , thyroid, Parathyroid, Adrenal, Pancreas, Ovary (females) and testis(males)