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جامعة المستقبل  
AL MUSTAQBAL UNIVERSITY

## كلية العلوم قسم الادلة الجنائية

### Lecture (2)

### عنوان المحاضرة

-Compound or stratified epithelial tissues:

المادة : علم الانسجة

المرحلة : الثانية

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## **-Compound or stratified epithelial tissues:**

### **1. Stratified squamous epithelial tissue**

This tissue appears in its vertical section (PS) consisting of several layers of cells, forms of cells of the deep layer (ie, based on the basement membrane) vertical shape and oval nuclei, while the cells of the middle layer are polygonal and round nuclei, while the surface layer cells are Squamous flat and flat or elongated nuclei toward the surface of the tissue and cells of this layer when non keratenized, the tissue is called non-keratenized stratified squamous epithelial tissue applied tissue Esophagous lining.

When the cells of the superficial layer are keratinized or dead (i.e., they are lack nucleated) then this tissue is called Keratenized stratified squamous epithelial tissue. This type is found in the epidermis of skin.

### **2-Stratified cuboidal epithelial tissue**

When examining a vertical section of the skin showing sections of the ducts of sweat gland note that the channels of these glands are composed of two layers of cubic cells and these represent the applied cubic epithelial tissue.

### **3-Stratified columnar epithelial tissue**

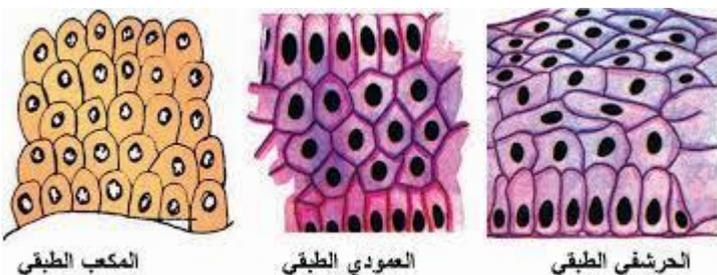
The cells of the surface layer of this tissue appear in the vertical sections (PS) in the form of vertical and oval nuclei while The cells of the layers below it are polygonal and smaller than surface cells with round nuclei and the basal layer cells are cubed or vertical. When this tissue contains



cilia, it is called the stratified columnar ciliated epithelial tissue, which is found in the larynx.

#### 4-Transitional epithelial tissue

This is similar to the Non keratinized squamous epithelial tissue when it is stretched This tissue is found in the urinary bladder lining. When the urinary bladder is filled with urine, then the tissue is stretched where the surface layer cells take a squamous form But when the tissue is not tight or contracted, that is, when the bladder is empty, the surface layer cells take rounded and umbrella-like shapes instead of being squamous. Meanwhile, the cells of the middle layers are polygonal and pear-shaped, while the basal layer cells take small polygonal or short vertical shapes. The number of layers in the case of tissue expansion is less than in the case of contraction





## -Glandular E.T ..

It can be divided into several subdivisions by different qualities adopted in the classification: \* Glands are classified into three types depending on the secretion method:

1-Endocrine glands

2-Exocrine glands.

3-Mixed glands

**1 - glands with internal secretion**( endocrine gland): are the glands that have no channels and thus they put their secretions inside the body, ie, inside the blood and they are called endocrine glands such as the pituitary and thyroid gland.

**2 - glands with external secretion**( exocrine gland): They are glands supplier with channels that transfer their secretions to the surface of the epithelial tissue from which any outside the blood or lymph, ie, it puts secretions into the cavities (ie, body organs) such as sweat gland, salivary, gastrointestinal.

**3 - mixed glands:** include part with internal secretion and part with external secretion example pancreas gland

**The glands are classified according to the shape of the gland (structure or number of cells of the gland) into two types:**

1-Unicellular gland.

2. Multicellular gland.

1-- **Unicellular:** For example, the goblet cell is located within the epithelial tissue of the intestine and is considered a single cell gland because it is a single cell.

**2-multi-cell:** It consists of several cells and be in several types:

A-The straight gland is present in the intestinal wall.



B - tubular gland: The gland is tubular and is of two types:

a- straight tubular branching into two or three branches, ie, the sort is the branch and is present in the stomach (pyloric gland).

b- tubular coiled and the secretory part is twisted example sweat gland.

C - Alveolar gland : The secretory part is vesicular form and be of two types:

A non-branching alveolar: present in the skin of a frog.

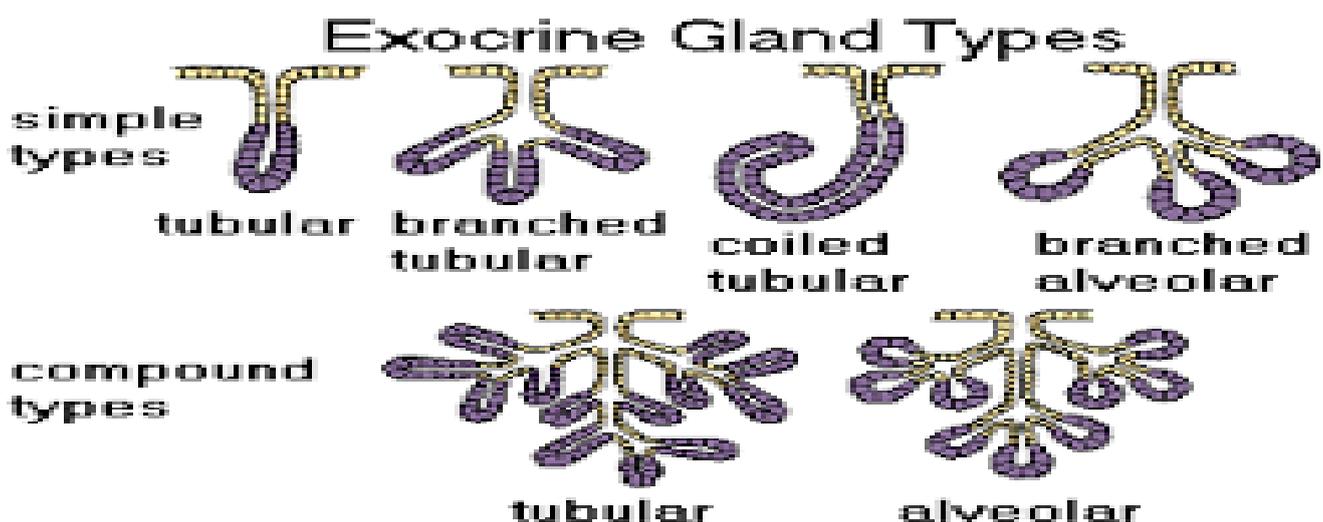
B-alveolar branching: found in the sebaceous gland adjacent to the hair or along the hair follicle.

**-Glands are classified in terms of secretion (ie the quality of secretion): into three types:**

1-Serous gland: The cavity of the secretory unit is narrow and the nucleus of the central cells where the cavity is narrow because the secretion material serous and serous is less dense, such as the parotid gland

2- Mucous gland : The cavity is wide because the mucus has a clear density and the nuclei lateral compressed like the palated gland.

3 - Mixed gland Mixed gland: And be two parts mucous and serous the found in the salivary gland.





**- Functions of epithelial tissue:**

- 1 - protection (where found in the external surfaces of organs such as skin epidermis).
- 2 - filtration (found in the lining of blood vessels and lining Bowman capsules in kidney).
3. Absorption (found in the lining of the gut such as the intestines).
- 4 - secretion (tissue found in different glands).

**- Practical aspect:**

1. Check a slice of the epithelial tissue in the esophagus
2. Examine a slice of epithelial tissue in the skin
3. Check the slide for epithelial tissue in the larynx
4. Check the slice of epithelial tissue in the salivary glands
5. Examine a slice of epithelial tissue in the palatal gland