



جامعة المستنقب
AL MUSTAQBAL UNIVERSITY

epithelial tissue



to
Second stage students
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by

Lac 3

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- **Tissues are cells that are similar in structure and perform a common related function.**

There are four types of tissues:

- **Epithelial tissue**
- **Connective tissue**
- **Muscle tissue**
- **Nerve tissue**

Functions of epithelial cells include secretion, selective absorption, protection, filtration, transport, and sensing.

Classification of Epithelia:

Based on the number of cell layers, epithelia can classify to simple and stratified.

- **Simple epithelia:** consist of a single cell layer (found where absorption, secretion, and filtration occur).
- **Stratified epithelia:** are composed of two or more cell layers.

EPITHELIAL TISSUE



A single-layer
epithelium



multi-layered
epithelium



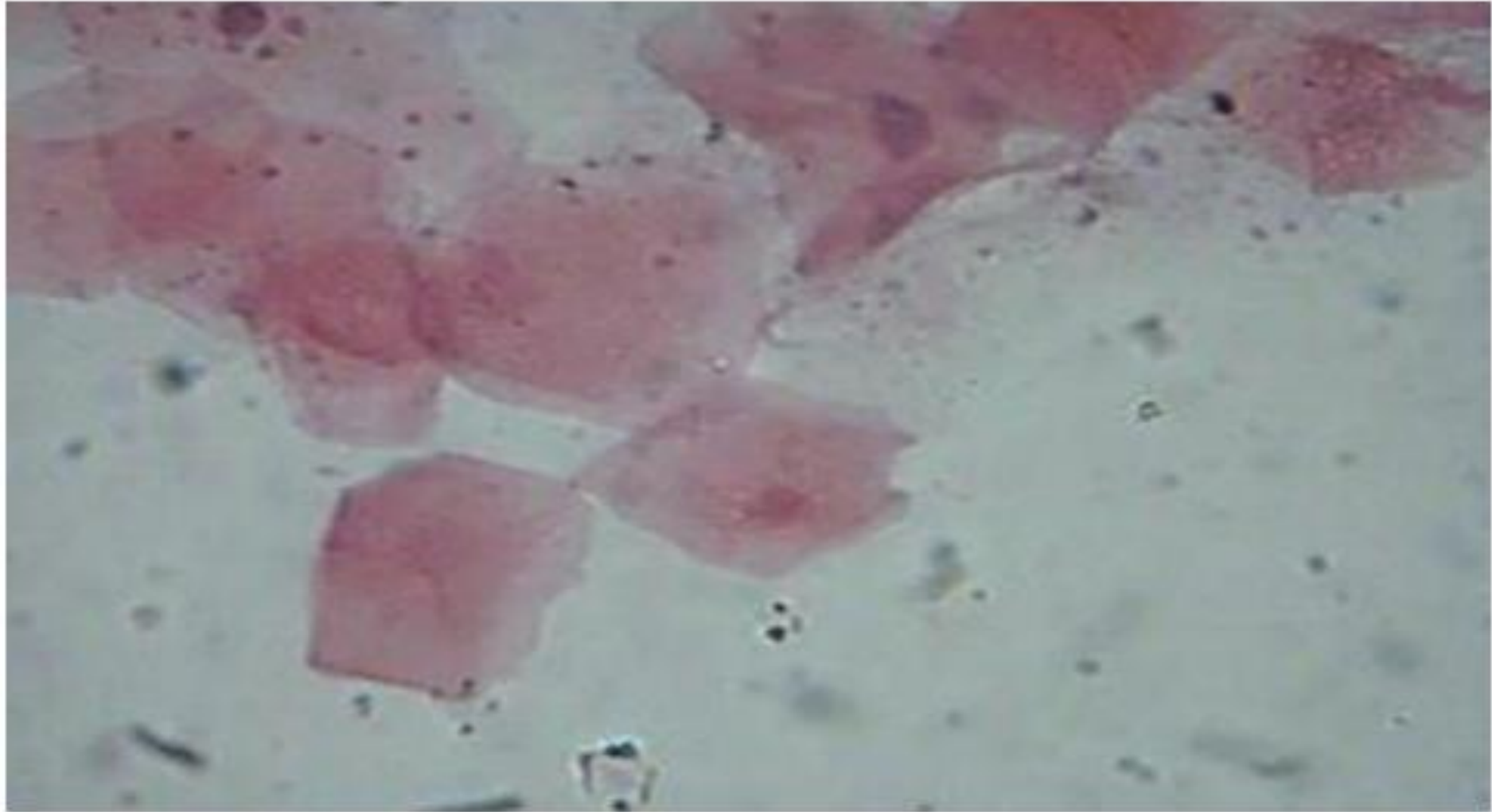
glandular epithelium

Simple epithelial tissue

Depending on the **shape of the cells**, simple epithelial tissue classified to:

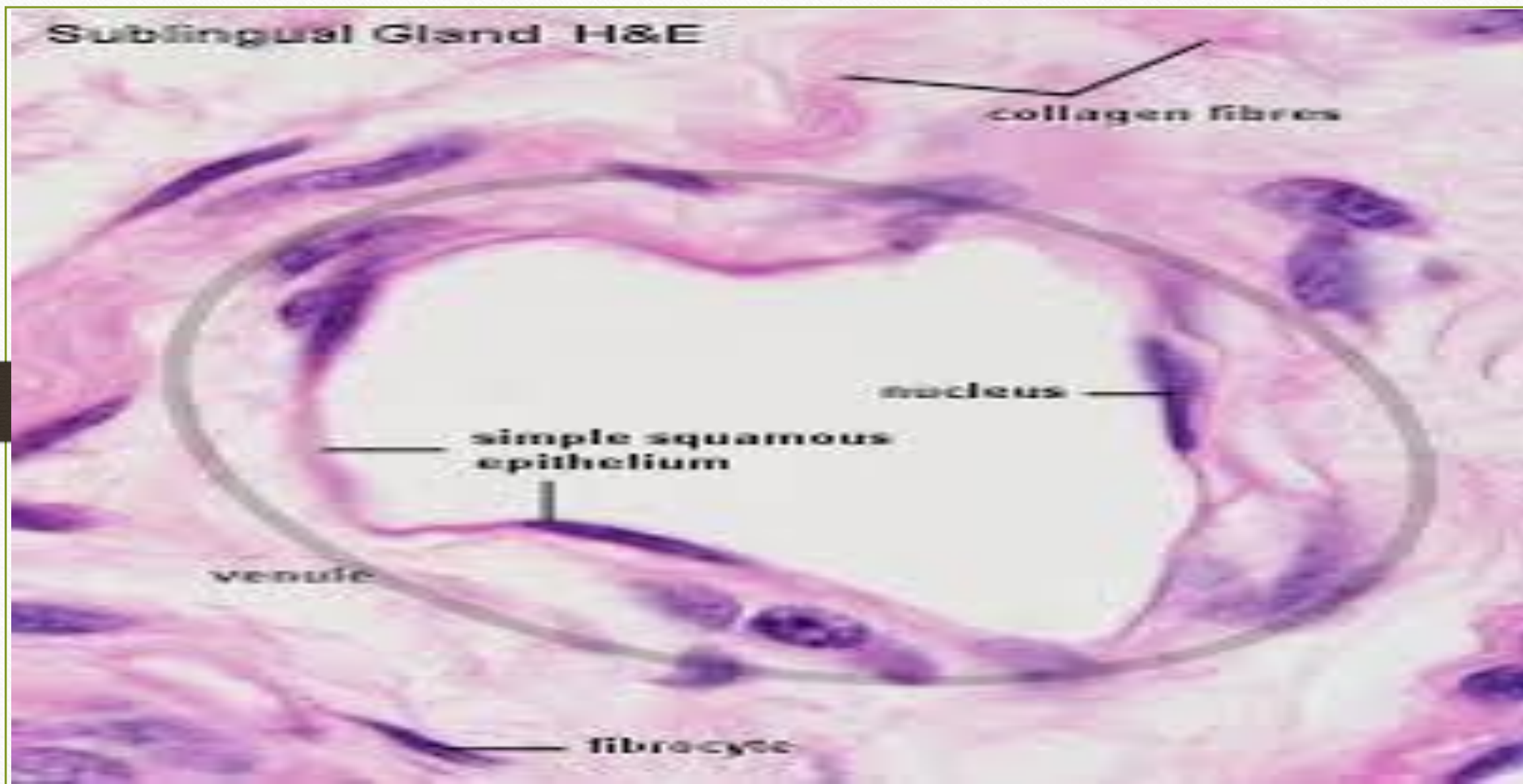
1-Simple squamous epithelium: flat, thin scale like cells with flattened nuclei and thin cytoplasm.

Location: Bowman's capsule in kidneys, lungs, endothelium of blood vessels.



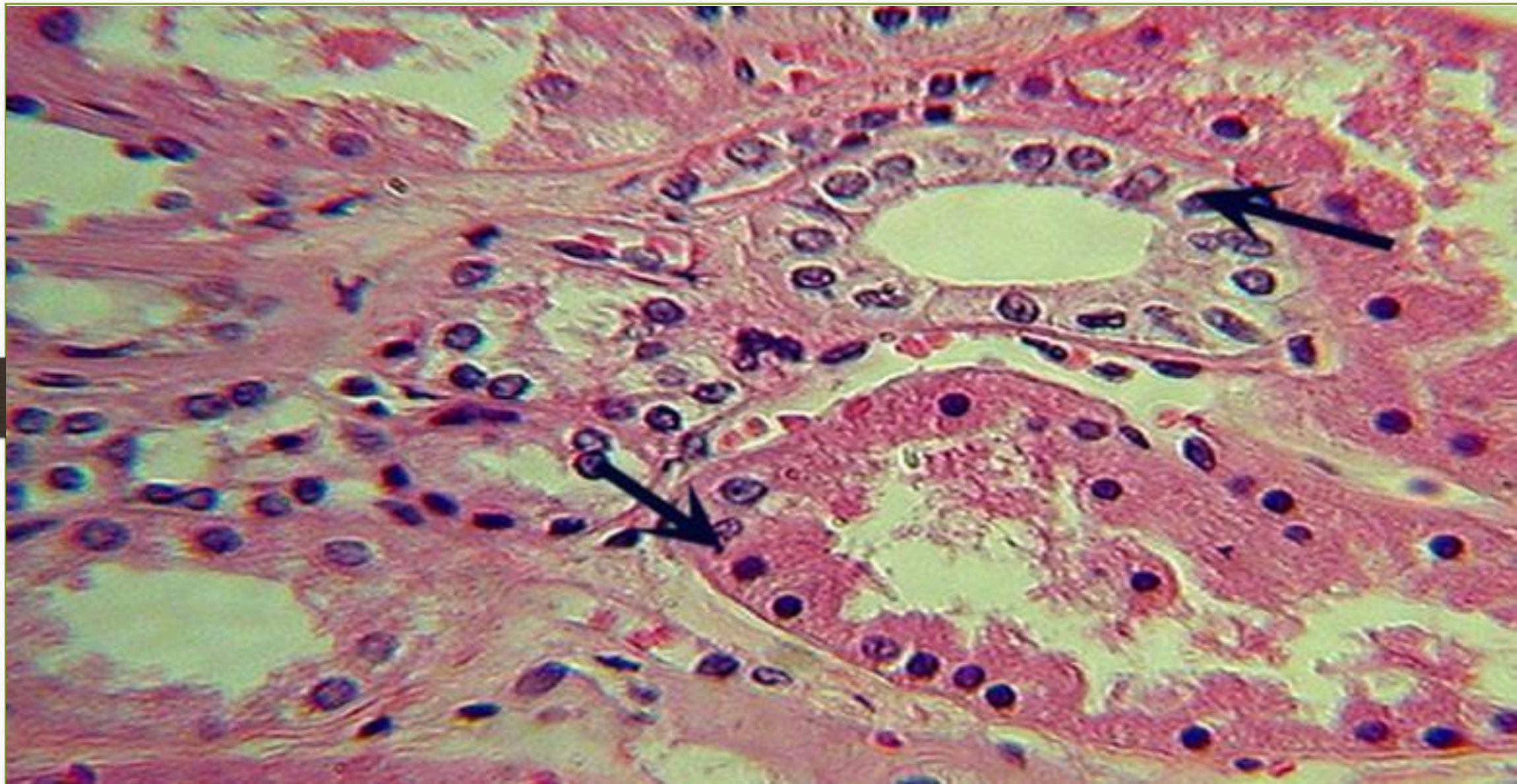
Squamous cells from mouth lining

Sublingual Gland H&E



2-Simple cuboidal epithelium: consists of a single layer of cup- like cells with central nuclei and same height and width. Functions include secretion and absorption.

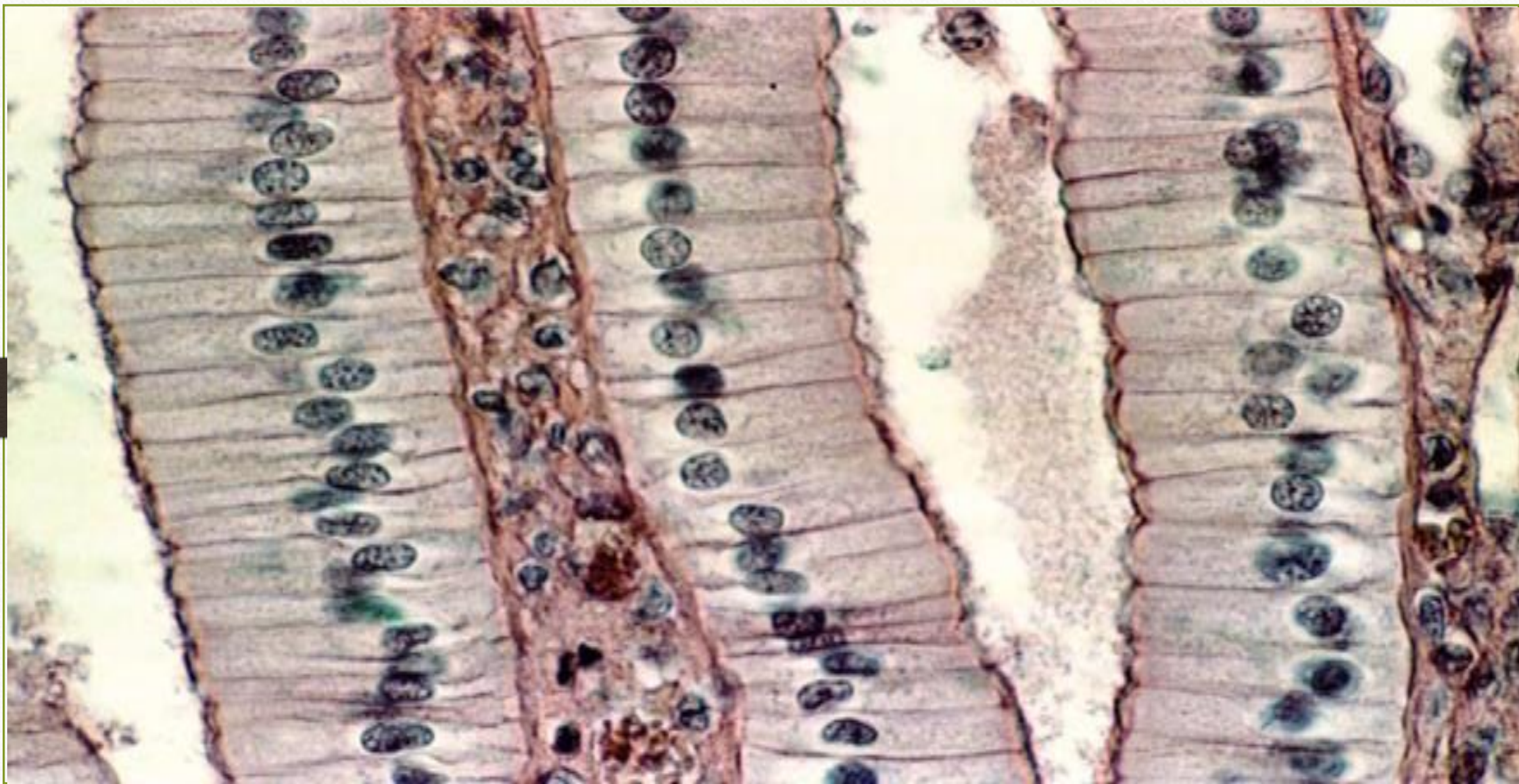
Location: In small ducts of glands (thyroid, salivary, pancreas), kidney tubules and ovary surface.



3-Simple columnar epithelium: is a single layer of tall cell with oval basal nuclei, closely packed cells that line the digestive tract from the stomach to the rectum. Functions include absorption and secretion.

They contain dense microvilli and goblet

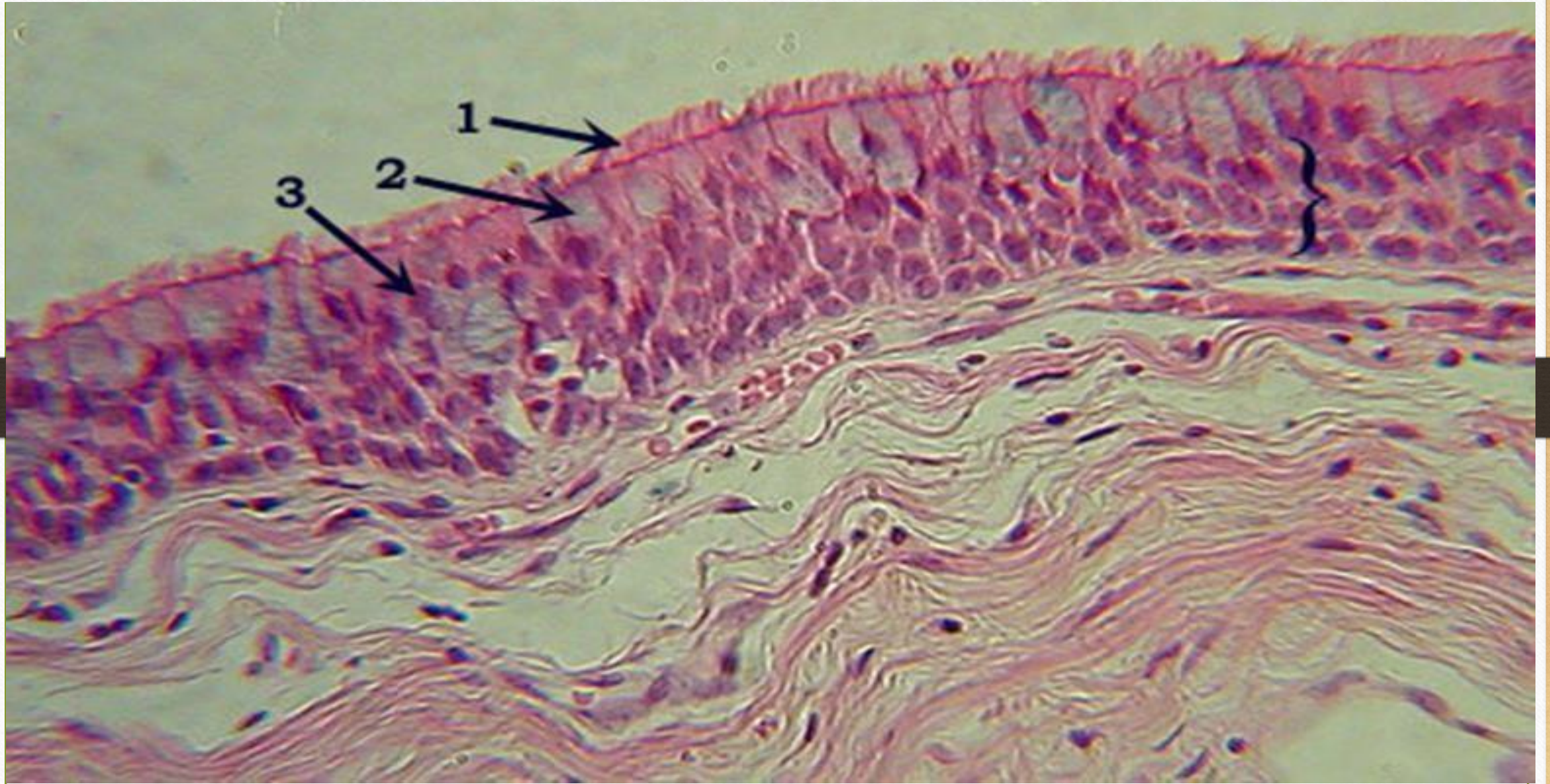
- **Location:** Digestive system and uterus



4-Pseudostratified columnar epithelium:

It looks like composed of several layers of cells, because the cells have different heights, and gives the illusion of multiple cell layers. Most pseudostratified epithelia contain cilia on their apical surface and the goblet cells are found for secretion.

Location: line the respiratory tract (trachea, bronchi).

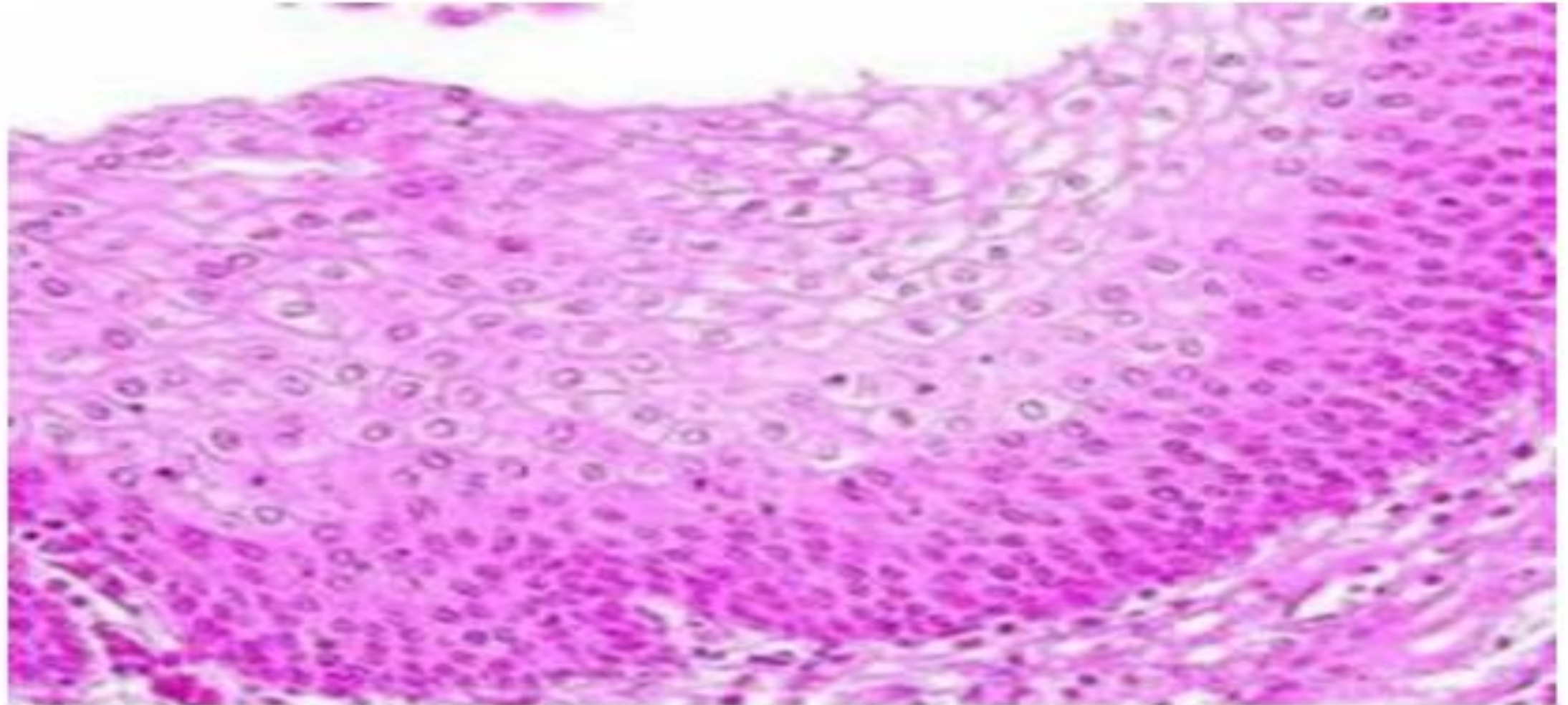


Stratified epithelial tissue: based on the shape of cells in the apical layer, stratified epithelia can classify to:

1- Stratified squamous epithelium

A- Non-keratinized Stratified squamous epithelium: It's composed of several layers and is perfect for its protective role. Its apical surface cells are squamous and cells of the deeper layer are either cuboidal or columnar while the intermediate cells are polyhedral.

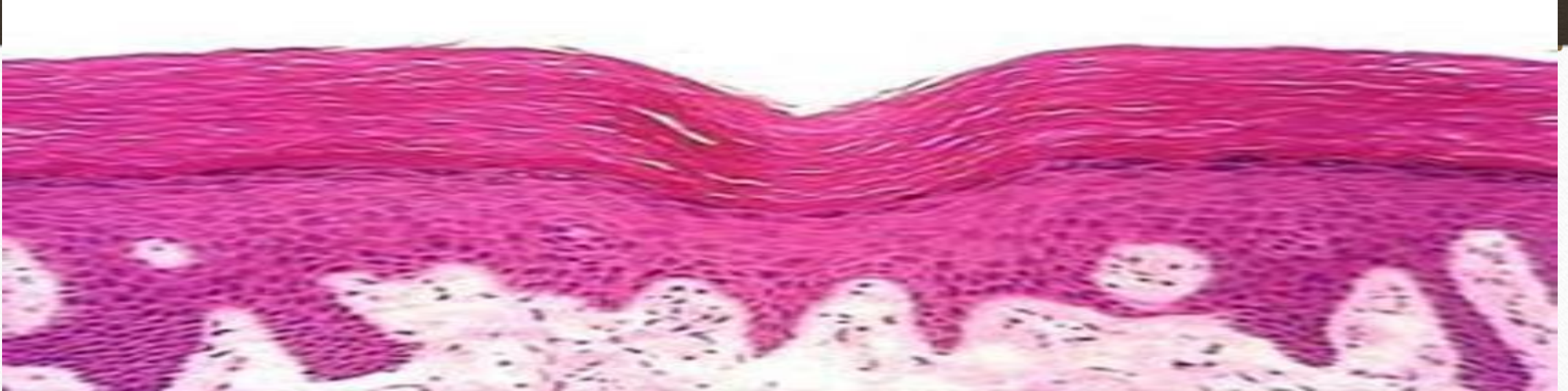
Location: Oral cavity, esophagus, pharynx and vagina



B- keratinized Stratified squamous epithelium:

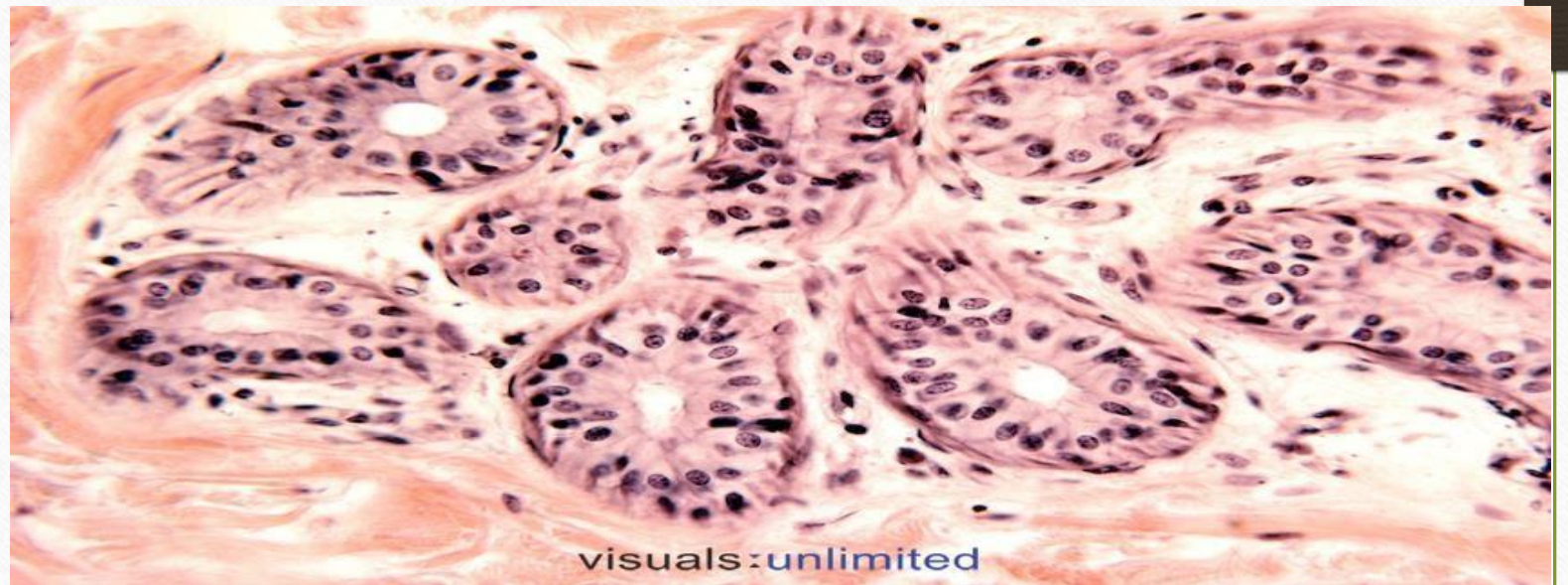
The surface cells are full with keratin, a protective protein and dead, basal cells are active in mitosis and produce the cell of the more superficial layers.

Location: epidermis of the skin



2-Stratified cuboidal epithelium: It is typically have two layers of cuboidal cells.

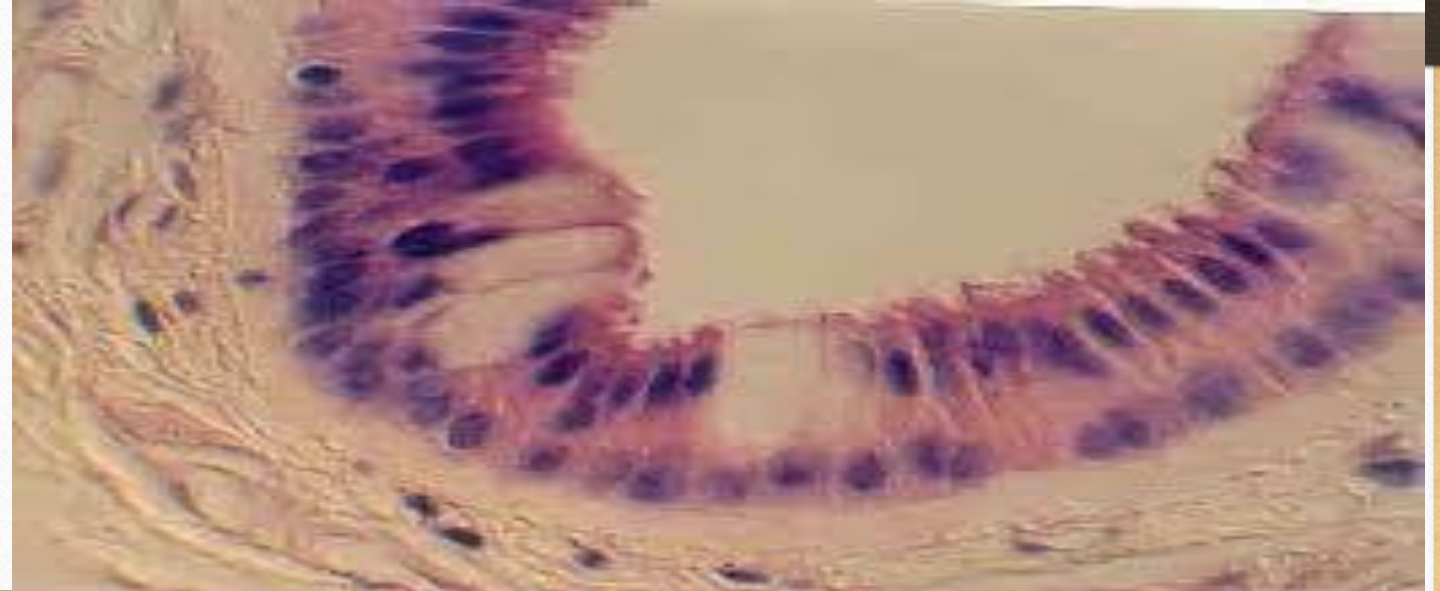
Location: It's mainly found in the ducts of glands (sweat glands, parotid gland and mammary glands)



3-Stratified columnar epithelium:

is also rare in the human body.

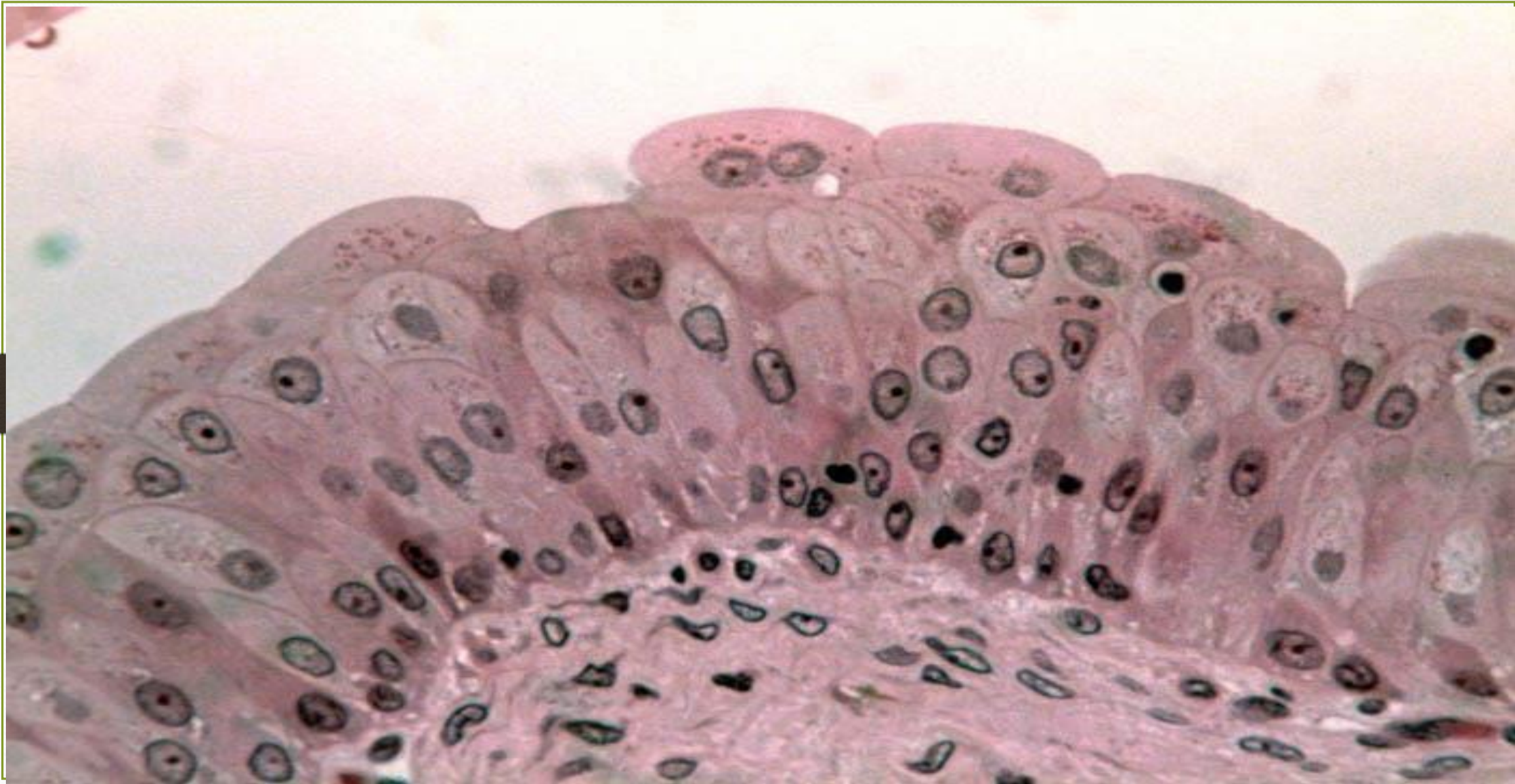
Location: pharynx, male urethra, and lining of some glandular ducts.



4-Transitional epithelium: forms the lining of hollow urinary organs, which stretch as they fill with urine. Cells in the basal layer are cuboidal or columnar. So the apical surface vary in appearance depending on the distension of the organ.

When the organ is not stretched, the membrane is many layers and the superficial cells are rounded and dome shape. When the organ is distended with urine, the apical cells flatten and become squamous like.

Location: Lines the ureter, urinary bladder and part of urethra.





Thank you for
listening