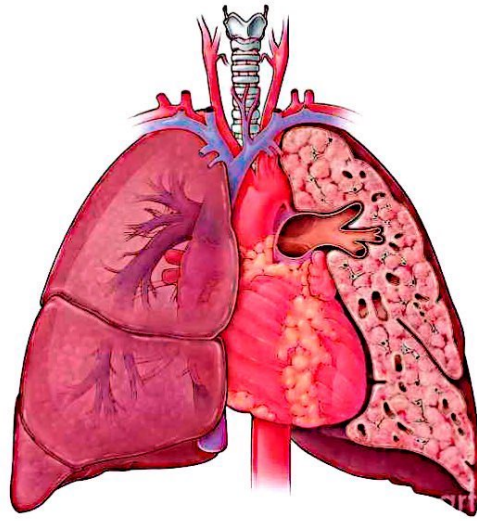


Date:

15/10/2023



لجان الدفوعات



تفريغ أناتومي



Tissue | part 1

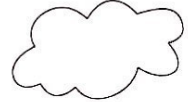
2

Yara Hani

موضوع المحاضرة:

رقم المحاضرة:

إعداد الصيدلانية:



Tissues:

Tissue ← هي عبارة عن مجموعة من الخلايا لها أصل جنيني مشترك (embryologic origin) و ECM (extracellular matrix) الموجود بين الخلايا.

4 Types of Tissues:

- ① Epithelial tissue → نسيج طلائي
- ② Connective tissue → نسيج ضام
- ③ Muscular tissue → نسيج عضلي
- ④ Nervous tissue → نسيج عصبى

1) Epithelial tissue: (main function is ^{تبيين} Lining Secretion)

Characteristics:

- 1) Cover surfaces or line cavities. (تغطي الأسطح أو التجاويف)
- 2) Rapid turn-over; because it's exposed to the external environment.
- 3) Formed of sheets of closely packed cells. (تتجدد بسرعة لأنها معرضة للبيئة الخارجية)
(تتكون من صفائح من الخلايا المتقاربة)
- 4) The cells are polar. (it has a multiple function)
- 5) The epithelium rests upon a sheet of extracellular matrix called the Basal Lamina. it has a connective tissue layer under it.
(ترتكز على سطح ECM) تسمى صفيحة قاعدية
(ويوجد أسفل epithelium نسيج ضام connective tissue)
- 6) Epithelium tissues lack blood vessels. (فتنقص للأوعية الدموية لذلك يحصل على غذائه من connective tissue)

Basement Membrane:
يتكون من (Basal Lamina) الأقرب للـ (epithelium) و (Reticular Lamina) الأقرب للـ (connective tissue).

The function of basement membrane is: supports the epithelium.

Types of Epithelium

→ Lining or covering epithelium.

→ Glandular epithelium (main function is secretion)

But ~~not~~ some epithelial cells secrete (like) cells in stomach

and some glandular cells are present between lining cells (like) goblet cells

في الجهاز الهضمي
الجهاز الهضمي
goblet cells

Lining or Covering Epithelium → Pseudostratified

according to number of layers

Simple

بالمنبسط إلى شكل الخلية

Simple Squamous

- Flattened squamous.
- In blood vessel, body cavities.
- Function: Easy passage of substances secretion

Simple Cuboidal

- Cuboidal.
- Line renal tubules, cover ovaries.
- Active transport, cover organs.

Simple Columnar

- Tall columnar.
- Ciliated: Uterine tube.
- non-ciliated: stomach.
- secretion and absorption.

Transitional (Urothelium)

- Multiple.
- dome like → called Umbrella cells.
- In urinary bladder and ureters.
- Protection against the adverse effects of urine

Stratified

بعدة لثقل أعلى خلية

Stratified Squamous

Keratinized

- Multiple.
- Squamous cells covered by keratin layer.
- In skin.
- Protection, Prevent water loss.

Non-Keratinized.

- Multiple.
- Squamous cells not covered by keratin layer.
- In Esophagus.
- protectional.

Stratified Cuboidal

- Multiple.
- Cuboidal.
- large ducts of Salivary glands.
- Protection and secretion.

Stratified Columnar

- Multiple.
- Columnar.
- Conjunctiva.
- protection and secretion.

* Umbrella Cells

- لما تكون فاقية شكلها يشبه (Dome) القبة.
- ولا تمتلئ يكون شكلها (Flattened) مسطحة.
- عشان هيك سمعناها (Transitional).

• **Glandular Epithelium:** the epithelium specialized for secretion.

According to number of cells:

→ **Unicellular glands:** Formed of single cell → Goblet cell of digestive tracts, respiratory.

→ **Multicellular glands:** " " clusters cell → salivary and sweat glands.

According to presence of ducts:

→ **Exocrine:** Possesses duct / secretion outside body → salivary glands.

→ **Endocrine:** Lack duct / secretion to blood → Pancreatic Islets, Pituitary gland.

Exocrine gland, according to morphology of duct and secretory portion:

- Each of this gland has a secretory portion (to produce the secretion) and a duct (to carry this secretion). It could be branched.

- The secretory portion could be acinar (unbranched) or tubular (coiled).

Exocrine gland, according to method of secretion:

1. **Merocrine** → only product is secreted / salivary glands.

Serous excrete watery solution. **Mucous** excrete thick solution.

2. **Apocrine** → product + apical / mammary gland.

3. **Holocrine** → product + all cell / sebaceous glands.

Epithelial Cell Polarity

Polarity means that various regions of a cell have specialized structural features because they perform different functions.

Epithelial cells can be generally divided into 3 regions:

1. Apical (Luminal) region: close to the lumen of the organ. المنطقة العلوية
2. Lateral regions: adjacent to other cells.
3. Basal region: lying on the basal lamina. الطبقة السفلية

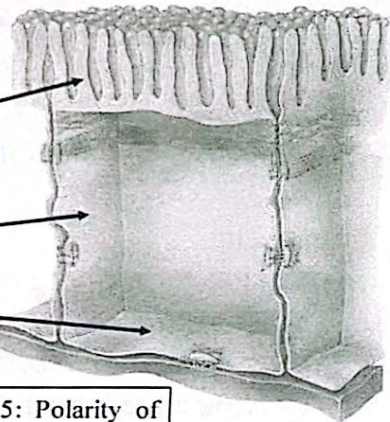


Fig.5: Polarity of epithelial cells.

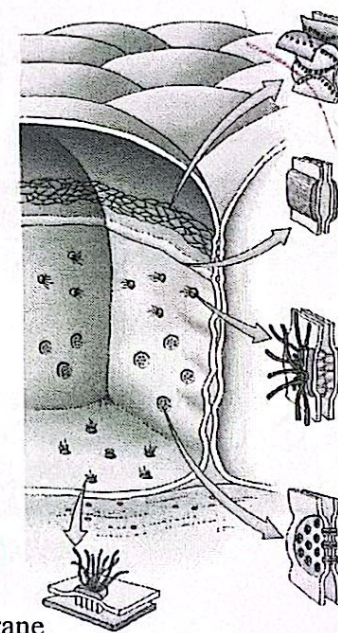
الروابط بين الخلايا

Cellular Junctions

- ❖ Cell-membrane structures.
- ❖ Located on the lateral and basal surfaces.

Hemidesmosomes: area of adhesion between cell membrane and basal lamina.

الالتصام < الالتصاق



Tight Junction: area of fusion of cell membrane. Seals the space between two cells.

Adherent Junction: area of adhesion between two cell membrane.

Desmosomes: area of stronger adhesion between two cell membrane.

Gap Junction: porous area in the cell membrane of two cells that allow passage of substances between them. مجوان

تسمح للمواد بالمرور