بسم الله الرحمن الرحيم

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Histo "1"

(1)

Function:

- ingestion + Fragmintation of Food (oral cavity)
- Digestion (عملية الهضم) oral cavity, Stomach, Salivary glands, small intestine) Liver, pancreas (بسبب العصارة المرارية)
- absorption of water → Large intestine; Food → small intestine
- elimination of wast product (anal canal)

oral cavity:

- oral cavity is Lined by mucous membrane
  - Formed by 2 layers
    - epith: stratified squamous
      - it cells rich in glycogen
      - keratenized ← جزء منه ممكن
      - non-keratenized ← وجزء
    - lamina proprea: loose CT under the Epi
      - contains: minor salivary glands + nerves, vessels, lymphatics

- Gums → * F mm is Firmly attached to the bone under. (periosteum of the alveolar bone of the teeth)
  - * Coverd with the keratinized stratified squamous Epith

- The Lip
  - * has a- External surface covered by skin (gland + hair Folicle — فيه، keratinized stratified squamous عبارة عن) + b- internal surface covered by m.m (non-keratin)
  - + inside (بداخل) the Lip contains bundle of Skeletal ms. (orbicularis oris)
  - + and fibro elastic C.T → BV...
  - it's m.m has
    - epith: non keratinized
    - lamina propria: loose C.T contains B.V, lymphatics, neves, (1) labial glands. (minor salivary)
  - c- red margin of Lip: covered with modified skin (less keratenized)
    - No hair follicle, No sebaceous or sweet gland
    - transperant red deu to the reflection of the underlying B.V
  - * Lip margin (vermillion) — المنطقة اللي تفصل ال highly keratin عن ال Less keratin
    - ∴ it is the change of epidermis from high keratin (Face skin) to Less keratin (lip skin)
    - * richly supplied of free nerve endings so it's highly sensitive.

The tongue

Made of skeletal voulantary Ms. (4 intrinsic + 4 extrinsic) covered on both surfaces wit m.m

dorsum

* Covered by para keratinized Stratified squamous Epi
* Firmly attached to underlying C.T
* $\frac{2}{3}$ ant (oral part) $\frac{2}{3}$ contains papillae while $\frac{1}{3}$ post (Pharyngeal part) $\frac{1}{3}$ obesn't but it contain Lingual tonsils

C.T contain minor salivary gland

Lingual salivary gland

Ventral

* non keratinized stratified Squamous Epi loosle attach to underlying C.T
* no papillae / has lingual tonsils embeded in C.T of ventral

Lingual papillae

* Little projection of m.m of dorsum
* each is formed of central core of CT covered with stratified squamous Epi

Conical shape — Filiform

Ant $\frac{2}{3}$

* keratin (keratinized stratified squamous Epith)
* have no test buds
* it's Function is mechanical digestion

mushroom shape — Fungiform

very vascular

* contain test buds of superior surface
* their covering Epith is non-keratinized St.squ

Circular shape — Circumvallate

* largest
* in Front of sulcus terminalis
* they don't project on the surface
* they deep in their CT
* each is surrounded by groove
* contain Von Ebnar glands (Serous, begin lipid hydrolysis) in C.T
* test buds present on lateral side
* Covered by Non ker.st.squ.ep

Foliate

Short vertical Fold

Found on sides of tongue

Each papillae is separated by groove and contains many test buds

* this type is at high risk of oral Cancer Covered by non ker

Test buds (neuroepithelium)

oval structure on dorsal surface of tongue in lingual papillae (2000-8000)

each form of 3 types of cells and taste pore for passage of saliva

Sensory (taste/gustatory) cells (neuroepithelial cells)	supporting cells	Basal cells (stem cells)
50-100/bud	tall columnar cells	at the base of bud
* tall columnar cells * central in position * 3 types * their apical surface terminate in fine filament called gustatory hairlets which project in the gustatory pore * the base of has vesicles that contain neurotransmitter + synapses with afferent nerve fibers	Form the outer surface of test bud	* act for regeneration the average life for test bud is 10 days

Sensation of taste: bitter, umami, sour, sweat, salt

Spicy taste → is not a taste

it's a combination of hot and pain sensation
Capsaicin is the active gradient in chili* papers bind to Rec on the tongue called Vanilloid Rec * [illegible]: the brain send signals to numb the tongue
* spicy food doesn't damage test buds
* eating spicy food read by the body as pain sensation your pituitary gland to release endrophen which make us enjoy eating spicy food

Coated tongue (white tongue) happen when debris builds upon this will lead to delay of shedding of and ~~continual~~ continual renewal of keratinized area which cause accumulation of bacteria + inf

causes: bad hygiene / dehydration / tobacco smoking, drink alcohol, oral candidas

Lingual tonsils assist immune system in production of Ab / mucous gland drain into crypts to wash off and clean any depris / formed of group of lymphoid follicles / covered with non.ker, st.sq. that invigilate & post 1/3 of tongue inward forming crypts

Pharynx Divided into 3 parts → nasopharynx: Lined by pseudo stratified columnar ciliated epith
→ oropharynx: Lined by non ker. st.squ epith
→ laryngo pharynx: as oropharynx

The palate The Roof of the oral cavity composed of → ant part (hard palate) → formed of bone lined by ker.st.squ.epi
→ post part (soft palate) → covered by non.ker.st.squ

(4)

Salivary gland

- the main (large, extrinsic)
  - 2 parotid: lies in front of both ears
  - 2 submandibular: lies against the inner surface of the mandible
  - 2 sublingual: lies below the tongue on the m.m of the floor of mouth
- The accessory (small, intrensic) ~~scatt~~ microscopic, scattered in CT of oral m.m:
  - The lips (labial glands)
  - The tounge lingual glands
  - the palate palatine glands

* they secret saliva 10% constant rate. * their secretion is mainly mucous ← خاص بال accessory

Salivary glands عبارة عن → exocrine gland produce 90% of saliva (PH 6.5–7.5)

Functions of salivary gland:
1. Lubricate + clean oral mucosa + lips
2. assist in swallowing
3. initiate digestion of CH_2O, lipids (amylase + lipase)
4. Contains antimicrobial agent (IgA, lyzozyme, lactoferrin) that control normal flora of oral cavity
5. act as solvant substance that stimulate test buds

Structure of Salivary gland

Stroma
* CT framework support the gland and transmit BV, nerves, lymphatics, ducts.
* consist of: capsule: covers the gland from outside
  - septa: divide the gland into lobes and lobules (بتحمل ال duct وال BV وال nerves)
  - reticular network: present in the background of the gland (stained by Ag)

Parenchyma
Includes:
- Secretory units (salivary acini) → secrete saliva
- Duct system → conduct saliva to oral cavity

(Secretory acini) → groups of cells encircling a lumen

2 types:
- Secretory cells (serous or mucous)
- non secretory cells (Myoepithelia)

Secretory cells:
the acini divide according to the type of secretion to:
1. serous
2. mucous
3. mixed (muco-serous) — essintially a mucous acinus which is capped by a group of serous cells

Crescent of Gianuzzi (serous demilune)
* it is a group of serous cells form crescent at one side of a mucous acinus.
* the serous secretion of these cells reach the lumen by of the acinus by passing through intercellular ~~duct~~ canliculi (يعني ال serous وال mucous بيتحطوا فوق بعض فال cells الى بره محتاجة تطلع ال lumen بتطلع بين ال ... duct)
* Demilune cells secret the proteins that contain the lysozyme + enzymes → so add antimicrobial activity to mucos

Non secretory cells (Myoepithelia):
عبارة عن خلايا فيها myosin و actin
* star-shaped
* present between the base of secretory cells and the basement membrane.
* theyre branched cells
* their cytoplasm contain myosin + actin
* when contract → release secretion
* تتصبغ بـ Immunohistochemical staining (myofibril)

⑤ acidic يعتبر secretion ال *

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Serous Vs Mucous acinus

Serous (parotid)

* small diameter, narrow lumen, lines a short paramydal cells. Nuclei are rounded and central
* Basal cytoplasm is basophilic (↑RER)
* Basket cells (myoepithelial cells) less
* secret fluid serous
* = amylase aid in digestion of starch

mucous (Sublingual)

larger in diameter, wide lumen, lines with tall cells, Nuclei are Flat and prepheral
* cytoplasm is pale, Foamy, vaculated (dissolved mucous)
* Basket cells (more)
* secret viscid mucus
* ≠ mucous For lubrication

B- the duct system (branching system)

intercalated ducts

thin duct, drains the secretory units
Lined with Flat or cuboidal cells

Striated (secretory) ducts

* ① present inside the lobule
② take part in the secretion of saliva
acini تعدل تركيب ال secretion تتغير
③ lined with low columner cells
④ their apical and basolateral membranes contain ion channels to transport ions as Na^+, K^+ (ion transporting cells)
(saliva ال يخلي alkaline)
* hypotonic (بيسحب Na^+ ال بيطلع)
* has acidophilic cytoplasm by basal acidophilic striations
* infolded basal lamina + ↑mitochondria

تكملة
* deep invaginations of basal cells membrane
* Zonula occludans

proximal tubules in: (زي) kidney

glands

parotid gland
100% serous (purely)
opens by parotid duct in oral cavity

Sublingual (mixed)
(mainly mucous)
95% → mucous
5% → serous
the smallest and the only unecapsulated
* opens by 10-12 mini ducts

Submandibular (mixed)
80% → mucous
20% → serous
Opens by wharton's duct