

# **Oral Histology Lect.**

## **Oral mucosa**

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**Basic classification of OMM divided into 3 major Types**

- 1- Masticatory mucosa ( gingiva and hard palate ).**
- 2- Lining mucosa (lip , cheek , vestibular fornix , alveolar mucosa , floor of the mouth and soft palate ).**
- 3- Specialized mucosa ( dorsum of tongue and taste buds ).**

**Functions of OMM :**

- 1- protection**
- 2- sensation**
- 3- secretion**
- 4- thermal regulation**

**The structure of OMM resemble skin composed of :-**

- 1- Epithelium**
- 2- Connective tissue (lamina propria (L.P)**

**L.p. is a C.T. of variable thickness that supports the epi.  
It divided into**

- 1- papillary part**
- 2- reticular part**

**Papillart part** is Papilla of C.T protrude toward epi. Carrying blood vessels and nerves . the epi. In turn is formed into ridges that protrude toward the lamina propria which called epithelial ridges look like pegs.

There is a junction between epi. And L.p. called **basal lamina** which is epithelial in origin , seen at electronic microscopical level and it is called basement membrane when it is evident at light microscopical level .

**Reticular part** is also a c.t. contain collagen fibers and the basal layer ( of the c.t.) contains large blood vessels lymph vessels and nerves .

The papillary part may be absent but the reticular part always present as In alveolar mucosa

According to type of epithelia OMM classified into

**(1)keratinized (either parakeratinized or orthokeratinized)**

**(2) non keratinized**

**1.Keratinized oral epi. Consist of 4 layers :-**

**1- Stratum basale** (stratum germinativum) is made up of cells that synthesize DNA cells and under go mitosis providing new cells .

**2- Stratum spinosum (prickle cells)** Cell are irregular, polyhedral about 20 - 25 layer and larger than b.c.l. cells

**3- Stratum granulosum:** flatter and wider cells , these cells are larger than str. Sp. L. it's named for their basophilic keratohyalin granules . The nucleus show signs of degeneration and pyknosis ,this layer still synthesize protein indifferent level and rate.

**Odland body** :membrane\_bound organelle found in cells of the upper spinous layer and stratum granulosum,containing lipids that are dispersed into the intercellular space and that form a permeability barrier. Synonym(s):**keratinosome; lamellar granule; membrane-coating granule**

**4- Stratum corneum:** is made up of keratinized squamae with larger and flatter cells than str. Granulosum , nuclei and organelles are disappeared.Either be parak. or orthok.

**parakeratinized** : The surface of Cornified layer retain nuclei that are pyknotic and condensed , and other partially lysed cell organelles until they desquamate .

**Orthokeratinized** The cornified layer don't contain retained nuclei.

## **2.Non - keratinized epi.**

Have **no** cornified layer, have 3 layers:-

**1- Basal cell layer similar to those of keratinized epi**

**2- Stratum intermedium (prickle cells)**

**3- Stratum superficial** (they are nucleated flat cells exist at the surface ultimately desquamate and don't form keratin).

## **The non - keratiocyte cells includes**

**1.Melanocyte cells :- present in the basal cell layer store melanine in form of melanosomes which elaborate melanine pigment responsible for pigmentation of o. m. m. embryonic origin from n. c. c.(neural crest cell).**

**2.Langerhanes cell:- present in upper layer of stratum intermedium and str. Granulosum derived from haemopoitic tissues , involved in immune response**

**3.Merkels cell :- found in the basal layer, it's origin from n. c. c. have specialized neural pressure sensitive receptor .**

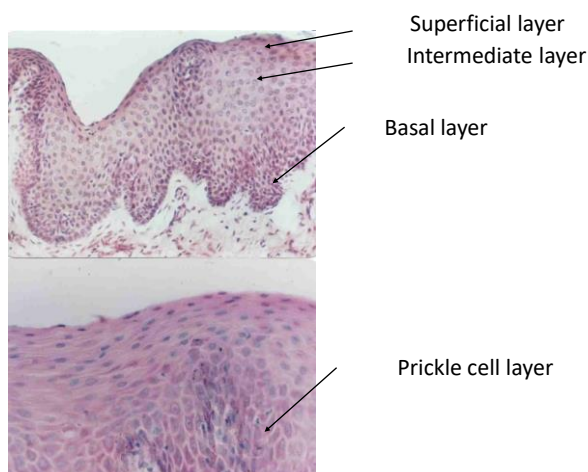
**4.Lymphocytes and polymorphonuclear leukocyte cells:**

**present in every type of epi. And in any layer of epi. It is associated with inflammatory response lymphocyte, originate from hemopoietic stem cell .**

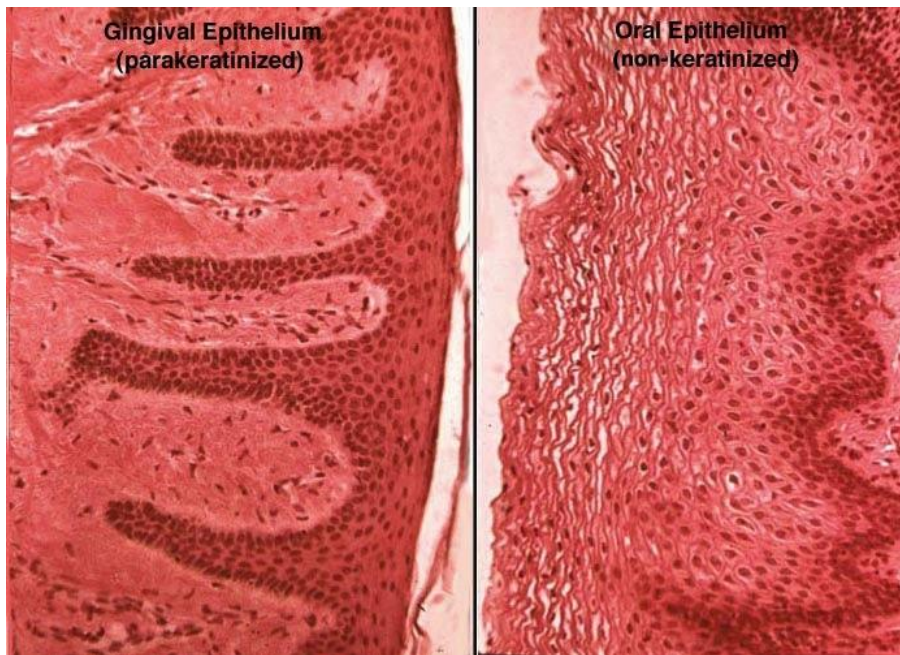
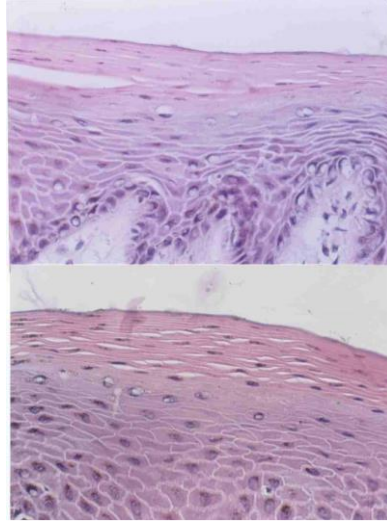
**submucosa :**

consist of c.t. of varying thickness and density it attaches mucosa membrane to the underlying structures weather attachment loose or firm depends on variety of submucosa .Glands, blood vessels , nerves and adipose tissue are present in submucosa

## Non-Keratinization in oral epithelium in human gingiva..

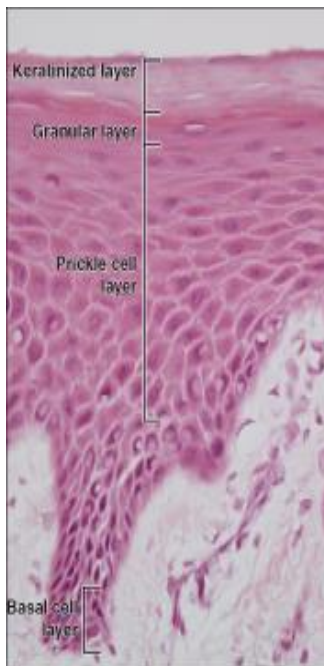


## Parakeratinization of oral epithelium..



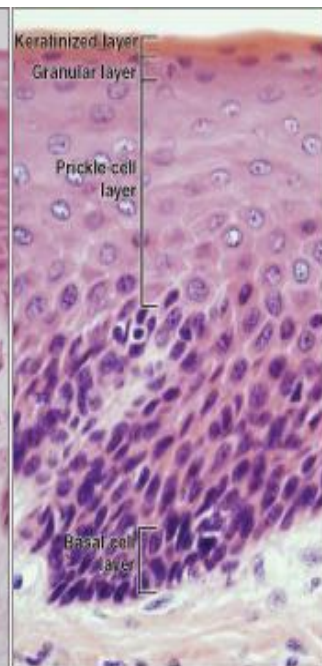
## Types of Oral Epithelium

Orthokeratinized stratified squamous epithelium



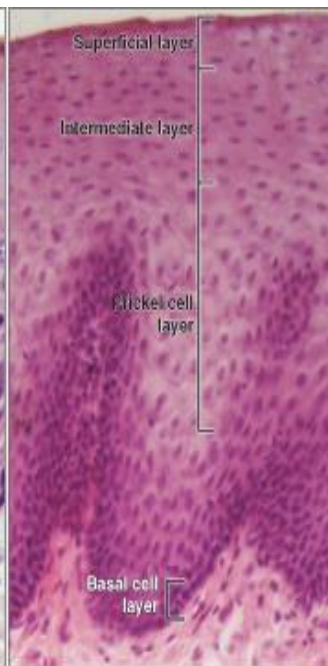
A

Parakeratinized stratified squamous epithelium



B

Nonkeratinized stratified squamous epithelium



C

## Hard palate

mucosa is tightly fixed to underlying periosteum and therefore immovable to resist forces of mastication.

### zones are seen in hard palate:-

- 1- **gingival region** adjacent to the teeth
- 2- **palatine raphe** median area ,it do not have submucosa they directly attach to the periosteum
- 3- **anterolateral** area or **fatty zone** between raphe and gingiva
- 4- **posterolateral** area or **glandular zone** between raphe and gingiva

**Gingiva** :- extends from dentogingival junction to the alveolar mucosa it subjected to the friction and pressure of mastication epi. Of gingiva is str. Sq. epi. Either **orthokeratinized ( 15%}** most often **parakeratinized ( 75% )** and may be **non keratinized (10% )** of the population.

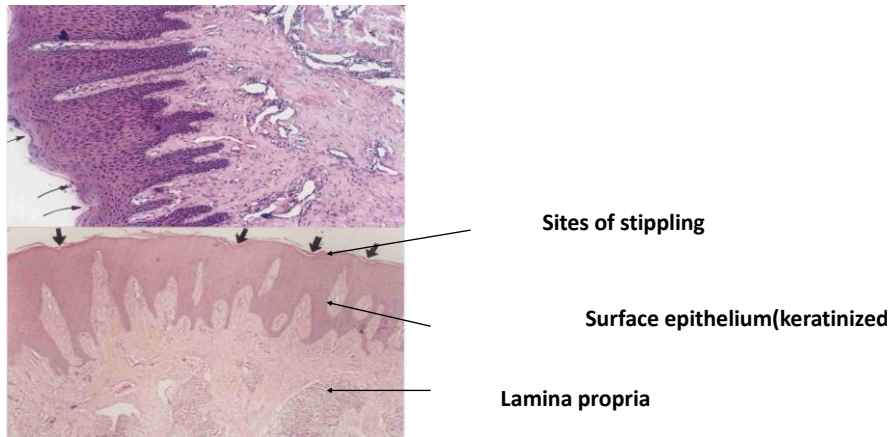
Gingiva clinically divided into free gingival, attach gingiva and interdental papilla .The depressed part of int. d. p. is called col which is covered by non -keratinized epi.

The surface of gingiva characterized by **stippled appearance** , portion of epi. appear elevated and between elevation there are shallow depressions the net result is stippling .The depression correspond to the center of heavier epi. ridges .These are functional adaptation to mechanical forces .

**dis appearance of stippling indicated odema and involvement of gingiva in gingivitis .**

The gingival is normally pink but may sometimes have a grayish tin. The color depends in part on surface ( keratinized or not), and its thickness. And in part on the presence of melanine pigment in the epithelium give it brown to black coloration .

## STIPPLING ON THE EPITHELIUM..



### Specialized mucosa

Dorsal surface of the tongue is rough and irregular divided into anterior 2/3 and posterior 1/3 by V-shaped lined called terminal sulcus.

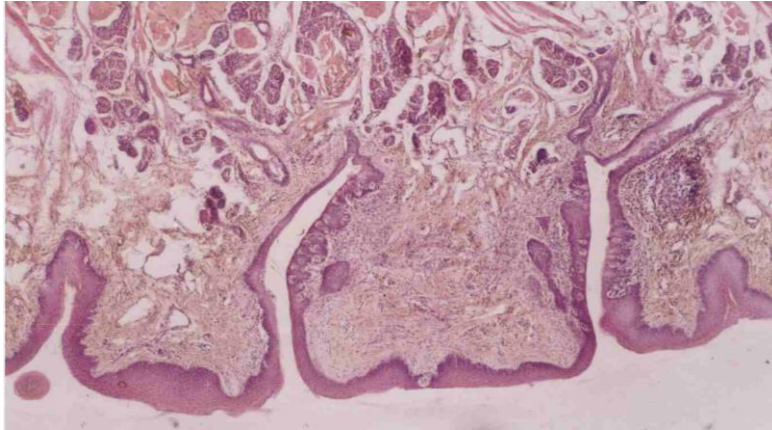
On anterior part found numerous papilla

- 1. Filiform papilla** which are fine pointed epithelial structures containing core of c.t, the covering epith, is keratinized, **these papilla do not contain taste buds.**
- 2. Fungiform papilla** Usually found between filiform .p. isolated, round reddish prominences it contain few taste buds 1-3 found on their dorsal surface. Its red colour due to rich capillary network visible through its epith.
- 3. Circumvallate papilla** :8-10 vallate papilla in front of the V-shaped sulcus bet the body and the base of the tongue.The lateral surface of



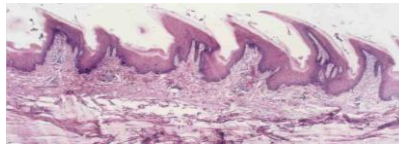
the vallate papillae, the epith contains a numerous taste buds. Von ebner glands (serous salivary gland) open at its base.

## Circumvallate papilla

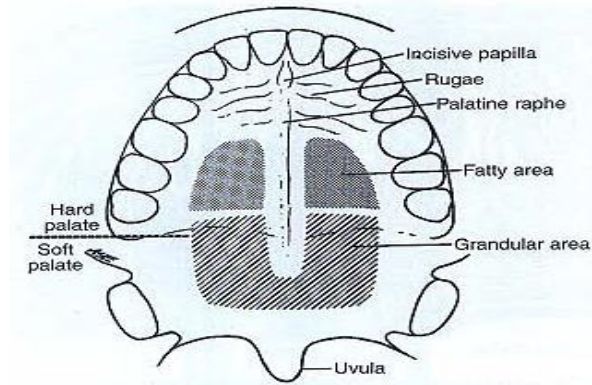


## FILLIFORM PAPILLAE

Orthokeratinized •  
surface epithelium..



## DIAGRAM OF REGIONS OF PALATE.

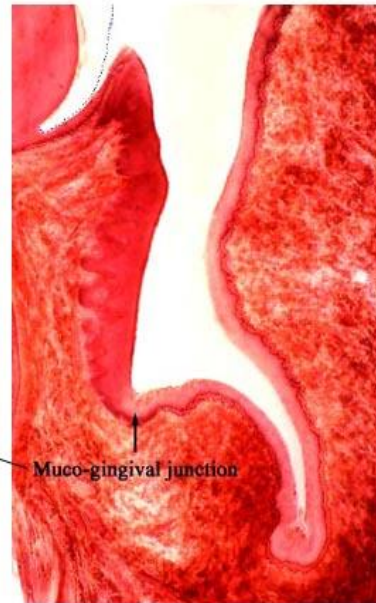


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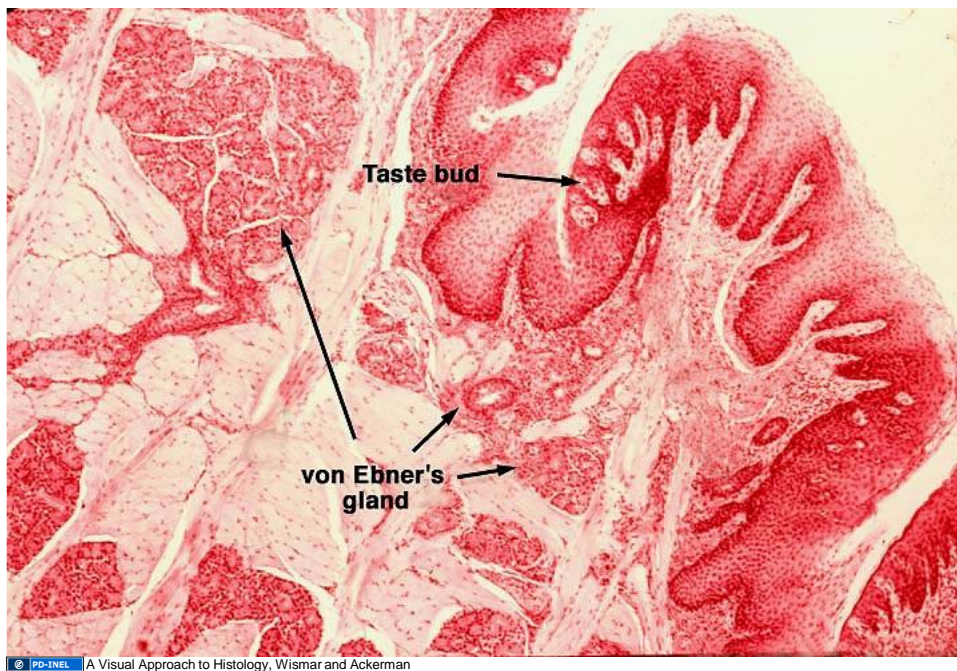
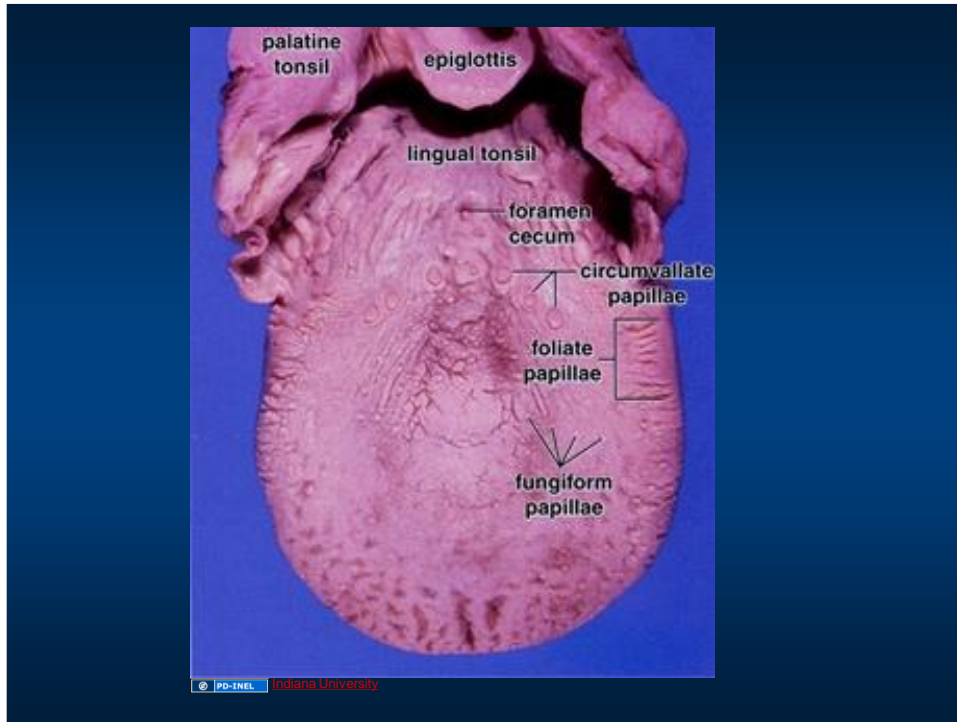
## Muco-gingival Junction



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Circumvallate papilla