Gingival epithelium

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Microscopic features

Gingiva consists of a central core of connective tissue covered by stratified squamous epithelium

Gingival epithelium

General aspects of gingival epithelium biology

Three different areas morphologically & functionally

1. Oral or outer epithelium
2. Sulcular epithelium
3. Junctional epithelium

Cell types

Principal cell- ***keratinocytes***

Other cells, nonkeratinocytes or clear cells, which include

- Langerhans cells
- Merkel cells
- Melanocytes

I. Keratinocyte

Function - Protecting deep structures.

- Allowing a selective interchange with oral environment,

II. Nonkeratinocyte cells

Melanocytes

Dendritic cells located in the basal and spinous layer of the gingival epithelium synthesize melanin in organelles called premelanosomes or melanosomes.

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Langerhans cells

Dendritic cells located among keratinocytes at all suprabasal levels belong to mononuclear phagocyte system (R.E system).

Merkel cells

located in the deeper layers of the epithelium, harbour nerve endings and have been identified as tactile perceptors.

Basal Lamina

The epithelium is joined to the underlying connective tissue by a basal lamina 300-400 Å thick, lying approximately 400 Å beneath the epithelial basal layer.

It consists of

1. Lamina lucida
2. Lamina densa

- The basal lamina is permeable to fluids but acts as a barrier to particulate matter

Structural and metabolic characteristics of the different areas of gingival epithelium

Oral or outer epithelium

Covers crest & outer surfaces of marginal gingiva & surface of attached gingiva .

- Keratinized or parakeratinized or various combinations with prevalence toward parakeratinization.
- Keratinization varies in following order

Palate (Most keratinized)
↓
Gingiva
↓
Ventral aspect of tongue
↓
Cheek (Least keratinized)

Sulcular epithelium

It is a thin, nonkeratinized stratified squamous epithelium without retepegs and extends from coronal limit of the junctional epithelium to the crest of the gingival margin.

It has potential to keratinize if - exposed to oral cavity
- bacterial flora is eliminated.

suggests that local irritation of sulcus prevents sulcular keratinization.

Importance

It may act as a semi permeable membrane through which injurious bacterial products pass into the gingiva and tissue fluid from gingiva seeps into the sulcus.

Junctional epithelium

The junctional epithelium consists of a collar like band of stratified squamous non-keratinized epithelium.

- It is 3-4 layers thick in early life, the number of layers increase with age to 10-20.The cells is grouped in two strata basal and suprabasal
- The length ranges from 0.25 to 1.35mm.
- It attaches to tooth surface by means of an internal basal lamina and to the connective tissue by an external basal lamina.
- The internal basal lamina consists of a lamina densa and lamina lucida to which hemidesmosomes are attached.
- The attachment of the junctional epithelium to the tooth is reinforced

by the gingival fibers, which brace the marginal gingiva against the tooth surface.

Therefore the *junctional epithelium* and *gingival fibers* are considered a functional unit called as ***dentogingival unit.***