

Gingiva

The *gingiva* or **gums** is the soft mucous tissue covering the alveolar bone.

Macroscopic anatomy of the gingiva

The outermost part of the gingiva runs in an arc 0.5-2 mm coronal to the cemento-sacral border, then passes vestibularly into the mucosa lining the oral cavity. The transition of the attached gingiva and mucosa is called the mucogingival line, it is not visible only at the transition of the gingiva and palatal mucosa. Physiologically, it is pale pink.

Marginal (free) gingiva

It is the marginal part of the gingiva, 0.8-2.5 mm in height, surrounding the tooth all around. In about half of the population, the transition of attached gingiva and free gingiva is indicated by a shallow paramarginal furrow. The marginal gingiva forms the wall of the gingival sulcus and is fixed by the gingival ligaments. Sometimes we find small stippling on its surface.

Attached gingiva

Continuously transitions from the marginal part, sometimes we find a fine paramarginal furrow at the transition of the free and attached gingiva. It is 1-9 mm wide and firmly fixed to the periosteum of the alveolar bone, so it is not movable relative to the substrate, and further transitions into the free alveolar mucosa. This transition is demarcated by the mucogingival junction (line). Similar to the free gingiva, we often find *stippling*.

Interdental gingiva (interdental papilla)

This part occupies the space between two teeth below the point of contact. It protrudes in two points, the vestibular and oral, connected by a saddle-shaped depression "**col**" in the interdental space. This part does not contain keratinized epithelium. The remaining attached gingiva is keratinized.

Microscopic structure of the gingiva

Epithelium

Oral epithelium is keratinized, multilayered. Ligament protrudes into it from the lower layers. The turnover time of the epithelium is 10-12 days.

- Layers:
 - Stratum basale
 - Stratum spinosum
 - Stratum granulosum
 - Stratum corneum

It is possible to selectively stain the non-keratinized **junctional epithelium** and mucosa with **Lugol's solution** (stains glycogen), which is used in diagnostics.

The junctional epithelium connects the gingiva to the tooth from the cemento-enamel border to the gingival sulcus.

- The amount of epithelium is coronally 150 µm. It consists of 2 layers throughout:
 - Stratum basale (apically): 1-3 rows of cells
 - Stratum suprabasale: 15-18 rows of cells
- The turnover time is 6 days, i.e. very good regeneration potential.
- There are many desmosomes, leukocytes, lymphocytes, macrophages (they travel from the connective tissue).

Connective tissue

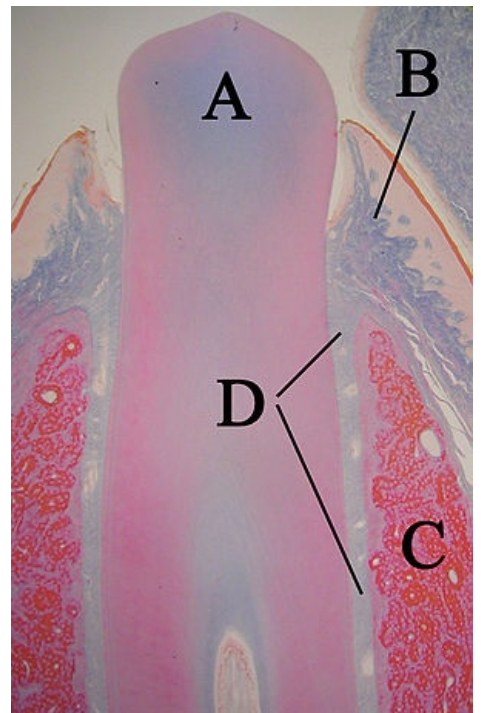
- This includes connective fibers (mainly collagenous), glycoproteins, proteoglycans, blood vessels.
- 65% is fibroblasts - they synthesize collagen.
- Cells of the immune system - granulocytes, monocytes, lymphocytes.



Healthy gingiva




Stippling



Histological preparation of an erupting tooth with gingiva

- A. Tooth
- B. Cellular epithelium
- C. Alveolar bone
- D. Periodontium

- Plexus gingivalis - vascular supply.

 For more information see *Teeth#Securing the tooth in the alveolus*.

Healthy gingiva

Colour

Light pink, racial differences are minor. Inflammatory altered gingiva is red. It can sometimes be stained by pigmentation - amalgam tattooing, heavy metal poisoning, use of certain drugs (Cis-platinum). White can be a sign of anemia. Dark pigmentation is found, for example, in Addison's disease.

Shape

Arcade-like protrusion at each tooth, running into the interdental papillae. Excess gingiva is found in inflammation (periodontitis, gingivitis, papillitis) or may be hyperplastic as a side effect of certain drugs (calcium channel blockers, hydantoins, cyclosporine A...).

Surface

Consistent, non-cracked, sometimes with fine punctation.

References

Related articles

- Periodontal anatomy
- Periodontal diseases
- Periodontology - basics

Literature used

- HELWIG, Elmar – KLIMEK, Joachim, et al. *Záchovní stomatologie a parodontologie*. 1. edition. Grada Publishing, a.s, 1999. 0 pp. ISBN 80-247-0311-4.
- Wikipedia: The Free Encyclopedia. *Gingiva* [online]. [cit. 2011-04-13]. <<https://en.wikipedia.org/wiki/Gingiva>>.