

**Stomatology: in 2 books. —  
Book 2: textbook (IV a. I.)**

**КУПИТИ**

In the textbook, main problems of dental service, therapeutic and surgical dentistry are elucidated. Sections of the textbook correspond to the curriculum and program of training in the internship on the specialty of "Stomatology". Basic principles of delivering dental care for population, clinical picture, methods of diagnosis and treatment of hard dental tissues, periodontal tissues and mucous membrane of the oral cavity are stated. Problems of clinical picture, diagnosis and treatment of surgical pathology of the maxillofacial area are considered. ■■■Text of the textbook is accompanied by rich original illustrative material. ■■■It is intended for interns-stomatologists of faculties of post-diploma education, students of the Master's course, post-graduates, resident physicians, doctors-stomatologists.

# STOMATOLOGY

## TEXTBOOK

IN 2 BOOKS

BOOK  
**2**

Edited by  
Professor **M.M. ROZHKO**

APPROVED by  
the Ministry of Health of Ukraine  
as a textbook for doctors  
attending postgraduate education  
establishments (faculties) of the  
Ministry of Health of Ukraine  
specialising in dentistry

Kyiv  
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## PREFACE

The reform of postgraduate education is a part of the national reform of medical education. For its implementation a modern system of high-quality medical service should be provided. Transition to dentists of general practice training requires creation of a modern high informative textbook on this specialty.

The first publication of the Dentistry textbook creates the necessary conditions for a effective and efficient educational process of intern dentist training. The second edition of the Dentistry textbook is a logical continuation of the first one, which should contribute to further reform of postgraduate education and should provide each intern doctor with reliable methodological and scientific basis for mastering the internship program.

The second book covers in detail the organizational issues of dental service; therapeutic dentistry and oral and maxillofacial surgery materials; the material required for dentists during organization and functioning of dental offices, departments, clinics; the principles of staff ratio formation; the method of determining the dentist and dental technician workload; accounting documentation forms; the methods of evaluating the effectiveness of dental schools.

The questions of differential diagnosis in dental diseases, new treatment techniques and materials are considered in detail in the chapter of preventive dentistry. Particular attention is paid to the clinical presentation, treatment and prevention of oral mucosa diseases as independent manifestations of certain pathological conditions.

The chapter of oral and maxillofacial surgery presents problems which dentists face every day in their practice. The problems of anesthesia, tooth extraction and complications for each type of surgery, as well as the main measures in case of traumatic injuries of the maxillo-facial areas, emergency conditions in dental surgery clinic are considered in particular.

The accent is put on new methods of treatment in clinical oral and maxillofacial surgery, and new drugs used in certain cases.



## CHAPTER 5

# PERIODONTAL TISSUES DISEASES

---

### SYSTEMATICS AND EPIDEMIOLOGY

According to the epidemiological researches, periodontal diseases are rather common among the population. According to WHO (1990), based on a population survey of 53 countries, the highest level of periodontal diseases was observed in people aged 35—44 years (65 to 98 %) and 15—19 years (55 to 89 %), and 80 % of children of the globe were diagnosed with gingivitis (L.A. Dmitrieva, 2003).

In 3 % of children aged 12, the diagnosis of periodontitis of moderate severity was established, and in the age of 15—16 years already in 12—18 % deep periodontal pockets (4—5 mm) were found. It was established that at the age of 16—19 76.6 % of the population are affected with periodontal tissue diseases, at the age of 20—90 %, and at 33—44, according to E. Borowski (1985), periodontitis affects 100 % of the population. Generalized periodontitis in adults is observed in 90—95 % of people with periodontal tissues diseases. Parodontosis is about 4—5 % of periodontal diseases. In adults, catarrhal gingivitis develops infrequently and only before 30 years; usually this is periodontitis (G.M. Barer, T.I. Lemetska, 1996). Among all types of gingivitis in 90 % of patients, the catarrhal gingivitis is diagnosed.

For Ukraine, the issue of periodontal diseases is also relevant. The frequency of these diseases in people before 40 years is 50—60 %, and in adults over 40 years — is 100 % (V.V. Povorozniuk, P.S. Flies, 2001). According to other authors (M.F. Danilevsky and co-author, 2002), the average for Ukraine is the incidence of periodontal diseases among those, who applied at the age of 15—35, is 74 %. M.F. Danilevsky and A.V. Borisenko (1995) noted that the loss of teeth because of periodontitis was observed 4—6 times more frequently than in caries and its complications. The results of a complex clinical laboratory examination of inhabitants of Precarpathian region, the high incidence of generalized periodontitis — 94.77 % (T.D. Pavlyuk, 2000) was found out.

Periodontal diseases often develop on the background of concomitant diseases: digestive disorders, metabolism, cardiovascular and endocrine disorders, sensitization and infection of the body, etc., and affect the psycho-emotional state of the patients.

---

### PERIODONTIUM:

## CLINICAL ANATOMY, PHYSIOLOGY, FUNCTIONS, AGE CHANGES

Periodontium — is a complex of tissues that cover the tooth and are closely related genetically, morphologically and functionally. This morphological functional complex includes gums with periosteum, the bone tissue of the alveolus, periodontium and tooth tissues. The embryonic relationship is indicated by the fact that all



## CHAPTER 5. PERIODONTAL TISSUES DISEASES

periodontal tissues (except for gums) are developed from connective tissue that surrounds the dental germ, and have a common circulation. Physiological connection is manifested in the fixing function of periodontal tissues, pathological — that the pathological processes that occur in some periodontal tissues, usually, spread rapidly to others. Periodontium is more functional, physiological and pathological concept than anatomical. One of the important components of periodontium are gums.

**Gums** — are the mucous membrane that covers the alveolar process of the upper jaw and the alveolar part of the lower jaw and embraces the teeth in the area of their necks. Physiologically, the gums are divided into free and attached. From a clinical point of view, gums have the marginal part (part of gums that in the cervical area is adhered to the tooth).

Dense fit of the gums to necks is ensured by turgor due to the interstitial pressure caused by macromolecular interfibrillary substance.

**Gingival sulcus (dental gingival sulcus, gingival fissure, sulcus gingivalis)** — a slit-like space between the surface of the tooth and gingival margin (depth from 1—1.5 to 2 mm). Here, a **gingival fluid** is formed — exudate located below capillaries, that stands out due to increased vascular tissue permeability. It contains single leukocytes, desquamated epithelial cells, a set of enzymes and proteins has a protective function due to the immune properties and phagocytic activity. The amount of gingival fluid is negligible and increases in the case of mechanical irritation and inflammation, medicinal substances are quickly excreted through it.

**Gingival groove** — is the line of separation between free and attached gingiva, by the level of its location roughly corresponds to the bottom of gingival sulcus (fig. 1).

Histologically, gums consist of stratified squamous epithelium and lamina of mucous membrane, and the submucosal layer is not expressed. There are epithelium of the oral cavity (laminated squamous), sulcular epithelium (intermediate between stratified squamous epithelium and connective) and connective epithelium (epithelium of attachment).

Epithelial attachment is presented in several rows of elongated cells, placed parallel to the tooth surface that are quickly renewed (every 4—8 days) that testifies to their regenerative abilities. The mechanism of attachment is not

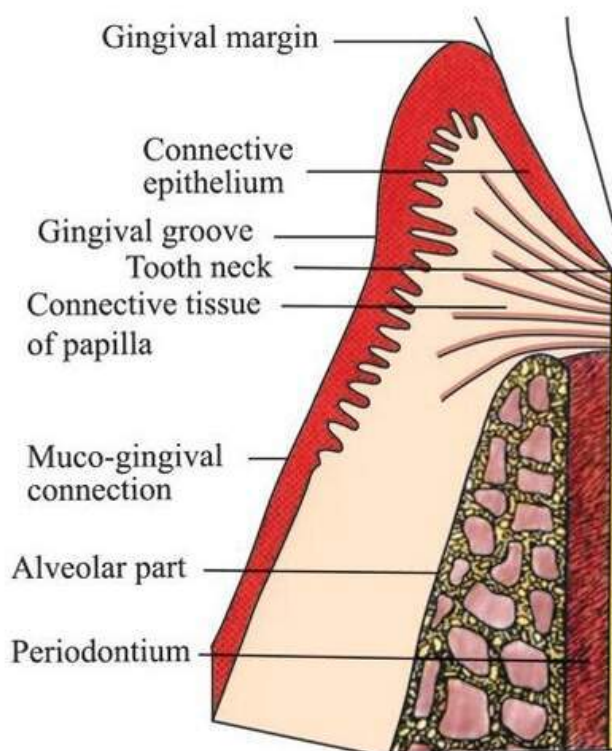
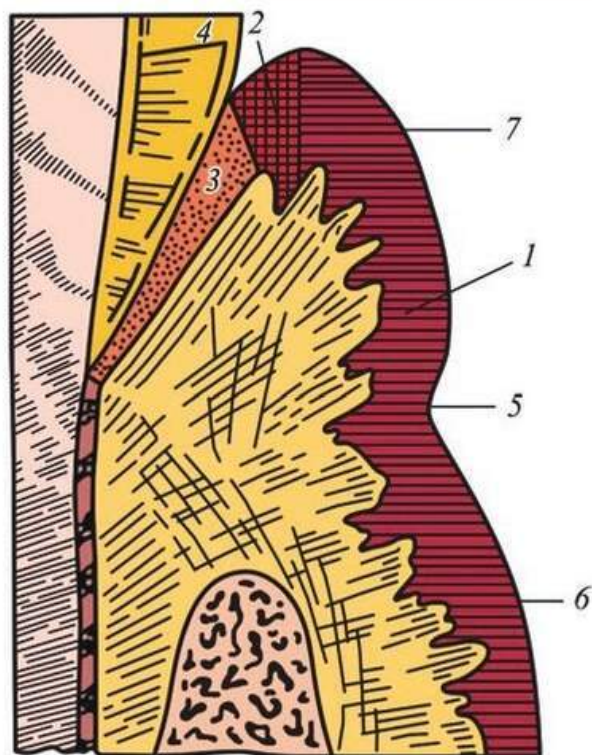


Fig. 1. Schematic representation of the edging (marginal) parodontium



## THERAPEUTIC DENTISTRY



**Fig. 2. Histological structure of gums:**  
 1 — epithelium of the oral cavity (squamous stratified); 2 — sulcular epithelium (transitional, intermediate between stratified squamous and junctional epithelium); 3 — junctional (attachment epithelium) — simple — a few rows of elongated cells; 4 — enamel; 5 — gingival groove; 6 — attached gingiva; 7 — gingival margin

understood. The superficial cells of connective epithelium have multiple desmosomes and are connected with apatite crystals of the dental surface through a thin granular layer of organic matrix (fig. 2).

**Periodontium** — is one more component of paradontium. It is presented by dense connective tissue that fills the space between the tooth alveolus and root cement that is a periodontal gap, and cellular elements of loose connective tissue (macrophages, fibroblasts, osteoblasts, plasma and mast cells, leukocytes and cementocytes); there are blood vessels and nerves. Periodontium — is the ligamentous apparatus of the tooth, has dental gingival, interdental and dental-alveolar fibers.

The component of periodontium is also a cement that covers the dental root from the enamel border to the apex. In the cervical part of the root is placed acellular or primary cement, the rest of the root is covered by secondary cement. By its structure and chemical composition, it is very similar to bone.

The bone structure of periodontium is composed of mineral salts and water (60—70 %) and organic matter (30—40 %, the basic component — collagen) and is divided into alveolar process of the upper jaw and alveolar part of the mandible. They consist of external and internal cortical plates in the form of the dense line and a spongy bone located between them.

There is a yellow bone marrow between trabeculae. The cortical plate of the alveolus is penetrated with numerous canals, through which blood vessels and nerves pass. It is much thinner on the upper jaw than on the lower one. The cortical plate ends at a distance of 1—2 mm from the cement enamel border towards the apex of the tooth roots. Inter-alveolar septa in the area of incisors and canines have the shape of a pyramid, in the area of premolars and molars — are often flattened. The external cortical layer of alveolar processes of the upper jaw and along the front teeth of the lower jaw on the vestibular side is thinner than on the oral one. Osteoporosis in case of periodontal diseases is quickly detected in the group of front teeth, because

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