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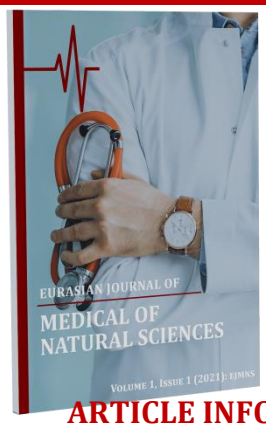

CLINICAL AND FUNCTIONAL CHARACTERISTICS OF THE ORAL MUCOSA IN VARIOUS PATHOLOGIES

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ABSTRACT

In recent years, more and more attention has been paid to the study of normal human microflora. This is largely explained by the importance of the symbiotic relationship of the microorganism and microbes in the regulation of vital functions of the human body, as well as the relevance for practical healthcare of pathological conditions and diseases in the development of which many representatives of normal or resident microflora participate.

The peculiarity of the multicomponent oral cavity system is that through it and with its help, two most important functions of the human body are carried out: breathing and nutrition. Along with this, it is constantly in contact with the external environment, and the mechanisms functioning in the oral cavity are under the constant double influence of regular exposure of the body and multifactorial influence of the external environment.

In the human body, the oral cavity contains the largest number of bacterial species compared to other cavities, including the gastrointestinal tract. According to various authors, the number of bacterial species, including anaerobic, ranges from 100 to 180. This is explained not only by the fact that bacteria enter the oral cavity with air, water, food, etc., the so-called transient microorganisms, whose residence time in the oral cavity is limited. Here we are talking about a resistant (permanent) bacterial flora of the oral cavity, forming a rather complex stable ecosystem. Under normal conditions: when antibiotic pastes, antibiotics and other medications are not used, changes in the current ecosystem are likely to occur depending on the time of day, year, etc. and only in one direction, that is, only the number of representatives of several or most species changes, but the species representation remains with a particular individual practically constant throughout, if not the entire life cycle, then at least for a long period.

It is proved that the ecosystem of the resident microflora cannot but depend on the specific physiological characteristics of the organism, the host as a whole and especially the oral cavity, such as, for example, the features of the morphology of the cavity, the nature of

saliva and the intensity of its formation, the nature of nutrition, the presence of bad habits, heredity, etc.

Of all the factors that determine the nature of the state of the oral flora, saliva is the decisive one. The most important saliva factors in this regard are the intensity of its formation, viscosity, content of mineral components, ionic potency, buffering properties, pH, main metabolites, presence or absence of salivary gases, organic composition, namely, amino acids, polysaccharides, vitamins, purines, pyrimidanes; antibacterial properties – the presence of lysozyme, secretory antibodies, leukocytes et al .

According to various authors, the number of bacteria in saliva ranges from 4.3 x 106 to 5.5 x 109 CFU/ml, that is, on average 7.5 x 106 in 1 ml, the microbial concentration in plaques and gingival furrow is almost 100 times higher. About half of the residents are facultative and obligately anaerobic streptococci, which include: Str.mutans, Str.salivarius, Str.mitis and peptostreptococci, β-hemolytic streptococci are not an integral part of the resident flora.

It has been established, according to a number of researchers, that the number of microorganisms in the oral cavity changes during the day, with saliva production playing a leading role, which is sharply reduced at night. Tooth loss also leads to a decrease in the amount of microbial flora. There are also factors that cause temporary or permanent changes in the content of individual representatives of the flora. Such factors are: antibiotics, diet changes, physiological effects, elimination of all carious lesions of the teeth and removal of destroyed teeth. At the same time, each antibiotic affects certain groups of microbes, resulting in dysbiosis. A diet with a large amount of protein indicates an increase in the number of facultative gram-positive rods by more than 2 times. Many bacteria have certain needs for vitamins, so a change in their content causes a change in the composition of the flora. The composition and number of microbes are undoubtedly influenced by various somatic diseases, but this issue has not yet been sufficiently studied. For example, C.albicans is much more common in diabetic patients (80%) than in healthy (50%). Many researchers note an increase in the number of microbacilli when caries occurs and a significant decrease after treatment. It has been shown that Str.mutans, Str.salivarius, yeast, lactobacilli and spirochaetes disappear or their number decreases significantly during the "toothless" period, and the content of Str.salivarius increases. During the first 2 weeks after the prostheses are installed, a high level of streptococci remains, while the number of lactobacilli and yeast decreases significantly. After 3-5 weeks, the content of lactobacilli and yeast increases, and the level of streptococci decreases to the initial one. The number of streptococci in all periods of life does not change significantly.

It is known that saliva contains the most important molecular: lysozyme, bactofurin, lactoperoxidase and other enzymes, components of the complement system; and cellular: granulocytes and macrophages – factors of nonspecific resistance of the body. The protective activity of various saliva substances is associated with both their direct effect on microbes and inhibition of adhesion to tooth enamel or mucosal epithelium.

Lysozyme is an enzyme N-acetyl-muramylhydrolase, active in a slightly acidic and neutral medium. Causes hydrolysis of the glycoside bond in the peptidoglycan molecule of the bacterial cell wall. It is produced by lymphocytes, granulocytes, macrophages, as well as some types of bacteria.

Cellular factors of nonspecific resistance macrophages (monocytes, fibroblasts, granulocytes) perform phagocytic function on the surface of the mucosa, in the gingival groove and submucosal layer. Activation of these cells during phagocytosis or with the help of humoral factors, for example, interleukin-2, by the immune complex AG-IgE, is accompanied by a "metabolic explosion" and the release of active bactericidal factors – enzymes, superoxidanion, atomic oxygen. However, due to the hypotonic environment of saliva, the active role of leukocytes is significantly limited, the picture is often observed

"incomplete phagocytosis". It is possible that such a mechanism is biologically justified from the point of view of maintaining equilibrium with the resident flora or stimulating and antigen-presenting function of macrophages in the immune response.

A particularly important role in the local protection of the oral cavity is played by secretory immunoglobulins of class A (sJgA), the concentration of which in saliva is 100 times higher than the concentration of serum JgA. sJgA is a dimeric or trimeric macromolecule protected from the action of proteolytic enzymes of saliva, a secretory component of glycoprotein nature. Therefore, for a long time sJgA was considered the only specific antiviral and antibacterial factor of saliva.

Oral diseases, like any human diseases, are mainly indicated and determined by two factors: external - microorganisms, physical and chemical effects; and systemic internal factors, of which heredity, the immune and endocrine system are of primary importance. Although there is no doubt that both the onset and the outcome of the disease are determined by the interaction of external and internal factors, in the process of which one or another factor may lead, and alternately, it is still advisable to consider these factors separately. Nevertheless, this approach does not exclude the need

to "look back" at another factor all the time when considering one factor.

Especially great difficulties arise in this regard when considering the role of microorganisms in a number of nonspecific diseases of the oral cavity, in the etiology and pathogenesis of which representatives of the resident microflora of the oral cavity play a certain role. This is primarily due to the fact that, firstly, the infection here is always endogenous, that is, caused by microbes in the oral cavity of a healthy person; secondly, the process in the absence of a specific pathogen can be caused by the action of various microorganisms, often several species at the same time; thirdly, the same microorganism can, under a certain state of internal systemic factors, primarily the immune system, cause various pathological processes or two different pathogens can cause similar pathological processes in different individuals. It should be added to this that until now we have a rather vague idea of the behavior of microbes in associations, where, unlike pure cultures, they can mutually stimulate or inhibit each other certain properties, etc.

Pemphigus, as a rule, begins with a lesion of the mucous membranes of the oral cavity and pharynx, and then the skin of the trunk, limbs, inguinal and axillary cavities, face, external genitalia are involved in the process.

Often, the first manifestations of pemphigus (89.36%) occur on the mucous membrane and can exist here for quite a long time: from several weeks to several months.

The mucous membrane of the oral cavity is affected in 62.2-85% of cases, in the vast majority of patients. Most of the initial manifestations of the disease on the oral mucosa are

noted by many authors, according to Eller and Kest (1941) - in 66.2%, according to Lever (1953) - in 23 out of 37 patients, according to R.S. Braude and V.I.Leibman (1953) - in 26 out of 33 patients, according to Montilli (1955) - in 52.2% of patients, according to Feldvari, Bolanyi, Martov (F.Foldvari, I.Bolanyi, K.Marton, 1956) - in 71.9%, according to B.I.Krasnov (1959) - in more than 75% of patients, according to Schuermann (1958), only 13% remain free from rashes patients, according to N.D.Sheklakov (1959) - 68.31%, etc.

The initial manifestations of pemphigus on the oral mucosa may be the only symptom of the disease for many weeks, months, and even years. Significantly complicates the timely establishment of the correct diagnosis of pemphigus in the initial stage of the disease, when it can begin with completely uncharacteristic changes, such as aphthous elements or banal erosions, manifested as a result of traumatization, pressure of the prosthesis, etc. It is usually believed that blisters with true pemphigus occur on unchanged skin. However, in recent years, there have been cases of the appearance of blisters on an edematous, erythematous base, which tend to cluster, which creates a clinical similarity with During's herpetiform dermatitis.

It is characterized by the spread of rashes on the lips and adjacent skin areas. Usually the erosions formed on the lips are also very painful, covered with thick hemorrhagic crusts tightly adjacent to the erosive areas. There is abundant salivation, eating, mouth movement, lips are extremely difficult and accompanied by sharp pain and an extremely unpleasant odor.

Trautman (1911) of 222 patients with pemphigus with lesions of the oral mucosa noted primary lesions of the mucous membrane in 65 people, isolated lesions of the oral mucosa - in 53, lesions of the oral mucosa and skin at the same time - in 50, primary lesions of only the skin - in 34 people.

According to Trautman, most often the process captures the mucous membranes of the cheeks, palate, pharynx, tongue and lips. Zinsser (F.Zinsser, 1930) also notes the greatest lesion of the mucous membranes of the cheeks, palate, pointing to the possibility of simultaneous localization of foci on the lips, tongue, tonsils and uvula. L.I.Bileikin (1936) believes that gums with pemphigus are completely intact. Schuermann (N.Schuermann, 1958) notes that the mucous membrane of the oral cavity with vegetative pemphigus is initially affected on the cheeks, palate and tongue. It should be recognized that there are no areas on the oral mucosa that would not be affected by this disease].

The reasons for the late diagnosis of this serious disease lie in the significant peculiarity of the course of pemphigus in lesions of the oral mucosa.

As a rule, typical blisters filled with serous and less often hemorrhagic contents can not be observed often, which is explained by anatomical features. The structure of the oral mucosa (absence of horny and granular layers, except for limited areas), constant moisture of the mucous membrane and slight injury to blisters during movement of the lower jaw and tongue. In addition, apparently, the pathological process does not always develop so intensively when bubbles form, and often, instead of a bubble, peculiar membranes of white or "greasy" color are found, when rejected, an erosive surface corresponding to the size of the membrane or somewhat large is exposed. In many patients, it is possible to detect the remains of bubble tires on the periphery of erosions, the surface of which has a fibrinous plaque or is exposed. The sizes of the bubbles and the erosions remaining after their destruction range

from millet grain to several square centimeters. Often, the entire surface of the mucous membrane of the cheek or palate is a continuous erosion, partially exposed or covered with fibrinous films. Rashes may appear on a completely unchanged or hyperemic and edematous mucous membrane.

In recent years, the course of pemphigus is divided into certain phases corresponding to the clinical and cytological picture of the disease. On the mucous membrane of the mouth, as well as on the skin, the phase of the process is also well expressed.

In the first phase, the erosion of the oral mucosa epithelizes relatively quickly (but much slower than in the first phase on the skin), the Nikolsky symptom is not always detected. Salivation is normal or slightly increased. Soreness during meals is expressed slightly and increases only when taking too hot, hard or acidic food.

If the process passes into the second phase, then the clinical picture worsens: larger erosions are formed, the surface of which bleeds easily even with the lightest touch of the instrument or when eating.

A fairly widespread opinion about a poor prognosis during pemphigus with initial localization on the oral mucosa has not been confirmed. But the healing of erosions when localized on the mucous membranes occurs mainly much slower than on the skin, and relapses (exacerbations) of the disease occur more often on the mucous membranes. The latter is explained, apparently, by the already mentioned anatomical features of the structure of the mucous membranes, and the conditions of relatively easy maceration and injury of the epithelium. Despite the fact that very often the disease begins with a lesion of the oral mucosa or involvement of the latter in the pathological process, mainly in the first half of the year since the appearance of rashes on the skin in some patients, the oral mucosa remains free of rashes throughout the disease [according to Shuerman (1958), in 13% of cases].

As a rule, even in spite of severe forms of pemphigus with lesions of the oral mucosa (in the case of a tendency to healing), scarring changes are not observed. Scars can only be an exception at the site of an inflammatory process that may occur with necrosis phenomena due to the addition of pyococcal infection or fusospirillosis (Vincent's angina).

However, the central place in its clinical significance and the difficulties of differential diagnosis is occupied by the manifestations of pemphigus in isolated lesions of only the oral mucosa. Common features characterizing various forms of pemphigus are:

1) monomorphic bullous eruptions with frequent primary localization of blisters on the oral mucosa;

2) intraepidermal location of blisters formed as a result of acantholysis detected by histological or cytological examination. Acantholytic cells are characterized by a smaller size, a large and darkly colored nucleus, as well as a non-uniform color of the cytoplasm, darker on the periphery of the cell and lighter around the nucleus. Pemphigus cells form significant clusters, closely adjacent to each other;

3) the general severity of the course without a tendency to self-remission.

Despite the success of domestic and foreign studies in clarifying the mechanisms of pathogenesis and improving the methods of treatment of patients with pemphigus, the problem of pemphigius remains relevant and is due to the severity of the disease, its incurable and potential lethality.

It is considered that patients with pemphigus are treated by dermatologists. However, vulgar pemphigus in more than 60% of patients begins with a lesion of the mucous membranes of the oral cavity. Often these patients are treated in dental institutions for "stomatitis", "gingivitis", "exudative erythema", "art", etc. Only when blisters appear on the skin, patients are referred to a specialist in skin diseases.

All patients who have found manifestations of pemphigus in the oral cavity seek help from a dentist. Therefore, knowledge of the clinical picture, location, distinguishing features of various forms of pemphigus will help to clearly differentiate this pathology from false pemphigus mucosal changes and refer patients to a dermatologist.

Thus, providing qualified dental care to patients with true pemphigus is an urgent task of modern medicine.

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