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THE EFFECT OF REMOVABLE PROSTHESES ON THE ORAL MUCOSA

Annotation: The review presents clinical, morphological and cytological changes in the mucous membrane of the supporting tissues of the prosthetic bed on the impact of removable dentures, theoretical and clinical aspects of these problems, as well as possible solutions in orthopedic dentistry using materials with shape memory.

Keywords: prosthetic bed, removable dentures, materials with shape memory.

Removable dentures are combined irritants that have a mechanical, chemotoxic, sensitizing and thermally insulating effect on the mucous membrane of the prosthetic bed (MMPB) and its neuropeptor apparatus, the strength and nature of which depends on the physicochemical properties of the bases, design features, manufacturing quality and terms of use of the prostheses. The latter are manifested by burning sensations, tingling, dryness, pain in the area of the supporting tissues of the prosthetic bed, sometimes the tip and back of the tongue, lips and cheeks, which leads in a number of patients to the inability to use dentures.

Prosthetic stomatitis occurs more often in women, especially over 50 years of age, due to a decrease in the protective barrier function of the epithelium in the hard palate, less often the alveolar process of the upper jaw and very rarely the alveolar part of the lower jaw. At the same time, in the same patient, the location, intensity and area of inflammatory phenomena may vary. Recent studies have shown that the problem of the relationship between a dental prosthesis and a prosthetic bed has not lost its relevance in modern conditions. Clinically, focal inflammation when using removable dentures manifests itself in the form of single or multiple spot hyperemia, sometimes large spots that have no regularity in size and localization. As the process develops further, bleeding erosions and decubital

ulcers, hyperplastic growths accompanied by soreness appear against the background of loosening and swelling of the mucous membrane. Superficial focal inflammation is more often localized in the area of the glandular zone, frenules, transitional folds and alveolar ridges. Decubital ulcers are located mainly in the area of transitional folds and along the "A" line, less often - alveolar ridges and hard palate. Papillomatous growths are more often localized in the central part of the hard palate. Diffuse diffuse inflammation is characterized by the same clinical signs, but topographically and anatomically occupies the entire surface of the prosthetic bed, coinciding with its boundaries, has a cherry-red color, puffiness and looseness. MMPB inflammation without violation of the integrity of the epithelium is observed in patients using removable prostheses, as a rule, from 1 to 3 years. Erosions and hyperplasia in these cases develop in terms of 3 or more years, when there is a discrepancy between the surface of the base and the prosthetic bed. The causes of focal inflammation of MMPB are: poor fixation and balancing of prostheses, roughness, porosity, inaccurate correspondence of the basis to the relief of the prosthetic bed due to shrinkage and reduction by 0.02-0.5% of plastic during polymerization, which contributes to mechanical irritation, as well as macro-shifts and uneven pressure of the prosthesis on the supporting tissues during chewing. The etiology of diffuse MMPB inflammation is chemically toxic or allergic in nature. As noted by Vasilenko Z.S., technical measures to improve the quality of polymerization of acrylic plastics and reduce the amount of residual monomer in dentures are not very effective in patients with spilled chemotoxic inflammation of the supporting tissues of the prosthetic bed. There is an opinion that completely denies mechanical factors and indicates that inflammatory changes can also occur with high-quality prostheses, linking this exclusively with the general condition of the body.

MMPB inflammatory phenomena are promoted by poor hygienic condition, contamination of the surface of acrylic plastic prostheses by microorganisms and their waste products, which reduces local immunity. This circumstance creates a kind of focus of toxicoinfection, which can be the cause of pathological changes of

a local and general nature in the patient's body. According to a number of authors, one of the main causes of intolerance to basic materials, irritation and inflammation of MMPB is a residual monomer - methyl methacrylate, contained in plastic in a concentration of 0.2-5.2% even with prolonged polymerization and remaining in the prosthesis for up to 12 months. Other components included in the basic plastics are considered relatively harmless and rarely cause allergic reactions due to the low concentration of their content (hydroquinone - 0.01%, benzoyl peroxide - 0.2-0.5%, etc.), and dyes, due to difficult solubility, are considered biologically indifferent.

In these situations, the clinical picture corresponds to contact chemical-toxic nonspecific inflammation, manifested in the form of hyperemia, spot hemorrhages, edema, feelings of dryness and burning, paresthesia of the mucous membrane of the oral cavity and tongue. In rare cases, the phenomena of intolerance to the basic material can manifest in the form of eczema, glossitis, swelling of the lips, acute dermatitis of the face and hands, bronchial asthma and other allergic conditions. It should be noted that one of the causes of inflammation of the mucous membrane of the prosthetic bed is the negative pressure under the basis of the orthopedic structure, which can have a damaging effect. There are atrophic and hypertrophic prosthetic stomatitis. In the atrophic variant, atrophy, erythematosis of the mucous membrane on a large part of the supporting tissues are detected. Pathomorphologically, the surface of the mucous membrane is covered with a multilayered flat non-corneating epithelium, the spiny layer is thin, acanthosis may be observed in some areas. Lymphohistiocytic infiltration is observed in the connective tissue base. Sometimes macrophage cells are embedded in the thickness of the epithelium. With hyperplastic stomatitis in the mucous membrane, in addition to signs of productive inflammation, pronounced erythematous changes are noted, the foci of which are localized more often in the center of the hard palate and the top of the alveolar ridge, at the same time an intensive growth of yeast fungi is detected on the mucous membrane.

Microbiological examination of smears from the surfaces of removable dentures made of acrylic plastics, carried out in the near and long term after orthopedic treatment by L.M. Perzashkevich et al. (1984), showed that yeast-like fungi of the genus Candida were isolated in all patients, while their gradual increase was observed in direct dependence on the duration of use of prostheses. At present, considerable information has been accumulated and a sufficient number of papers have been published on morphofunctional features, histochemical and ultrastructural studies. Under the influence of removable plate prostheses, thickening of the epithelial layer and thinning of the own plate of the mucous membrane occurs within a period of 2 to 8 years. The cells of the basal layer become low-prismatic. The granular and horny layers gradually thin out and disappear. There is a pronounced picture of acanthosis. Epithelial outgrowths are very diverse in shape and size. Lymphocytes are found in the epithelium. In connective tissue, the number of cellular elements of the fibroblastic series increases, but the interstitial substance prevails over the cells. The number of infiltrates from plasma cells and histiocytes increases, their perivascular clusters are detected.

With an increase in the period of use of prostheses (5-8 years), the number of focal infiltrates from lymphocytes and plasma cells increases, which occur not only along the vessels, but also in other parts of the connective layer. Elastic fibers of connective tissue and blood vessels MMPB become thicker, coarser, some of them lose their continuity. In muscle-type vessels, the internal elastic membrane is hypertrophied. In the middle shell of the vessels, the number of elastic elements becomes less, and in adventitia it is more. The collagen fibers of the connective tissue are fragmented, mucoid swelling, hyalinosis, sclerosis, fibrinoid dystrophy. During the use of removable prostheses for 10 years or more, morphological changes in the mucous membrane of the prosthetic bed increase and are characterized by a different combination of atrophic and hyperplastic processes. The epithelial layer thickens unevenly, the horny and granular layers disappear. There are pronounced dystrophic changes in the cells of the surface layer

(dyskeratosis, parakeratosis), which is often rejected. In these cases, the epithelium of the prosthetic bed is a narrow strip of loosened basal and spiny cells infiltrated by lymphocytes. In some situations, there is an exposure of connective tissue papillae along with their hypertrophy and papillomatosis. In all areas of MMPB, a picture of chronic inflammation is manifested. The sizes of spiny cells increase, and their intercellular spaces decrease, the phenomena of acanthosis are everywhere expressed. Epithelial outgrowths reach a large size and a diverse shape. Epithelial pearls of varying degrees of maturity are found in the layer of spiny cells. Connective tissue is infiltrated by plasma cells and histiocytes. The number of collagen fibers in the connective tissue base increases with increasing terms of use of prostheses, they become thinner, fragmented, often hyalinized, their bundles are located randomly even in the papillae of their own layer. Elastic fibers tend to thicken and fragment. In the blood vessels of the muscular type, elastosis is noted. In the middle shell of the vessels, the number of elastic fibers becomes smaller, and in adventitia - more.

This shows that the installation of structures made of certain materials causes changes in the microflora of the mouth. Approximately 70% of patients develop stomatitis and signs of catarrhal inflammation. For this reason, doctors recommend regular visits for prevention, timely detection of the problem and treatment. With proper oral care, the risk of complications is significantly reduced.

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