CONDITION OF THE ALVEOLAR PROCESS AND PERIOSTA WHEN USED REMOVABLE DENTURES

Axmedova Malika Qilichovna

Asian International University. Bukhara, Uzbekistan.

Email: ***malikaaxmedova 855@ gmail.com.***

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Abstract. *A direct relationship was found between the duration of use of removable pro-symptoms and signs of chronic inflammation detected both in the epithelium and in the connective tissue. Thus, when using removable dentures in the first 2-3 years, the accumulation of fibroblasts, lymphocytes and macrophages is detected only around the vessels. Later (5-15 years), the number of infiltrates increases, consisting mainly of lymphocytes, neutrophils and plasma cells. Moreover, they are detected not only along the vessels, but also in other areas of the connective tissue. Diffuse round cell infiltration is detected in the proper layer, and focal accumulation of elements in the submucosal layer. Infiltrates are also detected in the epithelial layer. However, the intensity of infiltration decreases in the posterior parts of the palatine fornix. Apparently, a certain role is played here by the dense vascular network, which apparently softens the pressure of the removable denture on the mucous membrane. Therefore, its changes in the posterior third of the hard palate are manifested to a lesser extent than in the anterior.*

Key words: *mucous membrane, removable denture, alveolar process, atrophy, denture.*

СОСТОЯНИЕ АЛЬВЕОЛЯРНОГО ОТРОСТКА И НАДЗОРНОЙ КОСТИ ПРИ ИСПОЛЬЗОВАНИИ СЪЕМНЫХ ПРОТЕЗОВ

Аннотация. *Выявлена прямая зависимость между длительностью использования съемных протезов и признаками хронического воспаления, выявляемыми как в эпителии, так и в соединительной ткани. Так, при использовании съемных протезов в первые 2-3 года скопление фибробластов, лимфоцитов и макрофагов выявляется только вокруг сосудов. В дальнейшем (5-15 лет) увеличивается количество инфильтратов, состоящих в основном из лимфоцитов, нейтрофилов и плазматических клеток. Причем они выявляются не только по ходу сосудов, но и в других участках соединительной ткани. В собственном слое выявляется диффузная круглоклеточная инфильтрация, а в подслизистом слое — очаговое скопление элементов. Инфильтраты выявляются и в эпителиальном слое. Однако интенсивность инфильтрации снижается в задних отделах небного свода. По-видимому, определенную роль здесь играет густая сосудистая сеть, которая, по-видимому, смягчает давление съемного протеза на слизистую оболочку. Поэтому ее изменения в задней трети твердого неба проявляются в меньшей степени, чем в передней.*

Ключевые слова: *слизистая оболочка, съемный протез, альвеолярный отросток, атрофия, зубной протез.*

Under removable plate dentures, the intercellular structures also change structure. Elastic fibers acquire an unusual appearance. They thicken, acquire uneven contours, sometimes gather in groups or become discontinuous.

The conducted studies allowed us to establish that atrophy of the alveolar process under removable dentures is detected to a greater extent in its anterior section and is more pronounced in individuals with incorrectly positioned teeth.

The loss of alveolar bone tissue occurs more rapidly in the first 3 years, slowing down thereafter. When explaining this process, the influence of three factors should be taken into account:

1) atrophy due to the effect of the prosthesis;

2) atrophy due to the loss of a physiological stimulus – chewing pressure;

3) development of age-related atrophy.

The periosteum also responds with a certain reaction to the effect of plastic night prostheses. When using prostheses for up to 3 years, due to the pronounced focal proliferation of osteoblasts, its pronounced thickening occurs.

In this case, osteoblasts increase in size and sometimes acquire a special orientation, being located parallel to the bone surface.

With prolonged use of prostheses, the periosteum of the hard palate and alveolar processes atrophies, becomes thinner, turning into a dense layer of fibrous tissue. The number of osteoblasts in it also decreases significantly. It is easy to notice that a certain analogy is observed in the reaction of the mucous membrane and periosteum: first, there is a compensatory thickening of these tissues, and then their thinning.

The study of immediate and remote results of prosthetics includes not only an assessment of the quality of dental prostheses and their functional properties, but also a detailed study of the condition and reaction of the tissues of the maxillofacial system, on which the dental prosthesis has a direct or indirect effect. First of all, it should be borne in mind that the prosthesis can have a direct effect on the tissues and organs of the oral cavity; its effect is observed when the prosthesis comes into contact with tissues that are usually united by the term "prosthetic bed". For a removable prosthesis, the bed is the mucous membrane of the hard palate, the alveolar part, natural antagonists, as well as the enamel of the teeth on which the clasps rest.

For fixed prostheses (inlays, half -crowns, splints), the bed is the wound surface of the crown, the walls of the cavity for the inlay and the mucous membrane of the gingival pocket.

In addition to the direct effect, the prosthesis also has an indirect effect on organs and tissues located outside the prosthetic bed and not in direct contact with it. This effect is medially through various organs and systems.

The result of such an impact is a change in the function of muscles and temporomandibular joints with a shortening or increase in the interalveolar distance, periodontal dystrophy with a functional overload of the supporting teeth, etc. Consequently, the impact of the prosthesis is not limited to the prosthetic bed, but goes far beyond it. Thus, we came to the need to disclose the content of another term - "prosthetic field", which means all organs and tissues located in the sphere of both direct and indirect impact of the prosthesis. The prosthetic bed is part of the prosthetic field.

The reactions of the prosthetic bed are determined, on the one hand, by the characteristic timing, intensity and duration of the stimulus, and on the other hand, by the reactivity of the organism. At present, it is no longer possible to talk about the influence of the prosthesis on the tissues of the prosthetic bed without indicating the connection between a specific stimulus and the corresponding reaction.

Studying the etiology and pathogenesis of reactions of the tissues of the prosthetic bed allows us to identify changes, the causes of which are hidden in the clinical and technical implementation of various procedures during prosthetics, in the nature of the material from which the prosthesis is made, or in the principle of the design itself. The data obtained in this way allow us to prevent a number of changes, in other words, it will become possible to plan the prevention of undesirable reactions.

First of all, it is important to find out what irritants are generated by the prosthesis and what properties they are associated with. There are side, toxic, allergic and traumatic effects of the prosthesis.

Side effects of removable dentures include the transfer of chewing pressure to the tissues of the denture bed, which is an inadequate irritant for the mucous membrane, disruption of self-cleaning, thermoregulation, speech, taste perception, functional overload of the periodontium of the supporting teeth with clasp systems, etc. Side effects of removable dentures include the "greenhouse effect" and vacuum. The "greenhouse effect" occurs when using dentures with a plastic base, which has low thermal conductivity. As a result, a temperature close to the human body temperature is maintained under the denture. This promotes the proliferation of microorganisms and worsens the hygienic condition of the denture bed, hindering heat exchange in the oral cavity. A vacuum with a good locking valve is created under the denture.

Due to this, the effect of a therapeutic (blood-sucking) cup occurs, accompanied by hyperemia of the mucous membrane of the denture bed and its chronic inflammation.

In the pathogenesis of this symptom, the state of the capillaries plays an important role, in particular their permeability, which changes in many common diseases of the body.

The side effect of a bridge prosthesis is the functional overload of the periodontium of the supporting teeth, irritation of the marginal periodontium by the edge of the crown, etc.

It is easy to see that the side effect follows from the principle of the prosthesis design itself.

By changing the type of prosthesis, the side effect can be reduced, but it cannot be completely eliminated. For example, it is possible to reduce the harmful effect of the prosthesis base on the mucous membrane by replacing the plate prosthesis with an arc prosthesis, but it is impossible to completely eliminate the effect of the prosthesis base. It is possible to reduce the functional overload of the periodontium of the supporting teeth of a bridge prosthesis by increasing the number of supports, but it is also impossible to completely eliminate it.

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