

**COMPARATIVE ANALYSIS OF VARIOUS METHODS OF GUM RETRACTION
IN ORTHOPEDIC DENTISTRY**

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Annotation:

In modern orthopedic dentistry, the display of the features of the formed stump of the prepared tooth, in particular, the ledge line, is a necessary condition for high-quality restoration. We performed gum retraction in 40 patients aged 21 to 53 years, using traditional and modern methods. Retraction threads were used, the impregnation of which includes various chemical compounds, as well as pastes for gum retraction. The results are considered from the point of view of the physicochemical properties of the means used, the quality of the impressions obtained, the atraumaticity during retraction and the effect on the general somatic state of the patient's body. The results were recorded using a multifunctional laser diagnostic complex "LAKK-M" and an electronic tonometer. The quality of the impressions was assessed visually. We made conclusions about the advantages and disadvantages of the systems used, their impact on the general dental status of patients.

Keywords: effect of gingival retraction, retraction threads, retraction pastes, impressions in orthopedic dentistry, epinephrine.

Introduction:

In the course of the development of orthopedic dentistry, the requirements for the quality of prosthetics also increased. In addition to the use of new materials and methods in the creation of fixed orthopedic structures, there was a need for the so-called auxiliary materials, without which, in modern realities, it is impossible to imagine high-quality prosthetics. One of the types of such materials are retraction systems that help the dentist at many stages of treatment in various clinical situations [2,5]. Gingival retraction was first described by Thompson in 1941. For retraction, he used moistened twine [4]. Currently, in the manufacture of retraction threads, they are impregnated with various compounds, for example: epinephrine hydrochloride, alum (double aluminum and alkali metal sulfate), aluminum chloride, aluminum sulfate, zinc chloride, tannic acid and ferrous sulfate. These substances have positive properties that facilitate the work of a dentist, the main of which is to stop bleeding, which can occur during various procedures. In addition to retraction threads, there are other systems, such as retraction pastes. [four]. However, any methods of mechanical retraction of the gums are traumatic, and the compounds that make up the threads not only improve their properties, but also affect the surrounding tissues, which is manifested by a temporary change in microcirculation in the marginal gum, the recovery period of which is in the range from 30 minutes to 2 weeks. [1,3,6]. Thus, the practical significance of the work is due to the widespread and widespread use of



retraction systems by dentists. Purpose of the study To conduct a comparative analysis of various gingival retraction systems based on their properties. Display data on changes in the state of the periodontium when using these systems. To determine the effect of chemical compounds used to impregnate threads and included in retraction pastes on periodontal tissues. Evaluate the quality of the resulting prints.

Materials and Research Methods:

We examined 40 patients aged 21 to 53 years who do not have severe chronic pathologies of the cardiovascular and endocrine systems. Equal groups of 8 people each were formed, depending on the materials used. For gum retraction, we used three retraction threads (“RETRIX Fibro #0”, “RETRIX EPI #1”, “Ultrapak #0”) and two retraction pastes (“3M ESPE Astringent Retraction Paste”, “Expasyl”), which have different physical and chemical properties. To take double impressions, we used a-silicone impression materials: Zhermack Hydrorise Putty Fast Set + DMG Silagum Light Body (Fig. 1), Elite HD Plus Putty + Sildent Light body (Fig. 2). Knitted cotton retraction According to the study, the thread impregnated with epinephrine hydrochloride not only has more pronounced local changes, but also affects the general condition of the body, which can cause pathological conditions in certain groups of patients during a dental appointment. This creates a risk in its use, leveling the positive qualities in the form of an exceptional ability to hemostasis. In turn, the thread impregnated with aluminum chloride does not have such a pronounced effect on periodontal tissues and the human body as a whole, and the compound included in the impregnation has a good hemostatic effect. The thread without impregnation can be used with a thick gum biotype, and with careful styling that does not cause bleeding, it performs its functions qualitatively. Gingival retraction pastes contain aluminum chloride, which promotes hemostasis. They are practically atraumatic and, due to their consistency, have a minimal negative local effect on tissues. The change in the general state of the body when using retraction systems that do not include epinephrine hydrochloride is explained by some excitation of the patient at the time of the retraction procedure relative to the state of rest, which is the physiological norm of the reaction. It is also necessary to pay attention to the quality of the impressions taken by us, because in order to obtain a clear display of the behind-the-shoulder space, the actual retraction of the gums is carried out. The evaluation of the prints obtained by us was carried out subjectively, visually and using an optical 5-fold increase, using an office magnifying glass. All the impressions taken by us quite clearly and fully reflect the post-ledge space, which indicates that the retraction pastes are not inferior to the retraction threads in the quality of the resulting impressions. Based on the data we obtained, which are the average value for each group of patients in whom various methods of sulcus retraction were used, we can conclude that retraction pastes have incomparable advantages over the traditional “single thread” retraction method. Highlighting the main advantages of retraction pastes, in comparison with retraction threads, we should mention the effect of substances that make up the impregnation of retraction threads, the main danger of which is epinephrine hydrochloride, which in turn has a rather strong effect on pressure, pulse and hemoglobin oxygen saturation . It is also necessary to take into account that in recent years, diseases of the cardiovascular system have become very



younger, if earlier these were “age-related” diseases that overtook people after 50-60 years, now the statistics have changed significantly. With heart attacks and strokes, young men and women of 30-35 years old, who are well-to-do and not engaged in hard physical labor, are increasingly hospitalized. Many of these patients are not aware that they have a pathology of the cardiovascular system.

Conclusions:

In the course of our study, it was found that the use of retraction pastes is more rational when performing orthopedic manipulations before taking impressions. When using retraction pastes, there is no trauma to the circular ligament of the tooth, which can occur when the thread is inserted and located in the dentogingival groove. The pastes do not cause discomfort in patients during gum retraction and eliminate the need for injectable methods of anesthesia aimed at relieving pain that occurs at the time of applying the thread. The use of pastes also leads to a reduction in risk factors for the development of emergency conditions in response to the introduction of local anesthetics that are in the retraction threads.

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