

Prevalence And Treatment Of Wedge-Shaped Teeth Defects

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Abstract – Wedge-shaped teeth defects. Common factors include somatic pathologies, mainly endocrine diseases. Most of the mineral part of the hard tissues of human and animal teeth consists of apatites, and the similarity of the recently used hydroxyapatite with hard tissues of teeth is undeniable. On this basis, the use of hydroxyapatite-containing preparations for the prevention and treatment of wedge-shaped teeth defects can be considered theoretically justified.

Keywords – Prevention, Treatment, Calcium Hydroxyapatite, Teeth, Degree Of Damage, Fluoride.

I. INTRODUCTION

Wedge-shaped defects are a progressive disease of the hard tissues of teeth that occurs after eruption, affecting mainly the vestibular surfaces of the canines and premolars, less often incisors, localized in the region of the necks of the teeth of the upper and lower jaws, which occurs mainly in middle-aged and elderly people [2,4,7,9,12,14,18,25]. Local (exogenous) and general (endogenous) factors affect the occurrence of wedge-shaped teeth defects. Ingestion of acidic foods and medicines, the use of abrasive toothpastes and hard toothbrushes or their inappropriate use are local factors. Common factors include somatic pathologies, mainly endocrine diseases.[1,3,5,8,10,13,15,19,23].

A number of predisposing factors and possible reasons for the development of wedge-shaped teeth defects are also distinguished, such as local violation of oral hygiene, pathology of periodontal disease, concomitant dental diseases, etc.[6,8,9,11,14,15,20,22,25,27].

The existing methods for the prevention and treatment of wedge-shaped teeth defects are symptomatic and pathogenetic in nature, aimed at increasing the mineralization and strengthening the hard tissues of the teeth, as well as relieving the phenomena of sensitivity in this disease. [7,9,12,15,17,25,28]. All this indicates the need for additional research to improve the methods of prevention and treatment of wedge-shaped teeth defects. For the most part, the mineral part of the hard tissues of the teeth of humans and animals consists of apatites, and the similarity of the recently used hydroxyapatite with the hard tissues of the teeth is undeniable. On this basis, the use of hydroxyapatite-containing preparations for the prevention and treatment of wedge-shaped teeth defects can be considered theoretically justified.[1,7,9,12,15,16,22,25].

From the above data, it can be considered justified to use the combined use of fluorine- and hydroxyapatite-containing preparations for the prevention and treatment of wedge-shaped teeth defects.[7,9,12,14,20,24,25].

II. PURPOSE OF THE STUDY

Determination of the prevalence and effectiveness of treatment of wedge-shaped teeth defects by using calcium hydroxyapatite and fluoride preparations.

III. MATERIALS AND RESEARCH METHODS

Dental examination of patients was carried out using a standard set of dental instruments under natural light.

Examining the oral cavity, attention was paid to the hygienic state of the oral cavity, the type of occlusion, the condition of the hard tissues of the teeth, diseases of the paradont and the mucous membrane of the oral cavity. Special attention was paid to wedge-shaped defects of dental hard tissues, their localization, shape, depth of lesion and intensity of hyperesthesia.

96 (40 men and 56 women) students aged 18-28 years old, studying in the second and third courses of the dental faculty of the Bukhara State Medical Institute during 2020-2021, were examined, and 30 patients aged 30-50 years old were treated with wedge-shaped teeth defects.

At the beginning of the work, the prevalence, form and causes of the studied pathology were studied. Further, the selection of the optimal means of treatment of wedge-shaped teeth defects and their approbation in the conditions of the dental clinic was carried out.

As a result of a clinical examination of 96 students, wedge-shaped teeth defects were detected in 15 (16.0%) students, among them there were approximately the same number of women - 8 and 7 men, which made it possible to disregard gender identity when analyzing the research results. - affiliation of the examined. Among 15 students with wedge-shaped teeth defects, 10 (67.00%) had a limited form of the first and second stages (enamel damage) and 5 (33.00%) of the third and fourth stages (dentin damage).

The prevalence of dental caries among students of the dental faculty of the Bukhara State Medical Institute was 80.3%. Erosion of dental hard tissues was detected in 10 (10.41%) students. Hypoplasia was observed in 50 (52.1%) students. Pathological abrasion of teeth was found in 36 (37.5%) people. Other types of non-carious pathology have not been established. Analyzing the causes of wedge-shaped teeth defects, it was possible to establish that the majority of the examined patients (50%) carried out intensive cleaning of their teeth with hard brushes and pastes containing abrasives (whitening toothpastes), and also often consumed (50%) fruit juices and drinks (cola, sprite, fanta).

The appearance of a wedge-shaped defect was also influenced by somatic diseases. So, among the 15 examined with wedge-shaped teeth defects, 12 (60.00%) people with the following diseases were identified during the examination: six (40.0%) people with diseases of the endocrine system, 3 (20.00%) with gastrointestinal diseases. - intestinal tract, three (20.00%) with diseases of the cardiovascular system.

Discussion. Thus, wedge-shaped teeth defects arise both under the influence of exogenous factors (the action of acids, abrasives, leading first to the demineralization of the enamel, and then to the erasure of the hard tissues of the teeth), and under the influence of endogenous factors, including endocrine diseases, cardiovascular system and gastrointestinal tract.

The wedge-shaped defect of the teeth of the first and second stages was characterized by the spread of the process within the enamel and was accompanied by a pain symptom - hyperesthesia of the teeth. The defect developed as a result of the action of a number of exogenous and endogenous causes and was the result of a violation of local and general mineral metabolism. When collecting anamnesis in patients of the second group, it was noted that earlier treatment was prescribed to a small number of patients who complained of increased sensitivity of the teeth from various irritants, and was reduced to eliminating hyperesthesia, after which the therapeutic measures were stopped.

Patients of the second group, depending on the prescribed local remineralizing therapy, were divided into three subgroups. Before starting the treatment, the condition of the hard tissues of the teeth was assessed. The results were not encouraging. The general assessment indicated generalized hypersensitivity of the teeth, a low level of enamel resistance, a low degree of remineralization of hard tissues and increased electro-excitability of the pulp. These patients did not need restorative dental treatment, they needed complex remineralizing therapy. General remineralizing therapy was the same for all three sub-groups and was carried out for a month. Depending on the phase of the disease, general therapy was repeated after two or four months.

Patients of the first subgroup were prescribed 10 sessions of electrophoresis of 2% sodium fluoride solution as local remineralizing therapy.

Six months later, patients of the first subgroup were diagnosed with a localized form of dental hyperesthesia of the 1st

degree.

One year after the treatment, the condition of the hard tissues of the teeth in patients of the first subgroup deteriorated sharply. The index of the prevalence of dental hyperesthesia became twice the half-year and 12% less than the initial results. A year and a half after treatment, progression of wedge-shaped teeth defects was observed in patients of the first subgroup. The data of the index of the prevalence of dental hyperesthesia (20.1%) increased relative to the initial data before treatment by 19.3%. The enamel resistance decreased: the TER data (20.07%) increased 1.05 times since the end of therapy and remained 10.5% lower than the initial data.

Analyzing the immediate and long-term results of treatment of wedge-shaped teeth defect in the first subgroup, the following conclusions can be drawn. The state of hard tissues after treatment significantly improved, the mineralization and, accordingly, the resistance of hard tissues of the teeth increased, the phenomena of hyperesthesia were stopped, there was an increase in the threshold of pulp sensitivity. The data of the indices after six and 12 months testified to the recurrence of the pathological process, which was of a limited nature.

Long-term results of treatment after a year and a half indicated the progression of wedge-shaped teeth defects, the involvement of the middle layers of the enamel, and in some cases the underlying dentin, in the pathological process. The prevalence levels of dental hyperesthesia corresponded to the baseline data before treatment. There was a low level of mineralization, resistance of dental hard tissues and high rates of electrical excitability of the pulp.

In the second subgroup, local remineralizing therapy was carried out using enamel - a sealing liquid.

Immediately after treatment, the prevalence of dental hyperesthesia was absent, the mineralization of hard tissues and enamel resistance increased, and the parameters of pulp electroexcitability returned to normal. The remineralization index during the entire observation period changed slightly from 1.09 ± 0.09 to 1.45 ± 0.12 points. The results of electrodontodiagnostics during the one and a half year observation period ranged from 6.39 ± 0.12 to 5.53 ± 0.12 , and reflected the stabilization of the process.

For local remineralizing therapy in the third subgroup, a hydroxyapatite-containing gel was chosen. Immediately after treatment indicators, there was no prevalence of dental hyperesthesia. Enamel resistance increased (20.70%) and the level of hard tissue remineralization (1.6 ± 0.10 points). The indicator of electrical excitability of the pulp has significantly increased ($5.5 \pm 0.13 \mu A$). However, these indicators turned out to be temporary and after six months there was a deterioration in the condition of the hard tissues of the teeth relative to the results obtained immediately after treatment. The indicator of electrical excitability of the pulp ($2.0 \pm 0.05 \mu A$) decreased six months after treatment, but remained higher before treatment. Comparison of the results of local remineralizing therapy with various drugs made it possible to note the greatest efficiency of the use of enamel-sealing liquid in the treatment of wedge-shaped teeth defects within the enamel.

IV. CONCLUSIONS

1. Among 15 students with wedge-shaped teeth defects, 10 (67.00%) had a limited form of the first and second stages (damage to the enamel) and 5 (33.00%) of the third and fourth stages (damage to dentin).

2. The prevalence of dental caries among students of the dental faculty of the Bukhara State Medical Institute was 80.3%. Erosion of dental hard tissues was detected in 10 (10.41%) students. Hypoplasia was observed in 50 (52.1%) students. Pathological abrasion of teeth was found in 36 (37.5%) people. Other types of non-carious pathology have not been established. Analyzing the causes of wedge-shaped teeth defects, it was possible to establish that the majority of the examined patients (50%) carried out intensive cleaning of their teeth with hard brushes and pastes containing abrasives (whitening toothpastes), and also often consumed (50%) fruit juices and drinks (cola, sprite, fanta).

3. The appearance of the wedge-shaped defect was also influenced by somatic diseases. So, among the 15 examined with wedge-shaped teeth defects, 12 (60.00%) people with the following diseases were identified during the examination: six (40.0%) people with diseases of the endocrine system, 3 (20.00%) with gastrointestinal diseases. - intestinal tract, three (20.00%) with diseases of the cardiovascular system.

4. On the basis of the state of enamel and dentin before and after the application of various therapeutic measures to improve the efficiency of treatment of wedge-shaped teeth defects, it was found that the highest results were observed with the combined, sequential use of fluorine- and hydroxyapatite-containing drugs.

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