FEATURES OF ORTHODONTIC TREATMENT OF CHILDREN WITH NON-CARIOUS LESIONS OF HARD TISSUES OF TEETH

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Abstract. According to the epidemiological survey in the Republic of Bashkortostan, a high prevalence of dental-alovalveolar anomalies and non-caries lesions of hard dental tissues in children was revealed. Non-caries lesions of the teeth limit the use of metal elements in orthodontic appliances. Orthodontic treatment was performed for 26 children aged 7-11 years with dental-alovalveolar anomalies in combination with non-caries lesions of the hard tissues of the teeth. The authors evaluated the effectiveness of the use of LM activator in orthodontic treatment of children of the observed group. The scheme of complex dental treatment of this category of patients is presented.

Key words: dental-alovalveolar anomalies, non-caries lesions of hard tooth tissues, LM activator, remineralizing therapy, complex dental treatment regimen.

According to an epidemiological survey conducted by the Department of Pediatric Dentistry and Orthodontics, the prevalence of dental-alovalveolar anomalies in Ufa, which is the center of the petrochemical industry of the Republic of Belarus, during the period of a milk bite is 35.2%, in the early shift bite - 72.5%, in the late interchangeable bite - 78.4%. Anomalies in the structure of the hard tissue of teeth were detected in 18.4% of the examined children, enamel hypoplasia of temporary teeth in 17.8% of preschool children, and permanent teeth in 10.9% of schoolchildren. In the structure of tooth enamel hypoplasia, a large part falls on systemic enamel hypoplasia, which is 64.7%. This indicator is six times higher than the data on the prevalence of enamel hypoplasia in children living in areas with more favorable environmental conditions [1-6]. The formation of enamel of permanent teeth begins at the end of fetal development, but the main part of the histogenesis of hard tissues of permanent teeth proceeds after birth. Hypoplasia of permanent teeth mainly reflects the condition of the child in the first
years of life. This defect develops in various diseases that occur in children during the formation and mineralization of teeth. Systemic enamel hypoplasia (SHE) accounts for 90.6% of all types of hypoplasia. Ozhgikhina N.V. (2002) revealed a high prevalence of decay of permanent teeth in children with systemic enamel hypoplasia - 87.09% [7-13]. The carious process that develops against the background of hypoplastic enamel is proceeding actively, several carious cavities are possible on one tooth. Hypoplastic teeth are highly sensitive, as evidenced by the established fact of the early occurrence of the carious process in recently erupted teeth. Children with SHE need medical supervision by a dentist in order to carry out preventive measures aimed at preventing the development of caries and adequate treatment of already encountered complications of enamel hypoplasia. Non-caries lesions of the teeth limit the use of metal elements in removable orthodontic appliances, and can also cause deterioration in the fixation of fixed orthodontic systems. Considering possible complications, we used an LM activator in this category of patients in orthodontic treatment.

Objective: to evaluate the effectiveness of the use of LM activator for the treatment of gastroenteritis in children with non-caries lesions of the teeth. Under our supervision, there were 26 children aged 7-11 years with dentoalveolar anomalies in combination with non-caries lesions of the teeth, in the orthodontic treatment of which the LM activator was used - a standard apparatus of industrial production having the form of ideal occlusion. The device is made of biocompatible and elastic silicone. Available in different sizes and four modifications - low model (for correcting deep incisal occlusion / disocclusion), high (for treating vertical incisal disocclusion), long (used for eruption of second permanent molars) and short (before eruption of second permanent molars), 37 different combinations of models and sizes allow you to choose the specific for each patient without making individual changes. Early orthodontic treatment with the help of an LM activator allows normalizing occlusion of the dentition, the function of the masticatory apparatus, and optimizing the formation of the dentofacial system during the growth and development of the child. Indications for the use of LM activator are: bad habits of the child in a temporary and early shift bite; anomalies of occlusion in the horizontal, vertical and transverse planes; crowding of teeth in the frontal section and their rotation; it is possible to use an LM activator as a retention apppar. Contraindications to the use of LM activator: class III anomalies according to Engl classification, significant narrowing of the upper jaw, conflict between children and parents, serious pathology of the respiratory tract. Individual selection of the LM activator is carried out using the LM-OrthoSizer measuring line. When determining the size of the activator, it is necessary to take into account the presence of crowding of the teeth or, conversely, diastema, three. Depending on the pathology, an activator of a larger or smaller size is used than obtained according to the measurement results [1, 4, 7-11, 14-19]. The clinic explains to patients and their parents the need to use an LM activator, provides training in proper hygiene when using an activator, determines the application regimen (two to three hours during the day and during night sleep). In order to increase the effectiveness of treatment with an LM activator, the patient is offered a special motivational material: a visual instruction made in the form of a diary card with colorful applications. In the diary every day is marked with a multi-colored sticker as a sign of the successful use of the device, there are also gift cards that can be installed in the lid of the container for the activator. During the initial examination of the observed patients during the period of a shift bite, the following results were obtained: 23 examined (88.5%) had decay of temporary teeth, decay of permanent teeth was revealed in 16 people (61.5%). Intensity of caries by KPU index + kp = 4.8. The level of hygiene in the Green Vermillion index is 2.5 points (bad). All observed patients were diagnosed with anomalies of individual teeth (mainly in the frontal section), anomalies of occlusion were detected in 13 children. Six patients were diagnosed with local hypoplasia, 19 - systemic hypoplasia, including 21 - spotted form, four - grooved form, Stanton-Capdepon dysplasia - in one patient. All observed patients underwent the following dental treatment methods: training in individual oral hygiene; controlled and professional oral hygiene; reorganization; orthodontic treatment with an LM activator; exogenous caries prophylaxis with the use of remineralizing drugs. Toothpaste R.O.C.S. was prescribed as remineralizing agents, for adults, since due to the action of the enzyme bromelain, it effectively and safely eliminates plaque and for a long time delays its formation, has an anti-inflammatory effect, and provides fast remineralization of teeth with calcium and phosphorus, which is necessary for the prevention of caries [14-19]. Patients were advised to alternate R.O.C.S. toothpaste, for adults with R.O.C.S. toothpastes for children and schoolchildren contain the unique AMIFLUOR complex, which is a combination of aminolauride and xylitol. For each remineralization, R.O.C.S. Medical Minerals in the form of applications lasting 12-15 minutes once a day. Applications were combined with the use of an LM activator, which contributed to the isolation of the gel from saliva and its long-term preservation on the teeth. The children were under dispensary observation for two years. During the second examination (after one year), the index of CPU + CF amounted to 4.8; Green Vermilion Hygiene Index is 1.6 points (good). The control of oral hygiene testified to the observance of the standard method of toothbrushing, the correct timing of the use of toothbrushes and the use of anti-caries toothpastes. In the group we observed, an increase in the intensity of caries was not noted. All patients showed positive dynamics in orodontic treatment: the formation of the correct shape of the dentition, elimination of crowding of the front teeth, bad habits and myofunctional disorders of the maxillofacial region, normalization of the tongue. The LM activator has several advantages: individual selection of size and model, cost-effectiveness (low-cost device), ease of use, short visit to the doctor, longer intervals between
visits to the doctor (two months), the laboratory manufacturing step is not required, and does not injure hard tooth tissues, allows correction of dentoalveolar anomalies, myofunctional disorders and functions of the dentofacial system, as well as remineralizing therapy at home.

Clinical case. Patient G., 8 years old. Diagnosis: vestibular position 2.1, 2.2 teeth, oral position 3.2, 4.2 teeth, diastema on the lower jaw, systemic hypoplasia of enamel of permanent teeth. Orthodontic treatment is carried out by an LM activator (low, short model, size 60), remineralizing therapy.

Findings. Given the high prevalence of dentoalveolar anomalies and non-carcious lesions of hard tooth tissues in children in the Republic of Bashkortostan, it is advisable to include an LM activator in early orthodontic treatment, which avoids the use of fixed orthodontic structures at later stages of the formation of the dentofacial system. The presented scheme of complex dental treatment of children with AF in the presence of non-carcious lesions of hard tissues of teeth provides not only the effectiveness of orthodontic treatment, but also a high level of protection of teeth at all its stages.

Bibliography: