



Anomaly of the Upper Jaw in Children When Exposed to Various External Factors

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Abstract: Improving dental health and quality of life by synchronizing with surgical interventions in children born with facial–jaw abnormalities, providing orthodontic care, preventing possible congenital deformities, restoring myofunctional muscle balance is one of the urgent problems of orthodontics.

Large-scale scientific research is being conducted all over the world in order to identify and determine the prospects for early prediction of anomalies and deformations of the dental system in children during orthodontic treatment, as well as to improve the effectiveness of diagnosis, treatment and preventive measures. Scientific research is underway aimed at developing the most thorough approach to the early diagnosis and treatment of dental anomalies, obtaining a stable aesthetic result in the treatment of orthodontic patients and reducing the number of relapses. However, the existing diagnostic methods are insufficient, which creates an urgent need for additional research methods. In this aspect, it is important to develop diagnostic and treatment measures aimed at improving the quality of orthodontic care for children [1.3.5.7.9.11.13.15.17].

The following scientific results have been obtained in the world on the identification of maxillofacial anomalies and deformations in children, early and accurate diagnosis, the creation of effective methods of orthodontic treatment, the development of various orthodontic devices and their introduction into orthodontic practice: identification and comparative study of maxillofacial anomalies and deformations, assessment of their clinical, socio-economic aspects (Tokyo Medical Dental University, Japan); the factors of formation and risks of these pathologies identified in children have been developed, as well as complex methods of their early diagnosis (Federal University of Rio de Janeiro, Brazil); in order to increase the effectiveness of orthodontic treatment of maxillofacial anomalies and deformities in children, studies of a conceptual approach to the development of various orthodontic devices have been conducted (Kenpuk National University, South Korea Korea); A lot of work has been done to reduce the suffering from these pathologies by increasing the effectiveness of prevention and treatment of anomalies and deformities of the maxillofacial region (University of Ferrara, Italy).

Significant changes have taken place in the field of orthodontics in our country in recent years. Previously, removable devices were used in 90% of cases, but now they are used in 16% only for observations. To date, 84% of patients are treated using non-removable orthodontic devices (Shulkina N.M. et al., 2019). Early loss of the first permanent molars in children is a risk factor for the development of deformity of the maxillary system as a result of displacement of the lateral teeth (Nigmatova I.R. et al., 2019).

The period of bite change is carried out during orthodontic treatment using removable and non-removable orthodontic devices. Removable orthodontic devices have a variable effect and are characterized by a regularly occurring resting phase of the jaws, causing oblique rotational movement of the teeth, rather than complete movement, which often leads to the absence of the desired treatment effect or collapse.

According to scientific research by orthodontists in our country and abroad, removable orthodontic devices are large and take up a lot of space in the dentition, as a result of which they worsen diction. In some cases, this can cause allergic reactions to plastic and affect the child's mental state, which requires cooperation with a doctor and parents (Nigmatov R.N. et al., 2018).

In the treatment of OCD in children, it is proposed to use intraoral devices – braces for "bite", fixing the incisors of the upper jaw to the palatine surface. Improving the quality of orthodontic care, the stability of results depends on the early diagnosis and treatment of children with HFA. The results of early treatment are more stable, rarely repeated, which is associated with the development of growing tissues, teething and the development of alveolar barriers during root formation (Khoroshilkina F.Ya., Persin L.S. et al., 2018).

Carrying out preventive measures at an early age allows you to restore the physiological development of the ESR. During the period of temporary teething, the following is carried out: training in the correct pronunciation of sounds in classes with a speech therapist; myogymnastics; oral cavity sanitation; timely restoration or replacement treatment of defective temporary and permanent teeth.

In it, the early diagnosis of ocular deformities and deformities is the basis for choosing a method for correcting orthodontic abnormalities and predicting its development, determining the number of studied indicators in the dental system, diagnosing patients in temporary, mixed and permanent stages of occlusion, planning orthodontic care and evaluating its quality, interpreting and analyzing the basics of determining the effectiveness of modern approaches to treatment methods and prevention [2.4.6.8.10.12.14.16.18.20.22.24.26.28].

Results and analyses. The use of the advantages of PCA in relation to the growth and destruction of teeth in children with abnormal bite allows it to be prevented before extensive deformities occur that are difficult to treat. It is considered promising to create a new method of correcting pathological occlusion during the period of primary teething and tooth replacement in order to restore physiological development in the field of PHS, prevent serious disorders in PHS and restore children's health.

The ratio of the central lateral incisors in the sagittal plane was evaluated based on the Engl classification – the ratio of the first permanent molars was evaluated. In the studied 28% of group III patients with HFA and deformities, the presence of the second class according to Engle was observed as a diagnostic sign of distal occlusion and the clinical form of the defect was determined.

If the mesially protruding tubercle of the first upper molar is located distal to the first transverse tubercle of the antagonist tooth, then the third Engl class is registered as the main diagnostic sign for mesial occlusion of the dentition. However, here the ratio of the front teeth may be disrupted in one, two or three planes. It is shown that the clinical form of mesial occlusion is difficult to establish without X-ray analysis. The telorentgenogram was performed using an X-ray machine from the Korean company HDW WILL. In some cases, the following clinical method helped: the patient was advised to open his mouth a little, then gently close his mouth and at the same time was told to lift the tip of his tongue to the palate, if he managed to fix the incisors in accordance with the principle of proper bite, it was considered as the anterior location of the lower jaw (the "articular" form of mesial occlusion).

The examination of patients begins with an examination of the face and profile of the face, measurement of anthropometric parameters, visual assessment of the bite in the oral cavity, a functional test that allows you to distinguish between true and false mesial bite. The determination of the degree of mesial occlusion, the study of diagnostic models, orthopantomography, assessment

based on the results of lateral telereöntgenography, consultation of a speech therapist and an otorhinolaryngologist were obtained.

Orthodontic devices used for total narrowing of the upper jaw were used in the examined patients with the selection of the patient's age, type and degree of disease, and the place of application of the device.

The orthodontic device consists of a plastic base, an occlusal surface (the area of the chewing teeth), a three-sided expansion screw and its pilots, an Adams clamp for the first molars (two), U-shaped loops connecting the pilot to the base part, loops connecting with an attached face mask to the base, lifting the lips, relaxing the lip muscles [17.19.21.23.25.27.29].

Complaint of an aesthetic defect, an inversion of the bite, a small size of the middle part of the face. The position of the mouth is a complete narrowing of the upper jaw, a false prognathic bite, an inverse sagittal gap of 2 mm is determined. A plan has been drawn up for the use of an orthodontic device with a complete extension of the upper jaw. Using the method of elongation of the upper jaw in the transverse direction by 5 mm in the sagittal direction by 4 mm, the ratio of the jaw to the orthognathic bite was adopted. In sick children, after 3 months, enough space was formed on the upper jaw for permanent teeth to erupt, diastema and tremors formed between the physiological milk teeth.

An orthodontic device used for total narrowing of the upper jaw has been developed and successfully used in children's patients. It has been proven that it has advantages over other analogues.

Its role in the restoration of pronunciation and other functions in children is shown. A biologically safe, medically reliable, cost-effective, socially significant, orthodontically successful device for orthodontic treatment has been developed and recommended in dental practice.

Children with distal occlusion have deocclusion in the area of the front teeth or deep bite of the incisors. Deocclusion of the frontal teeth was observed as a result of vestibular deviation of the upper incisors and retrusion of the lower incisors.

With distal occlusion, due to palatine deviation and overlap of the upper and lower front teeth, a deep bite of the incisors occurs as a result of a change in depth. The narrowing of the upper jaw in the transverse direction leads to a V- and U-shaped dentition, as a result of which the density of curved teeth deviating to the mesial side was determined in the results of the study. The examined patients also had distal occlusion caused by the deviation of the lower first permanent molars to the mesial side, as well as a decrease in the lower dentition.

The degree of development of distal occlusion is determined by the discrepancy between the closure of the lateral segments. If the indicator of violation of the occlusal surfaces of the molars was a change in the sagittal slits, then sagittal deocclusion of the incisors was assessed by severity. Also, an early clinical sign of the development of distal occlusion in children 4-5 years old is the location of the distal surfaces of the second milk molars in a vertical plane.

In patients with mesial occlusion of the dental arch, the mandibular dental arch is shortened and the maxillary dental arch is lengthened. In patients with distal occlusion, after medical procedures, an elongation of the arch of the lower jaw was observed due to the removal of individual teeth in the upper jaw, or after treatment in patients with diastema, tremors, a reduction in the arch of the dentition was observed. In patients with SNA 75.8 - 76.4°, SNB 80.8° - 80.2°, ANB 5.0° - 4.0°, A-NP - 8.8 mm - 8.6 mm, B-NP - 6.5 mm - 6.4 mm, ILS/NL 114.0° - 112.1°, ILI/ML 84.6° - 88.7°, ILS/ ILI 144.1° - 138.6° change was compared with the results after treatment.

The examined patients with distal occlusion had an anterior displacement of the frontal teeth of the upper jaw. Usually, with an orthognathic bite, the teeth of the upper jaw cover about 1/3 of the teeth of the lower jaw. In patients with distal occlusion, a gap forms between the upper and lower teeth. The disproportionately expanded protrusion of the upper jaw, that is, distal occlusion, was determined by a convex or "bird-like" profile. It is noted that the nose and upper lip protrude

forward, the lower lip sinks, the jaw tilts, a disproportionately small, sometimes wrinkled, "second chin" is formed.

Distal occlusion is defined as a patient's complaint that the lips do not close in a relaxed position, and the mouth always opens slightly. Visually reflected in the position of the distal occlusion, it causes the whole body to tilt slightly forward. Patients with distal occlusion were examined for signs of extended neck flexion and ventral separation. In addition to external symptoms, distal occlusion is accompanied by discomfort when swallowing food, chewing, and impaired nasal breathing and speech functions. However, occlusion anomalies usually develop gradually from childhood, so adults adapt more easily and do not feel discomfort.

The factors causing pathological occlusion due to narrowing of the upper jaw depend on the following factors: an unaesthetic appearance of the patient's face, a concave or convex profile, an incorrect smile, the presence of a sagittal opening between the jaws, speech and oral breathing disorders, narrowing of the base of the upper jaw, narrow palate and malocclusion, of course, these types of pathologies require effective treatment methods.

During the examination of children diagnosed with pathological occlusion due to narrowing of the upper jaw by orthodontic examination methods, it was found that the incidence in girls is higher than in boys. According to the results of the study, the bite of class II occupies the first place among the teeth, a large proportion corresponds to the location of the teeth and the bite of class III. With age, there was a change in the structure and clinical characteristics of HPV, as well as prevalence rates. Thus, the frequency of abnormalities at the age of 3 years is 39.4%, among which a large number (90.6%) have malocclusion, and 40% are associated with various functional disorders (speech, swallowing, breathing, chewing). By the age of 6-7, the frequency of abnormalities increases to 67.1%, and the frequency of functional disorders to 54.6%. The increase in the frequency of HR occurred due to a decrease in the percentage of occlusal abnormalities and an increase in the percentage of dentition abnormalities. The frequency of PH remains high during the period of mixed bite and decreases only towards the end of the formation of a permanent bite.

Diagnosed with anomalies and deformities of the maxillofacial apparatus were examined on the basis of anomalies of individual teeth, anomalies of the dentition, anomalies of the position of the dentition, anomalies of the shape of the dentition and malocclusion, and patients were treated with removable and non-removable orthodontic devices. Patients undergoing treatment were able to improve oral hygiene and eliminate dental defects. The last stage of treatment of anomalies and deformations of the dental system is the retention period. This is one of the orthodontic treatment methods, which is carried out in order to consolidate the results obtained after the end of the period of active orthodontic treatment. The retention period is divided into different proportions depending on the time of active treatment. The duration of retention treatment is reduced from 1/4 to 1/2. Retention period is not required after functional orthodontic devices.

Conclusion. In the treatment of pathological bites caused by narrowing of the upper jaw in the studied child patients, advanced orthodontic devices were used that simultaneously provided the extension of the upper jaw in three directions, simultaneously extended in two directions and were exposed to tense muscles, the upper jaw was used in cases where the central fragment was pushed forward and expanded. In such patients, two lateral fragments allowed the anterior fragment to be pushed forward and elongated in the sagittal direction due to narrowing in the transversal direction, pushing the same fragment distally, as a result of which the elongated alveolar arch became intrusive. The interference with the close fusion of the upper jaw and nasal bones, development, and performance of functions decreased, and on the basis of this, it was possible to improve the early diagnosis of AF.

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