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Features of the Maxillofacial Region in Patients With Physiological Occlusion and Patients With Distal Occlusion

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Relevance of the study. Distal occlusion (DO) refers to the pathology of the maxillofacial region in the sagittal plane and occupies a leading place among dental anomalies. The anomaly is very common (22-77%) and is growing every year. In children and adolescents, distal occlusion reaches 37.3-70.0% of the total number of patients seeking orthodontic care, and has frequent recurrences. According to Averyanov S.V., Zubareva A.V. (2016), the most common dental anomaly is distal occlusion, which accounts for 37.3-65.0% in children. The authors themselves identified this pathology in 49.31%. Biryukova A.S. (2005) notes that distal occlusion of all the anomalies of the maxillofacial region is 54.4%. Studies confirm that distal occlusion in adolescents is characterized by a variety, as a result of which various methods of treatment with removable and non-removable orthodontic devices are proposed. The problems of adolescence are the simultaneous hyperactive restructuring of the child's somatics and psyche. Adolescence is considered to be the period from 12 to 18 years. In the orthodontics clinic, one of the urgent problems remains the clinical justification for the treatment of distal occlusion in adolescents. Many issues related to indications for the treatment of adolescents with distal occlusion remain unresolved and often controversial. This issue has received considerable attention in the world literature, but there is no consensus on the magnitude of the displacement of the lower jaw, depending on the structural features of the maxillofacial region and the severity of the pathology. Often, in the orthodontic treatment of adolescents with distal occlusion in identical situations, including the presence of the same sagittal gap in the anterior dentition, as well as using the same treatment methods, the results were different. In some patients, treatment ended in a short time, in others, even long-term treatment led to relapses. In modern conditions, the changes occurring in the temporomandibular joints (TMJ) Orthodontic treatment methods play an important role in the formation of a permanent bite in the dynamics of dental arches. There is no data on the magnitude of the forward displacement of the lower jaw, taking into account gnatic and dental types of the face.

Distal occlusion belongs to the II class of occlusion anomalies. The author identifies 2 subclasses: Division 1 - with a fan-shaped vestibular tilt of the front teeth with the presence or absence of three; there is a sagittal gap from a few millimeters to one and a half centimeters and, as a rule, with a deep incisor overlap; division 2 is characterized by a retraction of the incisors of both jaws, as a rule, there is no sagittal gap and the height of the gnathic region of the face is reduced. The dental alveolar shape is characteristic when there are violations of the position of individual teeth or groups of teeth, as well as when the configuration of the alveolar ridges of the jaws is deformed. The gnatic form occurs due to underdevelopment or excessive development of the jaws and is manifested by a pronounced bulge of the face. The mixed form is characterized by a combination of dental alveolar and gnatic forms of distal occlusion. There are 9 types of distal occlusion, depending on the change in the shape and size of the jaws, as well as the size and inclination of the front teeth of both jaws. Persin L.S. (2015) proposed 4 classes of distal occlusion: class 1 - with excessive development of the upper jaw; class 2 is characterized by distal displacement of the lower jaw; class 3 - with narrowing of the dentition in the lateral jaw and deep incisor overlap; class 4 - distal occlusion, which combines anomalies of the teeth and jaws. In modern dentistry, a violation of the ratio of dentition is a fairly common pathology of the maxillofacial region. In children and adolescents, distal occlusion reaches 37.3-70.0% of the total number of patients seeking orthodontic care, and has frequent recurrences. Distal displacement of the mandible occurs with skeletal inconsistencies that lead to a change in the position of the lower and middle parts of the face. Skeletal forms of distal occlusion account for about 40% of all occlusion anomalies, and 45-65% of cases of gnatic species are mandibular micro- and retrognathia. The

appearance of patients with distal occlusion has similar outlines. This is reflected in morphological and functional changes in the maxillofacial region, as well as in psychosomatic changes. With distal occlusion, breathing, chewing, swallowing, and sound formation disorders may occur, as well as functional postural disorders that need specialized correlation. The condition of the muscles and posture depend on the vertical position of the body, which varies in patients with distal occlusion and depends on the center of gravity of the head, the position of the shoulder girdle, hips, knee joints and feet.

The need to determine the functional and morphological features of the maxillofacial region is usually determined by the methods of orthopedic and orthodontic treatment. Changes in occlusal relationships occur at all ages and are caused by a wide variety of reasons. Distal occlusion can lead to a decrease in the gnatic height of the face of varying intensity. It is believed that UP occurs due to the different direction of growth of the mandible "with centers of rotation in the premolar region or the heads of the mandible clockwise." If, when the lower jaw rotates around the conditional center located in the area of the head of the lower jaw, the anterior height of the face decreases, then when the lower jaw rotates around the conditional center located in the premolar region, the height of the anterior part of the face decreases and at the same time the posterior height of the face increases. Distal occlusion comes in three forms: gnatic, dentoalveolar, and mixed. The gnatic form of distal occlusion occurs in patients with a distal position of the mandible or its underdevelopment. The anterior position of the upper jaw may be affected. The main cause of DO is related to the distal position of the lower jaw, and excessive development of the upper jaw is much less common. With distal occlusion and narrowing of the dental arches, a Gothic palate and an increase in the palatine arch to 12.3% of the norm are often observed.

Conclusion. In patients with distal occlusion, distal displacement of the apical base on both jaws was observed in 39.24% of cases. In 21.52% of cases with distal occlusion, the distal location of the apical bases of the lower jaw was noted with the normal position of the apical bases of the upper jaw. It is noted that the posterior position of the lower jaw was observed in 100% of cases when examining 37 patients with pre aged 12-15 years. The degree of incisor overlap depends on the mesial-distal diameters of the teeth of both jaws, the shape of the crowns of the teeth, the configuration of the Spee curve, the inclination of the front teeth of the jaws and the magnitude of the incisor angle.

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