IJACT, Volume 2, Issue 5, 2024 ISSN: 2995-5378
http://medicaljournals.eu/index.php/IJACT

INTERNATIONAL JOURNAL OF ALTERNATIVE AND CONTEMPORARY THERAPY

Anthropometric Examination of Deep Scapular Coverage in Children

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Annotation. Disocclusion of the frontal teeth is an anomaly in the vertical direction of the jaws. The reasons for the development of disocclusion of the frontal teeth can be different: the inflammatory process and, as a result, the violation of bone growth, a decrease in the function of chewing or one-sided chewing, a violation of the period and sequence of teeth eruption, the lack of crowns of milk teeth, a violation of breathing through the nose, improper swallowing; general diseases associated with calcium metabolism disorders; congenital cleft palate, trauma complications and myodynamic imbalance. Common factors in the development of disocclusion of frontal teeth: disturbances in the musculoskeletal system and dysplastic diseases can be the cause.

Keywords: frontal teeth disocclusion, examination, level of encounter

Introduction

Disocclusion of the frontal teeth is an anomaly in the vertical direction of the jaws. It is caused by the mismatch of transversal size and shape of the dentition [1, 17] . In the scientific literature use different terms for characterizing cross-bite: oblique, lateral, buccal, vestibular, and buccal-lingvoocclusion, lateral forced bite, cross-bite articular, laterognatia, laterogeny, laterodeviation, laterodisgnatia, lateroposition, exo- and endoocclusion [2, 12, 14]. Cross occlusion is one- and two-sided. In the occurrence of cross-occlusion can be blamed as one dentition (upper or lower), and both dentition, as well as the jaw bones. Clinically, this form is manifested by the following facial signs: facial asymmetry, which depends on the shape and severity of the anomaly, one- or two-sided impairment, the degree and extent of the interruption of the dentition, the dental alveolar or skeletal anomaly; violation of the configuration of the face, the displacement of the chin in the direction of the lips and chin obliquity [4, 10, 11].

In palatoccluses, palatine hillocks of the upper posterior teeth are projected when orally closing from the longitudinal fissures of the same lower teeth as a result of a decrease in the transverse dimensions of the upper dentition. At the same time, during the closing, the palatal hillocks of the posterior teeth of the upper jaw are not in contact with the longitudinal fissures of the lower posterior teeth, but with their lingual tubercles and, when the anomaly is pronounced, they can remain without contact [5, 8, 10, 15].

Lingvo-occlusion, formed by narrowing the lower dentition, is characterized by the fact that the palatal tubercles of the upper posterior teeth are projected when they are closed in the cheek side from the longitudinal fissures of the lower teeth of the same name and come into contact with the cheek tubercles of the premolar and molars of the mandible [7, 11, 14. 16].

Vestibular occlusion is formed as a result of an increase in the size of the upper and lower dentitions in the transverse direction. The vestibular occlusion can also be one- and two-sided. When vestibular occlusion, formed by increasing the transverse size of the lower dentition, there is a

significant overlap of the upper posterior teeth of the lower. Late diagnosis of cross-bite increases the duration of treatment of pathology, as well as the social adaptation of the child[3, 6, 8, 9].

Materials and methods. As a result of orthodontic examinations, the prevalence of dental-anomalies was studied, namely the frequency of occurrence of cross-bite among patients aged 12 to 14 ears. A total of 150 people were examined, who sought specialist advice, out of a total of 20 adolescents, a cross bite of various forms and severity was revealed.

Orthodontic diagnosis is preceded by a complete clinical, functional and instrumental examination. During the examination, patients were conducted clinical, radiological and functional diagnostic methods.

Clinical examination methods. Complaints were collected, anamnesis was collected, a general examination, an examination of the face and oral cavity, and palpation of the temporomandibular joint when lowering and raising the lower jaw.

Additional examination methods. To measure the size of the teeth, the width of the dentition and the apical bases (according to the methods of Pon, Linder-Hart, NG Snagina), the study of the head TRG in a direct projection.

Biometric methods for studying models of the jaws make it possible to determine the topography and severity of morphological abnormalities in anomalies of the development of the jaws and dentitions, help to make the correct diagnosis and substantiate the optimal treatment plan for the patient. Measurements of models of the jaws are based on the existence of regularities in the relationship between the sizes of teeth on the one hand and the sizes of dentitions, apical bases on the other [4].

Functional tests were also applied. Clinical functional tests give an idea of the direction of displacement of the lower jaw and its causes, impaired dentition closure, changes in TRG, the size of the interocclusal space in the region of the posterior teeth, differences in the voltage of the masticatory muscles on the left and right, and the asymmetry of the facial skeleton. Our patients were carried out functional test by Ilina-Markosyan [5]:

1. When examining a patient, the position of the lower jaw was assessed at rest and during a conversation, which made it possible to identify facial bite anomalies.

2. Patients were asked to close the rows of teeth without opening their lips. With anomalies caused by the displacement of the mandible, the facial signs of the violation became more pronounced, respectively offsets. Sagittal abnormalities were recorded by changing the profile of the face, horizontal - by changes in its face.

3. Patients were asked to open their mouth wide. With cross-bite with displacement of the lower jaw, due to pathology of the temporomandibular joint or its size, the asymmetry of the face increased. In cases where there was a “habitual” displacement of the jaw, the asymmetry was eliminated. The displacement of the midline between the incisors in the upper jaw was evaluated in relation to the mid-sagittal plane of the face, and in the lower jaw in relation to the center of the upper dental arch.

Results and discussion. As a result of the examination, 20 cases of cross bite of various forms were identified, of which 8 were boys and 12 girls. It was established vestibular occlusion in 4 patients, lingual occlusion in 13 patients and palate occlusion in 3 patients.

Table number 1. Distribution of adolescents by gender and age

Age	12 ears	13 ears	14 ears
Boys	4	2	2
Girls	5	3	4

A survey of some patients revealed complaints of pain in the temporomandibular joint (TMJ), due to a decrease in the number of occlusal contacts, the chewing function, chewing of the cheek mucosa, abnormal speech articulation (dyslalia) were disturbed, and patients also noted the appearance of crunch and pain when opening the mouth .

During the clinical examination, asymmetry of the face was revealed, therefore, a violation of the face aesthetics, while the patient's chin is shifted to the side, the upper lip on the same side sinks, the opposite side of the lower part of the face is flattened. On examination of the oral cavity, the dilation of the 4 and narrowing of the dentition in 16 patients, displacement of the mandible, impaired contact of the posterior teeth, intersection of the dentition when the jaws were closed, misalignment of the labia of the lower and upper lips and the midline of the dentition relative to the midline of the face decreased lower third of the face, pronounced chin fold. When viewed in 2 patients, a blockage of the mandible was noted - a dysfunction of the TMJ develops; further high risk of deforming arthrosis of the TMJ. As a result of the uneven distribution of chewing pressure in almost 100% of patients, development of lesions of periodontal tissues — periodontitis of mild and moderate severity — is observed.

After the collection of complaints and clinical examination were conducted biometric studies. To determine the width of the dental arches, the Pond method was used, which established the relationship between the sum of the width of the crowns of the upper four incisors and the width of the dentitions in the area of premolars and molars. The teeth are marked with dots: on the upper 4th middle of the inter-tubercular fissure, on the upper 6th anterior depression of the interbugular fissure, on the lower 4th most distant point of the slope of the buccal tuber, on the lower 6th apex of the posterior or middle buccal hill. Then, the obtained data were compared with the average individual norm (according to Linden - Hart) taking into account the shape of the face, determining the degree of narrowing of the dentition, symmetrical or asymmetric narrowing.

Biometrics - Pon's method (narrowing in the area of premolars in the upper jaw by 7.2 + 1.5 mm, at the lower one - 8.3 + 1.1 mm; narrowing in the area of the molars, respectively, by 9.9 + 1.2 mm and 9 , 2 + 0.81 mm), Bolton (discrepancy between the size of the incisors and canines of the upper jaw with the sizes of the corresponding teeth on the lower jaw), Tonn (index 1.26), N.G. Snagina (narrowing of the apical base of the lower jaw 2 degrees in 9, 1 degree in 11), offset of the midline of the lower dentition, its mismatch with the middle line of the upper dentition by 3 + 1.2 mm, sagittal slit - 3 + 2.2 mm , the overlap of the lower incisors with the upper more than 2⁄3 of the height.

To substantiate the diagnosis, teleroentgenography (TRG) of the head was performed in a direct projection. The TRG was decoded using the R.M.Ricketts method. The following indicators were revealed: the distance between the upper and lower molars from the right and the left (1.3 + 0.9 mm), the lower intermolar width (50.0 mm), the lower interfangular width (24.3 + 0.2 mm), the position of the middle line (1.0 + 0 3 mm). The interposition of the lower first pattern and the J-Ag line (15.3 + 0.5 mm), the middle lines of the dentition and jaws (0.4 + 0.15 mm) and the position of the occlusal plane (0.8 + 0.21 mm).

Consultations of specialists from related specialties were recommended for the planning of a comprehensive individual treatment - a therapist, the need is the presence of carious teeth; the surgeon, the need for a history of pain in the temporomandibular joint; orthopedist, necessity - identification of secondary edentulous in 2 patients; periodontist, the need - almost 100% of patients noted the development of damage to periodontal tissues - gingivitis, periodontitis mild and moderate severity.

Conclusions.

1. In the process of diagnosing patients, it was found that in most cases the cause of the development of transversal anomalies was a violation of the sequence of eruption of lateral (premolars, molars) teeth. The prevalence rate among adolescents aged 12-14 ears is higher.

2. When making a reliable diagnosis of anomaly, its form and severity, planning appropriate treatment, teleroentgenography takes an important place.

3. Joint diagnostic examination and treatment planning with doctors of other specialities, dynamic monitoring of the patient's condition allow approaching the patient's treatment more individually and comprehensively.

4. It is advisable to identify and eliminate diseases and anomalies of the teeth in children: this contributes to the correct formation of dental arches, preventing the formation of cross bite, asymmetry of the facial skeleton, periodontal pathology and temporomandibular joint.

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