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To Study the Morphological State of the Dental System in Children and Adolescents with Retention of Canines

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Abstract: One of the most common problems of modern dentistry is the identification, identification and treatment of patients with permanent teeth that did not erupt at the time. The absence of a tooth in the dentition leads to a violation of the psychological and social adaptation of the individual and this is primarily due to morphological, functional and aesthetic changes.

Many authors have studied the frequency of occurrence of permanent teeth that did not erupt at the time in children and adolescents: Zhigurt Yu.I. (1994, 1997), Stepanov G.V. (2000, 2006, 2011), Shuk Mazen (2004), Khoroshilkina F.Ya. (2006), Vakushina E.A. (2007), Rabukhina N..A. (2007), Darendeliler M. (1994) and others.

Khoroshilkina F.Ya., Zhigurt Yu.I., 1997 revealed that tooth retention is a fairly common anomaly in the development of the dental system: for 100 children who have sought orthodontic care, 15-20 have malocclusion complicated by the retention of one or more teeth. Other researchers Korsak A.K., and co-authors in 1999, Ginali N.V., and co-authors in 2010 identified the most common retention of canines - 51, 1% among the retarded complete teeth.

According to Kim K. and Ruprecht A., in 2003, retention of individual teeth was diagnosed accidentally as a result of a dental examination of the patient, as it proceeds asymptomatically and painlessly.

The clinical examination was carried out according to the generally accepted method. When interviewing patients and their parents, they found out: the course of pregnancy and childbirth, diseases suffered by the mother, the nature of feeding the child, the presence of rickets in the first months of the baby's life. We found out the timing of eruption of milk and permanent teeth and their symmetry during the change, the presence of injuries, operations, general somatic diseases. Special attention was paid to the detection of endocrine pathology.

A removable and permanent bite was determined by examining the oral cavity of the subjects. 18.8% of the subjects had a removable bite, and 81.2% had a permanent bite. Assessing examined the condition of the oral mucosa, whether there is hyperemia, swelling at the site of the retented tooth, its shape, the state of the alveolar process, the shape of the teeth, the ratio of the dentition and dental closure with antagonists [1.3.5.7.9.11.13.15].

Anthropometric research methods. Biometric studies of plaster models of jaws. In the study of diagnostic models of jaws, the methods of Pona - Linder - Hart and Korkhouse were applied. Biometric methods of studying jaw models made it possible to determine the topography and severity of morphological disorders with anomalies in the development of the jaws and dentition, helped to make the correct diagnosis and justify the optimal treatment plan for the patient.

The Pon - Linder – Hart method

The method was used to determine the width of the dentition in children with a removable and permanent bite. Pont established the existence of a relationship between the sum of the mesiodistal dimensions of the incisors and the width of the dentition in the area of the first premolars and molars, which he expressed by premolar and molar indices: 80 and 64.

Measuring points on the upper jaw are: the middle of the longitudinal fissures of the first premolars and the anterior intersection point of the longitudinal and transverse fissures of the first molars.

Measuring points on the mandible are the distal point of the first premolar, in contact with the second premolar (the point between the premolars), and the median point on the vestibular surface or distal-buccal tubercle of the first molar. These measuring points, according to Pona, were used with a constant bite. We used these measuring parameters for the first time on the data obtained from 3D computed tomography.

In the replacement bite, instead of measuring points of premolars, distal dimples of the first temporary molars on the upper jaw or their distal-buccal tubercles on the lower jaw were taken. In cases where not all upper incisors were cut (or missing), the sum of their widths was determined by the sum of the transverse dimensions of the lower incisors, using the Tone index (1.35), according to which the sum of the widths of the upper incisors refers to the sum of the lower ones as 4/3. For practical purposes, Pon compiled a table of distances between premolars and molars at different widths four upper incisors. For the lower jaw, the sum of the transverse dimensions of the four incisors and the corresponding distances between the premolars and molars were taken from the table of the upper jaw.

German orthodontists Linder and Hart checked the data on the model and found that it could not be used in the examination of German children due to the influence of racial characteristics. N. G. Snagina came to a similar conclusion when examining children of Russian nationality, therefore, these authors suggest using coefficients 85 and 65 instead of the coefficients 80 and 64 proposed by Pon.

The preparation of a treatment plan for patients with retention of canines was carried out taking into account the patient's age, the period of formation of the dental-maxillary system. Treatment is carried out using a combined technique: surgical and orthodontic. Surgical treatment included: removal of a baby tooth (canine) according to indications, removal of the first premolar (according to indications), and removal of an overcomplete tooth, odontomas, exposure of the crown of a retentive canine with the fixation of a lock or an orthodontic button. The orthodontic stage included the manufacture of a device or apparatus for supporting the extension of a retentive canine with fixation on several teeth, one dentition, two dentitions. At the same time, the stage of orthodontic treatment in most cases preceded the surgical one.

The only goal was to identify patients with the presence of retinated one or more canines on the basis of a preventive examination of the oral cavity of students in schools in the city of Bukhara. Statistical analysis of the review literature indicated a large percentage of one canine tooth retinated. Retention was mainly observed on the upper jaw. It was found that the data of our observations coincide with the data obtained during the analysis of the obtained material and the data of the literature.

For successful treatment and full-fledged output of a retinned tooth, it is necessary to thoroughly take into account the age factor and the position of the retinned tooth. In conditions of occurrence of a retented tooth above level 2 and the angle of inclination of the tooth is more than 120 degrees, complications in the form of resorption of the surrounding bone tissue, the roots of neighboring teeth and the retented tooth itself are observed during combined treatment [2.4.6.8.10.12.14.16].

It was found that with an increase in the patient's age, the development of the retinated tooth itself occurs, i.e. the formation of its root, and the older the patient, the angle of inclination of the retinated tooth increases. It follows that the treatment of retenated and dystopian canines is combined, includes surgical and orthodontic stages.

The main purpose of this work is a method for determining the width of the dentition and measuring the length of the anterior segment of the upper dental arch during orthodontic retraction according to

3 D computed tomography. Using this method, the orthodontist quickly and accurately obtains the results necessary for diagnosis, bypassing such a procedure as taking casts and filling the model. Plans the orthodontic stage of treatment by changing the width of the dentition or the length of the anterior segment of the upper dental arch in children during orthodontic retraction of the retentive canine, this in turn eliminates the risk of complications during the orthodontic stage of treatment.

Conclusions

1. Orthodontic treatment (30%), the presence of overcomplicated teeth (20%), in 2% of cases, the cause could not be determined. Some patients had two or more reasons. The data of our observations coincide with the data obtained during the analysis of archival material and literature data. All of the above factors indicate the need for preventive and curative measures that provide conditions for normal and timely eruption of complete teeth.
2. The retention of canines is most often detected in boys aged 12-16 years, with predominantly unilateral lesion and localization on the upper jaw.
3. When diagnosing and preparing for the surgical stage of treatment, the most informative method with a low radiation load is orthopantomography and 3 D computed tomography. The latter is used both for diagnosis and for predicting the results of treatment of a retentive tooth.
4. With combined treatment, complications are observed in the form of resorption of the surrounding bone tissue, the roots of neighboring teeth and the retented tooth itself, provided that the occurrence of the retented tooth is above level 2 and the angle of inclination of the tooth is more than 120 degrees.

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