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Research Article

PREVALENCE OF DENTAL ANOMALIES OF CLASS II, SUBCLASS 2 IN CHILDREN DURING THE PERIOD OF MIXED DENTITION

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ABSTRACT

Distal malocclusion is the only type of malocclusion that requires urgent treatment as soon as possible before maxillary discrepancy occurs. The incidence in the population varies around 45%, depending on age, racial group and types of distal malocclusion studied. We studied the frequency of occurrence of distal occlusion and its varieties among 20 children and adolescents with dental anomalies aged 6-13 years. Determining the types of such a complex anomaly as distal occlusion allows for more thorough treatment planning and positive, lasting results.

KEYWORDS

Anomaly, distal occlusion, frequency of occurrence, transversal displacement of the lower jaw, diagnosis.

INTRODUCTION

Depending on how severe the problem is, malocclusion, which can involve misalignment of teeth, jaws, or a combination of both, can damage a person's overall facial aesthetics. The maxillary molar develops before the mandibular molar in class II malocclusion, which affects 15% of the population. [1,12]

About 32% of people with malocclusion are classified as Class II. A Class II molar relationship is when the mandible is positioned retrognathically to the maxilla. Class II inter-alveolar relations are divided into two divisions. Class II, Division 1 is when the maxillary incisors protrude forward with excessive protrusion and a deep overbite. The maxillary arch is often V-shaped, narrow at the canine teeth and wide between the molar areas.

Patients with a class II, 1st division molar relationship have a shorter upper lip and often cannot close the anterior lip. Class II, Division 2 is when the maxillary central incisors are tilted palatally and may be overlapped by the maxillary lateral incisors. A deep bite

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and a wide maxillary arch define class II, division II. There is normal sealing of the upper lip and a deep mental groove. Unlike the first section, the second section has a normal-sized lower jaw. [2,7]

J. Taiba's study shows orthodontic treatment using clear aligners in a patient with a class II malocclusion associated with a deep bite. The use of aligners along with appropriate accessories and attachments is an effective method of solving orthodontic problems, such as class II, complicated by deep bites, in a reasonable time. In addition, clear aligners provide less pain, better oral hygiene, and greater esthetics comparable to those of conventional fixed orthodontic appliances.[3,6,14]

Am J Orthod, Forsus and MARA, in combination with fixed appliances, have been shown to effectively correct class II malocclusions, mainly due to dentoalveolar changes and limitation of maxillary growth. [4,8,15]

Study group	Age		Gender	
Patients with prognathic **bite**	6-9	9-13	Boys	Girls
	4	16	**10**	**10**
Total	**20**			

Table 1. Distribution of patients by gender and age

Purpose of the study: Determination of the prevalence of dental anomalies of class II, subclass 2 in children during the period of mixed dentition.

MATERIAL AND METHODS

Between 2022 and 2023 A preventive examination was carried out on 20 children and adolescents of both sexes aged 6 to 13 years with various anomalies of occlusion on the basis of the Tashkent Medical Academy. To determine the types of occlusion, the classifications of Uzhumetskene I.I. were used. (1967) and Ilina-Markosyan L.V. (1974). For all patients with class II occlusion anomalies, examination cards were filled out, the results of the clinical examination and additional research methods performed were entered into them. Based on the data obtained, selection was made from the general group of patients into the study group of patients with distal occlusion without malocclusion in other planes and combined with anomalies in the vertical and/or transversal plane. Diagnosis of distal occlusion was based on data from anamnesis, clinical examination, anthropometry of the face and oral cavity, examination of the temporomandibular joint (TMJ), and biometric

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examination of jaw models. To determine the degree of aesthetic disorders and those combined with anomalies in the vertical and/or transversal plane, facial anthropometry was used using the "Set of devices for facial anthropometry". Some children, according to indications, underwent an X-ray examination of the jaws: orthopantomography (OPTG), teleradiography (TRG) in frontal and lateral projections, computed tomography of the temporomandibular joint (CT TMJ).

The results obtained were processed using descriptive statistics methods in the Excel computer program (Microsoft Software, USA). To diagnose distal occlusion, an X-ray examination of the patient's head in a posterior-anterior position, analysis of pantomorphic films, and measurement of the model were used.

RESULTS AND DISCUSSION

As a result of the study of 20 clinical case histories, patients were divided into 2 main groups according to the type of bite pathology:

Distal bite:

1. Distal bite, without malocclusion in other planes (in 9 patients).

2. Distal bite, combined with anomalies in the vertical and/or transversal plane (in 11 patients).

- Distal bite combined with deep bite (in 8 patients).
- Distal bite combined with open bite (in 3 patients).
- Distal bite combined with crossbite (not detected).

Table 2. Prevalence of types of distal occlusion

Type of distal bite	Quantity patients	Frequency occurrence (%)
stal bite without malocclusion in other planes	9	45
tal bite combined with deep bite	8	40
tal bite combined with open bite	3	15
Distal bite in combination with cross bite	0	0
Total:	20	100

Thus, the most common malocclusion was distal occlusion without anomaly in other planes (45%), occurring in almost half of the patients whose medical histories were taken for the study; the remaining types of distal occlusion accounted for a total of 55%. Most often, distal bite is combined with deep bite (40%). The

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combination of a distal bite with an open bite is not common (15%), among the studied case histories, none with a combination of a distal and cross bite were identified.

Table 3. Statistical processing of research results using the SPSSv22.0 for Windowsprogram.

When collecting anamnestic data, bad habits prevailed in all patients (biting the lower lip, thumb sucking, etc.), which to a certain extent contributed to the occurrence of distal bite.

In 4 (20%) people a genetic predisposition to this dental anomaly was discovered, i.e. distal occlusion was found in the father or mother, or in close relatives. All patients exhibited the most characteristic facial signs of distal occlusion, namely: a convex facial profile, a backward sloping chin, and a protruding upper lip. A pronounced supramental fold and shortened lower part of the face, as well as a symptom of cheek suction during swallowing, were found in 8 (40%) patients, indicating a combination of distal and deep occlusion. And in the other 3 (15%) patients, on the contrary, there was smoothing of the supramental fold and lengthening of the lower part of the face with the presence of a "thimble" symptom when swallowing, which indicated a combination of a distal bite with an open bite.

We also paid attention to the size of the sagittal gap, which was more pronounced with protrusion of the upper frontal teeth and averaged within 10 mm, which was observed in 18 (90%) patients, and in the other 2 (20%) - the frontal teeth were in retrusion, their sagittal gap was no more than 4-6 mm. The amount of incisal overlap was also determined. Thus, in 8 (40%) patients there was a deep incisal overlap; the lower incisors were in contact with the mucous membrane of the palate, and in the other 3 (15%) patients, in addition to the sagittal one, there was also a vertical gap, which

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varied from 4 mm to 10 mm and indicated complication of distal occlusion with open bite.

CONCLUSION

Thus, the analysis of the data obtained among the examined children and adolescents revealed that a significant proportion of children (45%) have a pathology of the dental system in the form of distal occlusion without anomalies in other planes. Distal malocclusion has long-term consequences for dental growth and development. This broadly justifies the need for early treatment to normalize the occlusion and create conditions for normal jaw development. For successful treatment and stability, accurate diagnosis is necessary. In our opinion, if there are complications in a child with distal occlusion, it is important to detail the existing disorders of the maxillofacial area. Carrying out additional research methods first of all allows you to correctly plan treatment, save time and money in cases where they are not necessary.

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