Incidence and Frequency of Cross Occlusion in Children and Teenagers

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Abstract. To determine the variety and frequency of occurrence of cross-occlusion in children and adolescents in Tashkent. Material and methods: From 2020 to 2022 On the basis of the orthodontic department of the Tashkent State Dental Institute, a preventive examination of 507 children and adolescents of both sexes aged 6 to 16 years with various anomalies of occlusion was carried out. Results: 54 (10.65±1.09%) examined had a pathology of the dentition in the form of cross occlusion. Accurate diagnosis is essential for successful treatment and stability. In our opinion, in the presence of complications in a child with cross occlusion, it is important to detail the existing disorders of the maxillofacial region. Conclusions: Determining the varieties of such a complex anomaly as cross-occlusion allows for more careful planning of treatment and obtaining positive stable results.

Key words: anomaly, cross occlusion, frequency of occurrence, transverse displacement of the mandible, diagnosis.

Relevance of the problem: T.M. Graber (1994) defined cross occlusion as a condition in which one or several teeth may be abnormal incorrectly located: buccal, lingually or labially in relation to the opposite tooth or teeth. One or several upper teeth biting with the inside of the lower teeth, characterize crossbite.

Crossbite can occur in anterior or lateral parts of the dentition. Crossbite is an occlusal a disorder in which the lower tooth occupies more buccal position than the upper antagonist tooth, or vice versa. Prevalence cross occlusion, according to foreign authors, somewhat different from data from domestic authors. Yes, L. Sonnesen, M. Bakke (2007) cross-section occlusion was found in 8-17% of the population; S.E.Bishara (2001) found this anomaly in 8-24% of the population.

The most common form cross occlusion is unilateral cross occlusion. Among persons with cross occlusion functional shift of the lower jaw towards the causal side occurs in 78-96%. Such complicated forms in milk occlusion account for 8.6%, during the change period teeth – 7.9%. Transversal frequency anomalies among all dental anomalies is 6.29%. According to F.V. Gizzatulina (2014), partial (lateral) cross occlusion among children with occlusion anomalies aged 5-18 years amounted to 10.8%. Among 760 examined children aged 5-18 years cross occlusion occurs in 10.8±1.13%. Wherein the most common was one- or bilateral palatine occlusion observed in 84.4±0.2%, unilateral or bilateral linguoocclusion – in 2.6±0.5% of children from 5 to 18 years.
According to F.F. Mannonova (2014), prevalence of unilateral cross occlusion of the dentition increases with age: 8.2% – during baby teeth; 29.1% – during the shift period teeth; 36.8% - during the period of permanent teeth.

**Purpose of the study:**

Determination of variety and frequency incidence of cross-occlusion in children and teenagers in Tashkent.

**Material and methods:**

During the period from 2020 to 2022, on the base orthodontic department of Tashkent state dental the institute carried out preventive examination of 507 children and adolescents of both gender between the ages of 6 and 16 years with different anomalies of occlusion. For determining types of occlusion used classification of I.I. Uzhumetskene (1967) and L.V.Ilyina-Markosyan (1974). For all patients with transversal anomalies of occlusion filled out survey cards in which entered the results of the clinical examination and additional research methods. On based on the data obtained was carried out selection from the general group of patients into a group patients with cross-occlusion with displacement of the lower jaw in the transversal direction and without lateral displacement. Diagnosis of cross occlusion was based on anamnesis data and results of clinical examination, anthropometry of the face and oral cavity, studies of temporomandibular joint (TMJ), biometric research of jaw models. For determining the degree of aesthetic violations and displacement of the lower jaw in the transversal side was used facial anthropometry using "A set of devices for facial anthropometry."

Some children were given X-ray examination of the jaws: orthopantomography (OPTG), teleradiography (TRG) in frontal and lateral projections, computed tomography of the temporalmandibular joint (CT of the TMJ).

The results obtained were processed using methods descriptive statistics in computer science Excel program (Microsoft Software, USA).

**Results and discussion:**

Among the examined 507 children and teenagers aged 6 to 16 years crossbite was detected in 54(10.65±1.13%), of which 38 (7.5±0.99%) were girls and 16 (3.15±0.67%) boys, which is consistent with data from other authors. Complications in the form displacement of the lower jaw in the transversal direction were identified in 50 (9.86±1.08%) examined (figure).
During clinical examination of the oral cavity in 50 children several forms were identified cross occlusion with displacement of the lower jaws: unilateral palatine occlusion was observed in 32 (64.0 ± 5.37%), bilateral palatine occlusion – in 10 (20.0 ± 4.64%), unilateral vestibulocclusion of the upper jaws – 1 (2.0 ± 0.022%), unilateral vestibulocclusion of the lower jaw – in 5 (10.0 ± 0.125%), unilateral linguoocclusion – in 2 (4.0 ± 0.08%) (Table 1).

Table 1 Types of cross occlusion

<table>
<thead>
<tr>
<th>Without offsets bottom jaws, n=4</th>
<th>Cross occlusion among children 6-16 years old, n=54</th>
<th>Palatino-occlusion, n=42</th>
<th>Vestibulocclusion, n=6</th>
<th>Linguoocclusion, n=2</th>
<th>Total, n=54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral, n=32</td>
<td>Lower jaw</td>
<td>One-sided, n=1</td>
<td>Two-sided, n=5</td>
<td>One-sided, n=2</td>
<td>Two-sided, n=2</td>
</tr>
<tr>
<td>7.4%</td>
<td>Upper jaw</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>64%</td>
<td></td>
<td></td>
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<tr>
<td>20%</td>
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<tr>
<td>2%</td>
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</table>

Cross occlusion rate in the transversal direction during the period primary malocclusion was detected in 6 (11.1 ± 3.14%) examined; during the period of teeth change – in 40 (80.0 ± 4.85%); during the period of permanent dentition teeth – in 8 (14.8 ± 3.34%), which is consistent with data from other authors (Table 2).

Table 2 Changes in occlusion

<table>
<thead>
<tr>
<th>Gender</th>
<th>Milk occlusion, n=6</th>
<th>Changeable bite, n=40</th>
<th>Permanent bite, n=8</th>
<th>Total, n=54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Girls</td>
<td>2</td>
<td>32</td>
<td>4</td>
<td>38</td>
</tr>
<tr>
<td>Total, abs. (%)</td>
<td>6 (1.18)</td>
<td>40 (7.89)</td>
<td>8 (1.58)</td>
<td>54 (10.65)</td>
</tr>
</tbody>
</table>

Thus, a significant proportion of children are 54 (10.65 ± 1.09%) – have pathology dental system in the form of a cross occlusion. Crossbite has long-term implications for growth and dental development. This dictates the need early treatment to normalize occlusion and creating conditions for normal development jaws. For successful treatment and stability requires accurate diagnosis. In our opinion, if there are complications in child with cross occlusion is important detailing existing disorders of the maxillofacial area. Carrying out additional research methods first.
allows you to plan treatment correctly, save time and money.

**LITERATURE:**


