



MORPHOFUNCTIONAL ASPECTS OF MAXILLARY CONSTRICTION IN PEDIATRIC PATIENTS

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ABSTRACT

to comprehensively study the features of the development of maxillary tone (narrowing) in children, its morphological and functional formation, as well as to determine the influence of this condition on the development of the dentofacial system and the functions of the healthy oral cavity in general.

Relevance: According to the results of various studies, maxillary narrowing was noted in 8-20% of the child population, and it was shown that its prevalence depends not only on congenital, but also on acquired factors. According to the American Association of Orthopedists, in 30-40% of patients requiring maxillary expansion, anatomical narrowing of the upper jaw is detected, and they have occluded occlusion, cases of lower jaw retraction, as well as hyper-elevated palate forms. Also, according to the results of cephalometric analyses conducted in a group of children of the European population, in cases associated with nasopharyngeal obstruction, maxillary narrowing occurs 2.5 times more often, and in 70% of cases in children with oral breathing, the maxillary arch is high and narrow [1,2,3,5].

Tadqiqot maqsadi: to comprehensively study the features of the development of maxillary tone (narrowing) in children, its morphological and functional formation, as well as to determine the influence of this condition on the development of the dentofacial system and the functions of the healthy oral cavity in general.

Research methods and techniques: Taking into account the various principles of modern scientific knowledge, we have developed our research methodology with a sufficiently defined task.

Research results:

In 2015, Masoud M.I. and colleagues conducted a comparative analysis of the morphological and functional effectiveness of two main maxillary expansion methods used in the clinical practice of developed countries - Rapid Maxillary Expansion (RME) and Slow Maxillary Expansion (SME). The study involved 80 patients aged 8-14 years, selected from several orthodontic centers in the USA and Europe. They were divided into two main groups: RME group: patients were fitted with an apparatus for rapid mechanical expansion (0.25 mm expansion twice a day); SME group: patients were given a mechanism of chronic, gradual expansion (0.25 mm per day or expansion up to 1 mm per week) [4].

The recovery process and morphological changes were assessed using computed tomography, plaster models, and clinical examinations for 2 months [5].

In the RME group, the width of the maxillary arch was enlarged on average by 4.6 ± 0.3 mm, while in the SME group this indicator was 3.1 ± 0.5 mm. In the RME group, an 18% increase in the volume of the nasal airway was observed, and in the SME group - an 11% increase. The state of interdental crowding was eliminated faster in the RME group than in the SME group. According to the overall results, the effectiveness of correction in the RME group was approximately 1.5 times higher than in the SME group [2].

In their conclusion, Masoud et al. emphasize that in the early correction of maxillary stenosis, the RME method is more effective, more timely, and has a broader functional effect compared to SME. However, the SME method may be preferred in individual cases - in patients with a low level of bone tissue development or a high risk of bone resorption. Thus, the study not only compared the two methods, but also substantiated the need for an individual approach to the choice of treatment tactics [3].

Conclusions:

1. The Rapid Maxillary Expansion (RME) method is significantly more effective and faster than the Slow Maxillary Expansion (SME) method in the treatment of maxillary narrowing. In the RME group, the expansion of the maxillary arch (on average 4.6 ± 0.3 mm) and the increase in the volume of the nasal airway (an increase of 18%) exceeded the SME indicators (an increase of 3.1 ± 0.5 mm and 11% respectively), which indicates the important functional significance of RME not only in the correction of the dentofacial structure, but also in the improvement of respiratory function.

2. Although maxillary narrowing is common among orthodontic problems (30-35% of patients in the USA), it is important to consider the individual clinical condition when choosing a treatment method. In patients with low bone development or high risk of bone resorption, the SME method may be preferable. This requires an in-depth analysis by the orthodontist of the patient's morphological characteristics and the state of bone tissue.

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