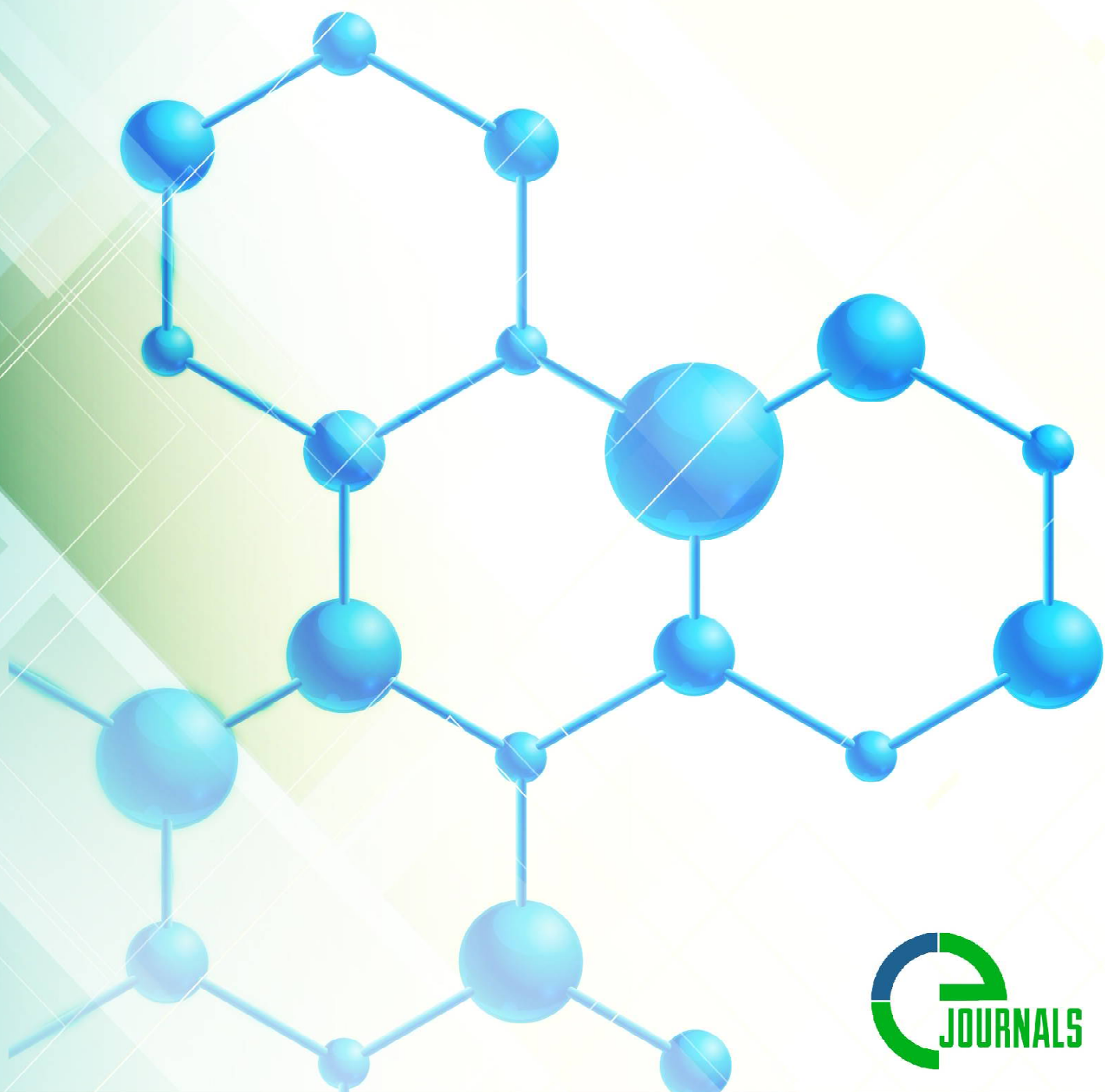


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PREOPERATIVE MISTAKES IN THE SURGICAL TREATMENT OF UPPER RETRO MICROGNATHIA

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Abstract. The analysis of scientific literature devoted to preoperative mistakes of surgical treatment of patients with upper retro- micrognathia was carried out. Long-term experience of surgical treatment has shown that the main mistakes of the preoperative period are neglect of motivation and assessment of mental health of patients, insufficient development of a complex training scheme with interdisciplinary participation and methods of forecasting aesthetic and functional results that can lead to various complications in the subsequent stages of treatment of patients with upper micrognathia. A special role in making mistakes is given to the inconsistency of opinions of orthognathic surgeons to the clinical and radiological essence, to the use of various classifications and terms to denote this form of facial skeleton disharmony, which often leads to an erroneous choice of treatment method. The necessity of multidisciplinary approach in surgical treatment of patients with upper retro-micrognathia has been emphasized.

Keywords: upper retro- micrognathia, surgical treatment, mistakes in diagnostics and treatment.

Upper retro-micrognathia is the most common disharmony of the development of the maxilla and its occurrence is from 1.6 to 12% of the total number of facial skeleton disharmonies (12,13). The complex topographic and anatomical relief of the face, its social significance, proximity to the brain and other vital organs, the location of large blood vessels, nerves are a difficult task for orthognathic operations on the maxilla. According to many authors, surgical treatment of upper micrognathia from 6.1 to 9% of cases is accompanied by various complications that adversely affect the aesthetic and functional results of treatment. Currently, various types of Le-Fort osteotomy and its multisegmental variants are mainly used for surgical correction of upper micrognathia. With combined deformations of the jaws, these operations are performed in combination with reconstructive operations of the zygomatic bones and mandible. An analysis of the scientific literature of the last several decades has shown the use of various criteria to classify the complications of orthognathic operations. Most often, specialists use a chronological criterion for this purpose, which includes preoperative errors, intraoperative and postoperative complications (5,16,18,20,23,25).

The analysis of the scientific literature of the last thirty years devoted to preoperative errors and the various complications of surgical treatment of patients with upper retro-micrognathia associated with it has been carried out.

According to some authors, preoperative disadvantages include motivational and diagnostic mistakes. The results of studies by some clinicians showed that in 62% of patients, the main motivation for visiting an orthognathic surgeon was an improvement in the aesthetic parameters of the face. 18% have functional and another 18% have aesthetic and functional problems (21). However, after orthognathic operations, they may experience functional problems that adversely affect the normal physiological activity of the maxillofacial region. Therefore, before performing an orthognathic operation,

the surgeon must plan the jaw osteotomy with a prediction of the optimal balance of functional and aesthetic changes in the maxillofacial region. Also, the patient must be given the opportunity to choose which is more important - aesthetic or functional problems (29).

An important role in the preparation of patients with skeletal forms of mandible deformations is played by the rational outpatient rehabilitation of the maxillofacial region with the participation of an oral surgeon and other specialists. In 4 - 8% of patients after surgery, inflammatory complications most often develop, such as exacerbation of chronic periodontitis, suppuration of a wound near a diseased tooth, osteomyelitis fragment, oroantral fistula, and exacerbation of sinusitis that was not eliminated before surgery (3.18). Errors of the preoperative preparatory period include the lack of a rational preoperative orthodontic treatment with interdisciplinary participation. According to the literature, orthodontic appliances do not always have an effective effect on skeletal forms of jaw deformation (8.9).

However, orthodontic treatment with the elimination of obstructive diseases of the upper respiratory tract in children and adolescents with the participation of an otorhinolaryngologist leads to normalization of nasal breathing, correction of the dental arches of the jaws and proper growth of the facial skeleton (15).

Preoperative errors also arise as a result of the inconsistency of clinicians' approaches to the clinical and radiological nature, the failure to use unified terminology and classification of jaw deformities and complex examination methods (4). As a result of such errors, the same jaw deformations are described under various terms, and an inadequate treatment protocol is accordingly selected. Often the combination of upper micrognathia with lower macrognathia is diagnosed as lower macrognathia and osteotomy is performed on only one mandible. Moving one of the mandible posteriorly leads to a narrowing of the oral cavity, pharynx and disruption of the usual neuromuscular balance of the maxillofacial region. In this case, after removal of the intermaxillary traction, the tongue, pharyngeal muscles, and chewing muscles tend to occupy their original position, which leads to the displacement of the fragments to the initial position. Observations of a number of authors established the occurrence of relapses of jaw deformities from 4 to 75% of those operated on one mandible (2.12).

Currently, to eliminate such errors, a comprehensive examination is being performed before the operation, and based on modeling the optimal balance of the face and bite using diagnostic models, photographs, TRG or 3D images, adequate methods of jaw osteotomy are selected. Over the past several decades, the standard for the correction of upper micrognathia has been selected various options for osteotomy of the maxilla according to Le Fort-1. With a combination of deformation of the maxilla with lower macrognathia, combined osteotomies of the jaws are planned. Surgery on the maxilla is combined with a sagittal splitting or vertical osteotomy of the branches of the mandible. The use of combined variants of jaw osteotomy, in the opinion of V.I. Gunko, (6) leaves the volume of the oral cavity unchanged or slightly expands it, which neutralizes the expelling effect of the tongue on the mandible moved backward.

The most common mistake in the preoperative period is the prediction of aesthetic results of the face and the choice of method of operation. When eliminating upper retro-micrognathia, it is often impossible to predict the aesthetic results of a face in patients with unexpressed zygomatic, infraorbital and paranasal regions. As a choice, we used various options for osteotomy of the maxilla at the level of Le Fort 2, and 3. The choice of methods of osteotomy at the level of Le Fort 2 and 3 allows you to achieve good

aesthetic results. But according to V. M. Bezrukov, these operations are too long, accompanied by a large number of blood loss and relapses, which caused their rare use in clinical practice. To eliminate the above drawbacks, he proposed the use of an osteotomy of the middle zone of the face with osteotomy lines closer to the infraorbital margin with the inclusion of the lower parts of the zygomatic bones (4). Other authors in this case propose combining an osteotomy of the maxilla with an osteotomy of the zygomatic bones (10). The results of the analysis of our experience in the treatment of patients with upper micrognathia showed that the choice of these methods allows achieving good aesthetic results in patients without pathology of the nasal cavity and does not take into account its aesthetics.

Until today, with orthognathic treatment of upper micrognathia, the problem of preoperative prediction of aesthetic changes in the shape of the nose and the choice of method for their correction remains unresolved. Moving the maxilla forward and upward often leads to deformation of the tip and wings of the nose, which does not always meet the increased aesthetic needs of patients. To prevent deformation of the external nose after moving the maxillary complex anteriorly, various rhinoplasty methods have been proposed. In 1981, V.M. Bezrukov proposed a method for sickle-shaped resection of the cartilaginous part of the nasal septum with a base directed to the bottom of the nose, which is most shown for patients with a forward-looking nose shape as a result of an increase in septum cartilage. To improve the results, the method was improved by removing the anterior nasal spine of the maxilla. For patients with short and wide forms of the nose with a nose bridge, various rhinoplasty options using auto-allografts or implants are proposed, which lead to an improvement in its external contours. To eliminate the excessive expansion of the bases of the wings of the nose, it is proposed to use various options for septum plasty and fixation of the wings with sutures that hold them in position. However, in the postoperative period, part of the patients noted expansion of the wings, curvature of the septum and difficulty in nasal breathing, which indicates the debatability of their use and insufficiently developed indications for them (7,22,26,27,28).

All the above facts prove that the choice of the method of osteotomy of the maxilla without taking into account the type of face and nose shape and the morphofunctional state of the maxillary complex of patients does not always lead to optimal aesthetic and functional results, which requires the development of new methods of surgical treatment that exclude these complications.

As it can be seen from the analysis of the available scientific literature, upper micrognathia is a fairly common disharmony among deformations of the facial skeleton, and its surgical correction from 6, 1-9% of cases is accompanied with various complications. These complications can be observed during various periods after surgery. However, their occurrence in most cases is associated with preoperative errors in the diagnosis, planning and prediction of treatment results.

An analysis of literature data and clinical experience has shown that the most common mistakes in the preoperative period are to ignore treatment motivation and treatment planning without assessing the mental health of patients, which can lead to patient dissatisfaction with the aesthetic results of treatment. The inclusion in the scheme of a comprehensive examination of a psychologist, psychiatrist and method for determining mental health on the Josef scale leads to a correct assessment of the patient's motivation and mental health and the planning of the treatment process, taking into account these features.

In our opinion, the most common mistakes in the preoperative period include the lack of a preoperative scheme for the comprehensive preparation of patients with interdisciplinary participation. Sanitation of the pharyngeal cavity and treatment of obstructive diseases of the upper respiratory tract with the participation of an ENT specialist and orthodontic correction can eliminate all chronic foci of infection and lead to the correct growth of the maxillary complex. Such a joint approach reduces the volume of surgical intervention and is the prevention of inflammatory complications and relapses of deformation.

Important for optimal orthognathic surgery is the joint work of an oral surgeon and an orthodontist. Planned tooth extraction, oral segmental osteotomy within two to three teeth, and compactosteotomy with rational orthodontic treatment corrects dentoalveolar deformities of the jaw and creates optimal conditions for reconstructive surgery. The most common errors of the preoperative period are the contradictory opinions of clinicians on the clinical and radiological nature of jaw deformities, the use of various classifications and terminology in the diagnosis of upper micrognathia. As a result of such errors, upper micrognathia is often diagnosed as lower macrognathia. Erroneous surgery on the mandible does not lead to the achievement of optimal aesthetic and functional results. In patients operated in this way, in most cases, relapses of deformities and other functional disorders of the maxillofacial region are observed. The use of unified terminology, classification, complex examination methods leads to improved diagnostic accuracy and an adequate choice of the surgical method.

Another serious problem of the preoperative period is the lack of accuracy in predicting the aesthetic results of the middle zone of the face and the choice of correction method. An inadequate choice of the method of operations for the middle zone of the face can lead to dissatisfaction of patients with upper micrognathia with the aesthetic and functional results of treatment, which are manifested in the form of indistinct contours of the zygomatic, infraorbital regions and deformation of the external nose and difficulty in nasal breathing. In our opinion, accurate prediction and selection of an appropriate method depending on the type of face and nose shape allows you to fix the aesthetic contours of the middle zone of the face and minimally violates the aesthetics of the nose in patients without difficulty in nasal breathing. In cases of difficulty in nasal breathing in patients with an elongated-concave type of face, our use of the developed method for osteotomy of the middle zone of the face with the expansion of the bone cavity of the nose is the most shown. The method allows to correct the bite, restores nasal breathing and preserves its aesthetic contours. The aesthetic contours of the infraorbital and zygomatic areas are also improved.

Conclusion

Thus, the results of the analysis of the scientific literature showed that the cause of preoperative errors in the orthognathic treatment of upper micrognathia is the inconsistency of opinions of clinicians about its clinical and radiological essence, failure to use the same terminology and classification, ignoring the motivation and mental status of patients, insufficient development of preoperative outpatient preparation for orthognathic operations involving related specialists, lack of clear indications for various options in osteotomies of the maxilla with the aesthetic and performance morphofunctional midface.

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