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COMBINED ORTHODONTO-SURGICAL TREATMENT OF SKELETAL FORMS OF DENTAL ANOMALIES IN PATIENTS

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ABOUT ARTICLE

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Abstract: Appearance is one of the main concerns of people seeking orthodontic treatment. The face is the part of the body that makes the most impression in terms of physical attractiveness. People with maxillofacial abnormalities are particularly susceptible to negative reactions from others, which can lead to a decrease in self-confidence and low self-esteem.

INTRODUCTION

Malocclusion also affects the functioning of the dental system. The level of oral hygiene decreases, the functions of breathing, chewing and even speech are impaired. Increasing the aesthetic requirements of modern society, changing the focus on diagnosis and treatment planning, as well as the latest technologies in the dentist's arsenal - restoration, gum surgery, periodontics, implantology, maxillofacial surgery and plastic surgery - all this explains the increase in the number of adult patients who turn to an orthodontist. Approximately 60% of orthodontic appointments are in adult patients aged 18 years and older who did not receive orthodontic treatment in childhood or whose treatment was unsatisfactory. Currently, there are only three treatment options for correcting malocclusion caused by skeletal jaw bone imbalance: - correction of jaw bone growth in children and adolescents, although the extent to which this can be done is still controversial. This method calls into question the stability of long-term results of orthodontic treatment. The disadvantages of dental camouflage include a possible deterioration in the appearance of the face when orthodontic treatment involves tooth

extraction, the load on periodontal tissues with large movements and the great difficulty in obtaining a good functional occlusion. Currently, this method is considered the best way to treat maxillofacial imbalances when skeletal growth has already been completed. Indications for combined orthodontic and surgical treatment are disorders of chewing, breathing and speech due to occlusive deformities, aesthetic problems (the main criterion for the patient) and emotional and psychological problems. When combining orthodontic and surgical treatment, it is necessary to adhere to the following algorithm of diagnosis and treatment: - joint examination of the patient by an orthodontist and a maxillofacial surgeon, analysis of primary TRG, OPTG and CDM, diagnostic photographs of the face and dentition, preliminary modeling of treatment results; - disinfection of teeth and periodontal tissues; - jaw at the dentist-surgeon correction of joint function (if necessary); - necessary tooth extraction (third molars - 6 months before surgery); 1. Preparatory stage. The stage of orthodontic preparation for surgery is the longest stage of treatment, taking from 12 to 20 months, during which the alignment of teeth and dentition is carried out. At this stage, much attention is paid to installing the incisors in the correct axial position, which involves removing teeth for orthodontic adaptation. The correct and precise alignment of the dentition and the ideal position of the incisors in the upper and lower jaw allow you to bring the dentition into an ideal occlusal position during surgery. At this stage, completely non-removable orthodontic devices are used with the addition of orthodontic accessories. Patients should be warned in advance about this stage, as the existing bite will collapse, and the proportions of the face will inevitably deteriorate.2. The stage of orthodontic preparation for surgery. Repeated joint consultation of an orthodontist and a maxillofacial surgeon for the analysis of preoperative TRG, OPTG and CDM; 3. The modeling stage in the Dolphin program. This program allows the patient to assess future changes in the soft tissues of the facial contours. After the orthodontic preparation is completed and the plaster cast of the patient's jaw is aligned with the constructive bite, the Dolphin program performs a "simulation" or virtual movement of the jaw, which allows the maxillofacial surgeon, orthodontist and the patient himself to visualize the results after surgery. The program allows the patient to assess future soft tissue changes in the facial profile.4. The stage of model surgery. The plaster model of the patient's jaw is fixed on the articulator using a facial arch. The jaw model is moved and a surgical splint is made. This allows the surgeon to position the upper and lower jaws in accordance with the developed protocol (Fig. 2).5. Stages of orthognathic surgery. (Orthos - straight, gnathos - jaw) is a jaw surgery in which one or both jaws are moved to a new position to achieve an orthognathic bite. The operation is performed under general anesthesia in maxillofacial surgery. The operation takes 1.5-2 hours for one jaw and 4-6 hours for both jaws. Due to the use of intraoral access, there are no scars on the face. Bilateral sagittal osteotomy (BSSO) is performed on the lower jaw, and LeFort I osteotomy and

fixation with a titanium plate are performed on the upper jaw. An orthodontist must be present during the operation. Hospital stay is usually 3-5 days.The 6th postoperative stage of orthodontic treatment is devoted to the detailing of occlusion. The duration of this stage is approximately 3-6 months after surgery. After achieving an ideal occlusion, orthodontic treatment is completed, after which orthodontic devices are removed and standard orthodontic retainers are installed.7 If necessary, prosthetics are performed. The total duration of combined orthodontic and surgical treatment is 18-24 months, which corresponds to standard orthodontic treatment. Some clinical cases are presented below. Clinical case 1. Patient R. (22 years old) entered the Department of Pediatric Dentistry and Orthodontics of UGMU with complaints of a violation of the aesthetics of teeth and face. Upon examination, the following diagnosis was made: distal occlusion (occlusion of the jaws), micrognathia of the mandible, decrease in mandibular-facial elevation, retraction of the maxillary incisors. Abnormal occlusion of deep incisors. Taking into account the patient's complaints, age and degree of disability, a combined orthodontic and surgical treatment was proposed (Fig. 3). Treatment plan: orthodontic preparation for bicuspid osteotomy; orthodontic straightening and alignment using completely non-removable devices. Orthognathic surgery (bicuspid osteotomy) to correct occlusion; postoperative detailing of occlusion; the total duration of treatment is 20 months (Fig. 4) (the operation was performed in the department of maxillofacial surgery of the Russian Railways Hospital; maxillofacial surgeon - D.P. Samokhvalov (Candidate of Medical Sciences)). Clinical case 2. Patient P., 24 years old, diagnosis: mid-maxillary occlusion, maxillary prognathism, enlargement of the lower third of the face, hyper-developed type of facial skeleton. Retraction of incisors. Narrowing of the maxillary region, abnormal position of individual teeth. Taking into account the patient's complaints, age and pronounced disorders of the alveolar apparatus, combined orthodontic and surgical treatment was performed. The duration of treatment was 22 months (the operation was performed at NPO Bonum, maxillofacial surgeon A.G. Leonov (Fig. 8, 9).

CONCLUSION

Thus, the combination of orthodontics and surgery and close cooperation between orthodontists and maxillofacial surgeons opened up new opportunities for the treatment of patients with severe maxillofacial abnormalities and deformations. This method allows not only to achieve correct and stable occlusion, but also to improve the aesthetics of the face, and therefore the quality of life, which is especially important for a modern patient.

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