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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 major concerns for those seeking orthodontic treatment. The face is the part of the body that makes the most impression in terms of physical attractiveness. Individuals with maxillofacial abnormalities are particularly susceptible to negative reactions from others, leading to low self-confidence and low self-esteem. Malocclusion also affects the functioning of the dental system.

INTRODUCTION

Appearance is one of the major concerns for those seeking orthodontic treatment. The face is the part of the body that makes the most impression in terms of physical attractiveness. Individuals with maxillofacial abnormalities are particularly susceptible to negative reactions from others, leading to low self-confidence and low self-esteem. Malocclusion also affects the functioning of the dental system. The level of oral hygiene is reduced and the functions of breathing, chewing, and even speech are impaired. The increasing aesthetic demands of modern society, the changing focus on diagnosis and treatment planning, and the latest technology in the dentist's arsenal of restorative, gingival, periodontal, implantology, maxillofacial, and plastic surgery all explain why more adult patients are turning to orthodontists. Approximately 60% of orthodontic appointments are for adult patients over the age of 18 who either did not receive orthodontic treatment during childhood or whose treatment was unsatisfactory. Currently, there are only three treatment options for correcting malocclusion caused by skeletal jaw imbalances. This approach raises questions about the stability of the long-term results of orthodontic treatment. The disadvantages of dental camouflage include the possible deterioration of facial appearance in orthodontic treatment involving tooth extraction, the

stress on periodontal tissues due to large movement, and the extreme difficulty in obtaining a good functional occlusion. Currently, this method is considered the best way to treat maxillofacial imbalances where skeletal growth has already been completed. Indications for combined orthodontic and surgical treatment are disorders of chewing, breathing, and speech due to occlusal deformities, aesthetic problems (the main criteria for the patient), and emotional and psychological problems. When combining orthodontic and surgical treatment, the following diagnostic and treatment algorithm should be followed: - joint examination of the patient by the orthodontist and 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 tissue; - dental Correction of temporomandibular joint function by doctor and surgeon (if necessary), - Necessary tooth extraction (third molars - 6 months before surgery), 1. Preparation phase. The preparatory phase of orthodontic treatment for surgery is the longest phase of treatment, taking from 12 to 20 months, during which the teeth and dentition are aligned. During this phase, much attention is paid to attaching the incisors in the correct axial position, and teeth must be removed for orthodontic adaptation. Correct and accurate alignment of the dentition and ideal positioning of the maxillary and mandibular incisors allow the dentition to be placed in the ideal occlusal position during surgery. During this phase, orthodontic accessories are added and fully non-removable orthodontic appliances are used. Patients should be warned in advance about this phase, as it is inevitable that the existing occlusion will be disrupted and facial proportions will deteriorate.2. Orthodontic preparation phase for surgery. The orthodontist and maxillofacial surgeon repeat a joint consultation to analyze the preoperative TRG, OPTG, and CDM. 3. Modeling phase in the Dolphin program. This program allows evaluation of future changes in the soft tissues of the facial contours. After orthodontic preparation is complete and the plaster cast of the patient's jaw is aligned to the constructive bite, the Dolphin program performs a "simulation" or virtual movement of the jaw, allowing the maxillofacial surgeon, orthodontist, and the patient himself to visualize the postoperative results.4. Model surgery phase. A plaster cast model of the patient's jaw is fixed to the articulator using a facial arch. The jaw model is moved and a surgical splint is made.5. Orthognathic surgery phase. (Ortho-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 surgery is performed under general anesthesia by a maxillofacial surgeon. Surgery time is 1.5 to 2 hours for one jaw and 4 to 6 hours for both jaws. Since intraoral access is used, no scars are left on the face. Bilateral sagittal osteotomy (BSSO) is performed on the mandible, and LeFort I osteotomy and titanium plate fixation are performed on the maxilla. The surgery must be attended by an orthodontist. The sixth postoperative phase of orthodontic treatment involves a detailed examination of the occlusion. The duration of this

phase is approximately 3-6 months after surgery. Once the ideal occlusion has been achieved, orthodontic treatment is completed and the orthodontic appliances are removed and standard orthodontic retainers are placed. The combined orthodontic and surgical treatment period is 18-24 months, which corresponds to a standard orthodontic treatment. Several clinical cases are presented below. Clinical Case 1. Patient R (22 years old) presented to the Department of Pediatric Dentistry and Orthodontics at UGMU complaining of aesthetic violations of the teeth and face. Upon examination, the following was diagnosed: distal occlusion (bite of the jaw), mandibular micrognathia, decreased mandibulofacial elevation, and retraction of the maxillary incisors. Abnormal occlusion of deep incisors. Considering the patient's complaints, age, and degree of disability, a combination of orthodontic and surgical treatment was suggested (Figure 3). Treatment plan: orthodontic preparation for bicuspid osteotomy; orthodontics and alignment with fully removable appliances. Orthognathic surgery for correction of occlusion (bicuspid osteotomy); postoperative detailing of occlusion; total duration of treatment was 20 months (Figure 4) (surgery was performed at the Maxillofacial Surgery Department of the Russian Railway Hospital; maxillofacial surgeon - D.P. Samovvalov, medical cadet). Clinical case 2. patient P, 24 years old; diagnosis: maxillary midbite, maxillary prognathism, enlargement of the lower third of the face, overdeveloped type of facial skeleton. Retraction of incisors. Maxillary narrowing, abnormal position of individual teeth. Considering the patient's complaints, age, and the pronounced alveolar bone disturbance, a combination of orthodontic and surgical treatment was performed. The duration of treatment was 22 months (surgery was performed by NPO Bonum, maxillofacial surgeon A.G. Leonov (Figures 8 and 9).

CONCLUSION

Thus, the combination of orthodontics and surgery and the close collaboration between orthodontists and maxillofacial surgeons have opened new opportunities for the treatment of patients with severe maxillofacial abnormalities and deformities. This approach not only allows for a correct and stable occlusion, but also improves facial aesthetics and thus quality of life, which is particularly important for the modern patient.

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