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THE USE OF MODERN ORTHODONTIC AND SURGICAL TECHNOLOGIES IN THE COMPREHENSIVE REHABILITATION OF CHILDREN WITH CONGENITAL CLEFT OF THE UPPER LIP, ALVEOLAR PROCESS AND PALATE

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ABOUT ARTICLE

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Abstract: Congenital cleft lip, alveolar process and cleft palate are among the most difficult deformities of the maxillofacial region, the number of children with such deformities is 1 per 1000 newborns and continues to grow [3, 4, 13, 18]. Treatment and rehabilitation of such patients is an urgent problem due to abnormal facial development and secondary deformities, speech and chewing disorders, a long recovery period and the need for social adaptation of the child [8].

INTRODUCTION

Congenital cleft lip, alveolar process and cleft palate are among the most difficult deformities of the maxillofacial region, the number of children with such deformities is 1 per 1000 newborns and continues to grow [3, 4, 13, 18]. Treatment and rehabilitation of such patients is an urgent problem due to abnormal facial development and secondary deformities, speech and chewing disorders, a long recovery period and the need for social adaptation of the child [8]. Modern literature describes the treatment of children with complications of cleft lip and palate, and there is an opinion about the need for an integrated approach [11, 19]. Children with this disease can receive full-fledged rehabilitation and social adaptation in specialized medical centers [7, 14]. The aim of the work is to demonstrate the effectiveness of interaction between orthodontists and maxillofacial surgeons on the

example of a clinical case of complex rehabilitation of a patient with congenital cleft of the left upper lip, alveolar process and cleft palate.

METHODS

Patient I., a member of the dynamic observation group of the Multidisciplinary Clinical Center (MCC) Bonham, was admitted at the age of 15 days. The stages of complex treatment and its results have been studied since the beginning of treatment. Patient I was diagnosed with "congenital complete left-sided cleft of the upper lip, alveolar process and palate" on August 5, 2003 [23]. [23]. From 15 days to 5 months, the child underwent early orthopedic treatment according to the method of G.V. Dolgopolova in order to normalize the position of the palate. The aim was to normalize the position of the palatine plate, large and small fragments of the maxillary alveolar process and reduce the discrepancy between them (Fig. 1) [5]. After completion of this stage of treatment, primary rhinoplasty was performed at the age of 5 months, and ureteroplasty at the age of 12 months [10, 15]. After surgery, the patient was examined annually by a surgeon and an orthodontist; at the age of 8 years, during the period of tooth change, a slight narrowing of the maxillary dentition and an abnormal location of individual teeth in the anterior maxillary region were noted (Fig. 2). The patient was fitted with a partial 2*4 bracket system to normalize the axial position of the maxillary incisors [1, 2, 11, 16, 21]; after teeth alignment in 1.1 and 2.1, the braces were removed, and the treatment period was 11 months. Diagnosis at the time of withdrawal: "Late tooth change, narrowing and shortening of the dentition, abnormal position of individual teeth and absence of an alveolar process on the left upper jaw." Subsequently, after consultation with an orthodontist and a maxillofacial surgeon, it was decided to conduct preparatory orthodontic treatment at the age of 10 years (Fig. 3) [9, 17, 22, 25] in order to create optimal conditions for alveolar osteogenesis. Postoperative orthodontic treatment of the patient continued from the age of 11 using the fixed straight arc technique. At the beginning of treatment, all permanent maxillary teeth erupted, which made it possible to justify and establish the diagnosis of "neutral bite (molars of class I according to Engl), narrowing and shortening of the maxillary dentition, palatal position of teeth 1.2 and 2.2, excessive fullness of the tooth 2.2 and the absence of an alveolar process on the left side of the upper jaw." Further treatment took place in several stages: 1. Active Orthodontic treatment stage (12/25/2014): Gemini braces were installed, CuNiTi 0.014, CuNiTi 0.016, CuNiTi 0.016*022 arches were aligned horizontally to create space, and teeth 1.2 and 2.2 were installed.After completing the first stage with the transition to the SS 0.016*022 arc, the patient was examined by a maxillofacial surgeon and the tactics of alveolar osteoplasty were determined.2. The surgical stage (05.04. (2016): bone autograft from the iliac crest and Bio-Gide biodegradable membrane were used to fill in the paraphyseal

defect of the alveolar bone according to a technique developed at the Bonum Medical Center" [6, 12, 20, 24]. An intraoperatively resected and mobilized muco-periosteal flap was stitched to form a bed for the installation of a bone autograft. Then, a biodegradable Bio-Gide membrane with a smooth and rough surface was applied to the soft tissues 1-2 mm from the edge of the bone to install a bone graft. The bone autograft (excellent iliac bone) was placed on a prepared bed and covered with a absorbable BioGide membrane with a rough surface relative to the bone, overlapping the edge of the bone defect by 1-2 mm. The membrane was fixed under moderate pressure during the formation of a blood clot. The space under the membrane is necessary for bone regeneration and preservation of the blood clot. A muco-rib flap was applied to the absorbable membrane, the wound was sealed and sutured. After surgery, the bite and proportions of the teeth returned to normal .Taking into account the wishes of the patient and parents, it was decided to remove the bracket system, and install non-removable retainers on the upper teeth. Aggressive orthodontic treatment and alveolar osteoplasty took a total of 18 months. The photo shows the result of a complex rehabilitation process. At the same time, during dynamic follow-up at the Bonhomme International International Medical Center, the patient received all rehabilitation from specialized specialists, including a speech therapist, ENT doctor, neurologist and pediatric dentist, up to 15 years old. When the patient was removed from dynamic observation, an assessment of facial aesthetics was performed. A slight asymmetry of the face was revealed due to scarring after jaw surgery, but the profile was straight. The patient and her mother rated the appearance as satisfactory. The child's speech, according to the speech therapist, was good.

CONCLUSION

This case demonstrates the cooperation of orthodontists and maxillofacial surgeons using the latest technologies developed at the International Medical Center "Bonum" (early orthognathic treatment of the author, alveolar osteogenesis with a bio-controlled biodegradable membrane) in combination with a traditional non-removable orthodontic device. Such an integrated approach ensures timely rehabilitation of children with congenital cleft lip, alveolar process and cleft palate with final positive results.

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