



COMPARATIVE EVALUATION OF THE RESULTS OF SURGICAL TREATMENT OF CHILDREN WITH BILATERAL CLEFT OF THE UPPER LIP AND PALATE

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ABSTRACT

Comparative estimation of the results of primary labioplasty has been held on enow lesser clinical material; statements to usage of each method inclusive of anatomic and aesthetic results have been defined. Clinical anatomic changes have been established after various methods of primary labioplasty which allowed proving the choice of operation method inclusive of the degree and form of rhegma.

KEYWORDS: *surgical treatment, congenital cleft, cheiloplasty, pathology of the upper lip and hard palate.*

RELEVANCE

Congenital cleft of the upper lip and palate (CRGN) is a severe malformation of the dentition, which is characterized by pronounced structural and functional disorders. Perhaps there is no other congenital deformity that significantly changes the shape of the face and leads to such significant anatomical and functional disorders - [1,2,5,6,7,8,9,10,11].

Surgical treatment of congenital bilateral clefts takes a special place in its relevance, variety of surgical methods and many unresolved issues. Among the wide variety of methods for primary plasty of congenital cleft lip and palate, there is currently no preference for anyone technique. The use of new methods of surgical treatment is not always rational and does not make it possible to fully rehabilitate a child with this pathology - [3,4].

Analysis of the literature of recent years shows that to date, more than a hundred types of

cheiloplasty have been developed and used. Each of these methods has its positive and negative sides, which allows surgeons to individualize the technique of the operative approach in each case. In domestic and foreign literature, insufficient attention is paid to the issue of primary cheiloplasty with the choice of the most optimal methods, taking into account the degree of underdevelopment of the soft tissues of the median fragment. Despite a number of studies on improving the methods of primary cheiloplasty, the issue of comparative analysis of methods for eliminating congenital bilateral clefts of the upper lip and palate has not been given sufficient attention. The relevance of the problem posed and its insufficient coverage in the scientific literature was the main motive for the implementation of this work.

Purpose of the study: to conduct a comparative assessment of the results of primary cheiloplasty in children with bilateral cleft upper lip



by analyzing the sources of domestic and foreign literature.

Materials and research methods:

According to the literature data of domestic and foreign scientists, to assess the results of primary cheiloplasty in children with bilateral cleft of the upper lip, to determine the advantages and disadvantages of each surgical tactics in the treatment of congenital bilateral clefts.

RESULTS AND ITS DISCUSSION

Most often, in patients operated on for congenital bilateral clefts of the upper lip, the following deformities of the middle third of the face, expressed to varying degrees, are encountered: discontinuity of the circular muscle of the mouth, as evidenced by the low mobility of the central fragment of the lip, flattening of the wings and tip of the nose, upper lip, small vestibule of the mouth in the area of the upper incisors, violation of the shape of Cupid's bow, a decrease in the height of the red border, various degrees of shortening of the columella. Especially severe secondary deformities of the maxillofacial region were observed after the use of atypical variants of cheiloplasty, as well as with the use of vomer osteotomy and resection of the intermaxillary bone [1,2,3,5,7,10,11]

Treatment of patients with congenital bilateral cleft of the upper lip and palate begins from the first days of life and continues for many years. In the treatment of such patients, the active participation of many specialists is required: maxillofacial surgeon, orthodontist, therapist, speech therapist, otorhinolaryngologist (Kislykh F.I., 2007; Lavrikov V.G., 2007; Subkhanov S.S., 2010; Dai L., 2010; Ness AR et al., 2015). G.V. Gonchakov (2002) believes that the treatment of children with congenital clefts of the upper lip and palate is one of the most difficult tasks of pediatric reconstructive surgery, the solution of which is not limited to the elimination of a cosmetic defect and the reconstruction of facial proportions close to normal. The priority in the surgical treatment of cleft lip and palate is the restoration of the correct relationship of the anatomical structures, which contributes to a more perfect normalization of speech and hearing. (Davydov B.N., 1999, Medvedeva M.A., 2007; Mamedov Ad.A., 1995-2012). According to Ad.A. Mamedov (1995-2012) in recent years, special attention has been paid to the complete restoration of not only anatomical structures, but also functions with a minimal traumatic effect of surgical manipulations on the subsequent growth of the facial skeleton. According to the majority of experts, in primary cheiloplasty, the surgeon should:

- Ensure cupid bow symmetry.
- Restore the integrity of the circular muscle of the mouth.

· Create the same height of the cutaneous part of the lip and the red border.

· Restore the columns of the filter room.

· Reach the same perimeter of the nostrils.

· Create a sufficient depth of the vestibule of the oral cavity.

It is also necessary to ensure that the upper lip looks natural both at rest and in motion. Therefore, in primary cheiloplasty, it is very important, as far as possible, to ensure the physiological location of the fibers of the circular muscle of the mouth (V.G. Lavrikov, 1975; L.E. Frolova, 1986; I.A.Kozin, 1996; K.W. Butow, 1998 ; DR Millard, 1990; T. A. Cook, R. E. Davis, 1993).

Surgical treatment of congenital bilateral clefts occupies a special place in its relevance, variety of surgical methods and many unresolved issues. Among the wide variety of methods for primary plasty of congenital cleft lip and palate, there is currently no preference for any one technique. The use of new methods of surgical treatment is not always rational and does not make it possible to fully rehabilitate a child with this pathology (Kozin I.A., 1996; Ad.A. Mamedov, 2012) Currently, there is a clear tendency towards early plastic surgery upper lip. This approach shortens the period of maladjustment of the child, reduces or eliminates the "burden" of disability, creates equal conditions in all spheres of the child's further life, which is very important. Any version of the upper lip plasty belongs to the most complex reconstructive and restorative operations that require special training of the surgeon, the provision of appropriate anesthesia and postoperative care. It is advisable to carry out these operations only in the conditions of specialized children's maxillofacial hospitals. There is also an opinion about early, sparing operations in the scope of primary cheilorinoplasty (B.N.Davydov, 2000), periostoplasty (L.V. Ageeva, 1999). According to these authors, subsequently, the number of children requiring secondary rhinocheiloplasty is significantly reduced. Consequently, the trend of the present time can be defined as the expansion of the volume of surgical intervention, its implementation in a gentle way and at an early age. Any version of reconstructive surgery on the upper lip for any type of cleft can be performed from the birth of the child, but the intervention must be justified by social indications. From 3-6 months until the end of the first year of life, cheiloplasty should be performed in full. Many authors consider the optimal age to be 5-6 months. All types of lip plastics are performed in one stage. There is a point of view of L.K. Gubina (2000), that lip adhesion should precede cheiloplasty, which positively affects the location of the split alveolar part of the upper jaw, creates better conditions for feeding the child. Lip adhesion is performed in the first month of life, and the main



operation is also performed after 3-6 months of the first year of a child's life. With congenital bilateral cleft, anatomical abnormalities are characterized by deeper changes due to the presence of three fragments of the lip, splitting of the alveolar part into three fragments, and unstable displacement anteriorly and downward of the middle fragment (intermaxillary bone). The choice of the cheiloplasty method, its carrying out in one or two stages depends on the depth of the anatomical changes. Without denying the possibility of one-stage treatment, including the method of primary rhinocheiloplasty (Shcheglova A.P., 1997; Davydov B.N., 2006), it is believed that the grounds for two-stage treatment are the presence of a wide cleft on each side, underdevelopment of the middle fragment of the lip (filtrum) and significant displacement of the intermaxillary bone anteriorly and downward. Full social adaptation is possible only if adequate surgical treatment is carried out early enough. In bilateral cleft lip and palate, pronounced protrusion of the intermaxillary bone and medial displacement of the lateral fragments of the alveolar process are most often observed, which creates unfavorable conditions for the healing of the surgical wound after simultaneous cheiloplasty. Healing under conditions of pronounced tissue tension is accompanied by local hypoxia, which is fraught with the discrepancy of the postoperative wound with subsequent pathological scarring of the skin and especially muscle tissue. It is possible to solve these problems only with timely, early orthopedic treatment, which consists in eliminating the protrusion of the intermaxillary bone and expanding the lateral fragments of the alveolar process of the upper jaw. Elimination of deformity of the alveolar process of the upper jaw with a bilateral cleft is today one of the most difficult tasks for an orthodontist (Dolgopolova G.V., 2001; Murtazaev S.M., 2010; Graber X., 2008). Bilateral incomplete and complete clefts of the upper lip anatomically divide the lip into three parts, accompanied by shortening of the septum, flattening and outward displacement of the wings of the nose. Lip restoration is performed taking into account the height of the middle part of the lip, the degree of displacement of the intermaxillary bone, deformation of the cartilaginous framework of the nose. In cases where the middle part is sufficient in height and the intermaxillary bone is slightly displaced, the plastic is performed simultaneously. With an insufficient height of the middle part of the lip and its attachment, sometimes almost at the very tip of the nose, a significant displacement of the intermaxillary bone anteriorly, wide lateral gap defects, the operation is performed two-stage (Ternovsky S.D., 1952; Kozin I.A., 1996; Mamedov Ad.A., 1995-2012). There are many techniques for cheiloplasty, both unilateral and bilateral nonunions (S. Tennyson, S. Hagedorn,

A. Le Mesurier, A. A. Limberg, L. M. Obukhova, D. Millard, K. Kobus, L. V. Kharkov -L.N. Yakovenko and others), most of them are only of historical interest. They are divided, depending on the cutting of fabrics, into Z-shaped, linear, rectangular. But they all pursue one goal - to restore the anatomical integrity of the lip elements (red border, columns, nasal passage, muscles, the vestibule of the oral cavity) and its functional viability. The stages of the operation include: cutting the tissues of the skin part of the lip fragments according to one of the methods; mobilization of the muscles of the base of the wings of the nose and the circular muscle of the mouth on fragments of the lip, mucous membrane of the red border, the vestibule of the oral cavity; suturing the edges of the wound in layers, taking into account the reposition of tissues (Ternovsky S.D., 1952; Limberg A.A., 1968; Kozin I.A., 1996; Sidman J.D., 1994). In case of bilateral clefts of the lip, which are not combined with the cleft of the alveolar ridge and palate, most of the above methods can be successfully applied, using them for each side separately. Flap operations involve closing the cleft by moving triangular and rectangular flaps, the size of which depends on the width of the cleft and the degree of shortening of the median fragment of the upper lip (Limberg A.A., 1968; Novoselov R.D., 1978; Sidman J.D., 1994). In most countries of the world, the patchwork method of surgery developed by L.M. Obukhova (1957) and S.W. Tennyson (1953, 1959). These methods make it possible to match the tissues of the lip in full anatomical correspondence and obtain a symmetrical shape of the Cupid's bow. The disadvantage of this method can be considered the need to cross the filtrum line in the transverse direction, which makes it difficult to carry out subsequent corrective operations, overhanging the lip on the side of the cleft, deformation of the nostril on the affected side. The transverse direction of the postoperative scar reduces the cosmetic result of the operation. It is recommended to use these methods for incomplete clefts of the upper lip, if there is no deformity of the nose (Gotsko E.V., 1986; Leonov A.G., 1995; Mahn S., 1980; Chowdri N.A. et al., 1990). Obukhova L.M. (1957), simultaneously with cheiloplasty, performed plastic surgery of the fundus of the vestibule of the nose with a quadrangular skin flap cut out at the base of the wing and sutured to the nasal septum. Subsequently, the quadrangular flap at the base of the wing was replaced with a triangular flap and the operation became known as the Limberg-Obukhova method (L.E. Frolova, 1967; I.A.Kozin, 1996). Frolova L.E. (1967) believes that with the Limberg-Obukhova method there is no way to completely correct the deformity of the wing of the nose, it gives good results with incomplete clefts of the upper lip, without much deformation of the wing

of the nose. With wide clefts of the upper lip, it does not correct the wing of the nose insufficiently. With modified cheiloplasty by the method of Frolova L.E. (1967), which is used for incomplete non-union, along the border of the red border and skin from the point of bulge to the apex of the defect, the red border of the lip is cut off in the form of a triangular flap through all tissues. The same cut is made on the other side. On the median fragment of the lip, the incision is made from the sides along the border of the skin and the red border to the bulge points. From here, the incisions on both sides are directed to the middle part of the red border, where they are connected in that section of the red border, which is formed by a transverse incision at the border of the red border of the lip and the mucous membrane of the middle section of the lip. The wound is sutured. Triangular flaps of the red border from the lateral fragments are sutured in the middle and sutured to the mucous membrane of the median fragment of the lip, creating the outline of the common red border. The method cannot be called physiological, since the works of I.A. Kozin (1986), V.A. Vissarionova (1986), D.R. Millard (1976), Sugihara T. (1993) it is proved that this is not an excess, but a deficiency of the mucous lining of the nose, and as a result, instead of a spherical surface, a constricting scar is formed. A number of authors (Novoselov R.D., 1969; Znamensky V.I., 1980) believe that an increase in the height of the cutaneous lip on both sides of the clefts is a characteristic feature of the Obukhova-Tennison operation. Kasparova N.N. (1968), using the Obukhova-Tennison technique, indicated an excess of skin at the threshold of the flattened nostril, which is most often excised, which is a mistake in view of the localization of the center of the congenital tissue defect in this area.

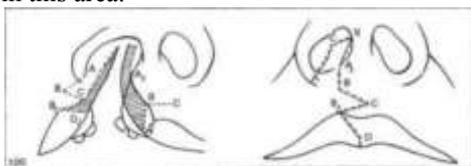


Fig. 1. Method of primary cheiloplasty according to Obukhova

Linear methods of Limberg, Millard differ in the method of forming the base of the nasal opening with complete clefts of the lip. The positive side of these methods is the cosmetic appearance of the scar line, which coincides with the border of the filtrum. However, these methods do not allow obtaining sufficient lip lengthening required for wide, full clefts. After scarring, one half of the Cupid's bow is pulled up, breaking the symmetry of the red border line. In addition, a few months after plastic surgery, ingrowth along the scar of the mucous membrane of the red border in the form of a triangle may be

observed (Millard D.R., 1976; Schuman D. et al., 1991; Mulliken John B. Et al., 1999).



Fig. 2. Method of primary cheiloplasty according to Millard and Lemesurier.

In case of bilateral clefts of the upper lip with a sufficient height of the middle part and a slight displacement of the intermaxillary bone, the method of primary cheiloplasty proposed by A.A. Limberg (1926) is an expedient method of plasty. In case of bilateral lip nonunions, Limberg performed cheiloplasty simultaneously, observing all the details of unilateral cheiloplasty on each side. In this case, the "proboscis" was used to create the middle part of the lip. On the lateral fragments, he cut out the same flaps (Miro and Limberg) as in unilateral non-union, and connected them to the middle one according to the same calculations. To form the central tubercle of the lip, I used Miro's flap tissue on both sides. For bilateral symmetrical clefts of the upper lip, for one-step lengthening of the shortened middle part, a number of authors use Obukhova's triangular flaps, and Mesurier-type quadrangular flaps from the lateral parts of the lip. However, these techniques often lead to excessive lip height and are not accompanied by correction of shortening of the nasal septum and flattening of the cartilage of the wing of the nose. In cheiloplasty by the Limberg method modified by Shinbirev (1964), the median lip fragment is cut according to Limberg. On the lateral fragments of the lip, Limberg flaps are cut out at the top and a section of the lip is excised. At the bottom, quadrangular Miro-type flaps are formed through the entire thickness of the lip. These flaps, sutured along the midline, are better at restoring the length of the lip.



Fig. 3. Method of primary bilateral cheiloplasty according to Limberg as modified by Shinbirev.

Davydov B.N., Novoselov RD (1977) developed a method of primary bilateral rhinocheiloplasty for bilateral symmetrical incomplete and complete clefts of the upper lip without significant displacement of the intermaxillary bone and with small defects of the alveolar process.



Fig. 4. Method of primary bilateral cheiloplasty according to B.N. Davydov and R.D. Novoselov.

Bilateral cheiloplasty by the Millard method (1976) is performed in three stages. On the first two, with an interval of one month, the lip defect is eliminated using the Vaux method. At the third stage, using a fork-shaped flap from the lip according to Millard, the septum of the nose is lengthened. The wound on the lip is closed with flaps from its side areas cut out under the bases of the wings of the nose according to Millard. Ingelrans R. et al. (1963) called Millard's method the most original of all methods that have appeared over the past half century. This method allows you to restore the height of the lip and get good anatomical shape. According to the supporters of this method, its application will provide an opportunity to give the recreated upper lip shape, close to normal, significantly improve accompanying deformity of the nose, get good functional results. Repetition of reconstructive operations is easy to do, since the maximum of lip tissues are preserved and, if necessary repeated cheiloplasty can be performed in the direction of the same sections (I.A.Kozin 1974, 1996; I.D. Kipyarina, 1984). Pool R. (1966) believes that Millard's method in technical relation is much easier than most others with the use of triangular flaps. The method is characterized by a complete lack of the moment of excision of the tissues of the lip, especially with complete clefts, and also the simultaneous lengthening of the shortened nasal septum and internal column of the filter room. Frolova L.E. (1962) indicates that scars from displaced opposing triangles located in the upper part of the filtrum are less noticeable, but tissue deficiency and suture tension can be created in this place. Jeanty M. (1964) believes that Millard's method should be used for partial, incomplete clefts of the upper lip and palate. For wide, one-sided crevices, the Tennyson Method is recommended. The opposite opinion is shared by J. Kosh et al. (1967), who claim that Millard's method is simple and easy to apply, as with incomplete and through clefts of the upper lip. Sugihara T. (1993) and Walter S. (1991) argue that the Millard method relatively contraindicated in wide through crevices with significant tissue defect in the median fragment.

Novoselov R.D., Davydov B.N., (1984) indicate that the method Millard allows you to form a complete anatomical, aesthetically and functionally the upper lip. Wynn S.K. (1988) modified Millard's method, with a triangular flap on the lateral lip fragment, which is sutured into incision between the base of the nasal septum and the midline fragment, cut out not by a cut along the groove under the base of the wing of the nose, but in the form a descending triangular flap of the Limberg type with a leg at the base wing. Thus, this flap increases the height of the skin partitions. The operation is performed in two stages. On the second side, the operation is repeated after 1.5-2 months.

This method was modified by the staff of the clinic of the department pediatric dentistry of the Moscow Medical Dental Institute (1970). The modification was based on the elements several methods. Lip skin incisions are made according to the method Limberg - Tennyson, the vestibule of the oral cavity is formed according to the above-described method of American surgeons (Kasparova N.N., 1968). The operation is performed in two stages. On one side of the middle fragment, along the entire lateral edge, an incision is made along the skin border and a red border, starting from the base of the nasal septum. Incision continue on the skin at an angle to the center of the fragment, dissecting all tissues to bones and dissecting them widely. Through the same incision, the tissues are exfoliated septum to the tip of the nose. Excess overturned mucosa is excised. On the lateral fragment of the lip, triangular Limberg flaps are cut out and Obukhova. The wound is sutured in layers, thus eliminating the crevice on one side. On the other side, the operation is repeated after 2-2.5 months (A.A. Kolesov, 1970).

Thus, used in primary cheiloplasty linear methods of Millard and Limberg and the Obukhova-Tennyson method, with the right choice of indications for their conduct, they allow successfully restore the anatomical and functional integrity of the zone defect. To select a technique for bilateral primary cheiloplasty the determining factor is the degree of underdevelopment of soft tissues the middle fragment. With underdevelopment of the soft tissues of the median fragment by 2/3 of its height, the most acceptable method of moving a triangular flap according to Obukhova-Tennyson, which gives the best results, taking into account the restoration of the correct Cupid's bow and the anatomical integrity of the upper lip with normalization of the mobility of the circular muscle of the mouth.

In children with congenital bilateral cleft of the upper lip and palate with underdevelopment of the soft tissues of the median fragment by 1/3 or 1/2 of its heights, it is advisable to use Millard's linear methods and Limberg. In this case, less noticeable scars are observed and the maximum the tissues of



the upper lip are preserved, which is the key to successful completing reconstructive surgery in adults patients.

In recent years, in Uzbekistan, for the correction of dentoalveolar anomalies and deformities in congenital pathology in early childhood, orthodontic appliances of various designs have been used.

Therefore, the surgeon when performing the primary operation on the lip is faced with the task of choosing the correct method of cheiloplasty, on which the growth and development of the midface zone, the formation of a person's appearance and the effectiveness of the final cheilorinoplasty in adults and adolescents largely depend. At the same time, in our opinion, such important points should be taken into account, which will dictate the choice of the method of primary cheiloplasty, the stages of operations such as the state of the central fragment of the upper lip of the prolabium, the degree of protrusion of the intermaxillary bone, the distance between the lateral fragments of the upper lip and the intermaxillary bone. [1,3,4,5,8,9]

CONCLUSIONS

1. Anthropometric study of models of the upper jaw in patients with bilateral cleft of the upper lip and palate showed that when using one-stage cheiloplasty according to Kozlyuk, patients have a retrusive position of the intermaxillary bone, an expansion of the width of the jaw in the distal and normalization at the level of mesial groups of teeth; in patients operated on by the method of two-stage cheiloplasty according to Limberg, both in the near and in the long term, there is a protrusive position of the intermaxillary bone, growth retardation in other parameters in the sagittal plane, expansion of the width of the jaw at the level of the distal and narrowing in the mesial groups of teeth; after two-stage cheiloplasty according to Millard, in the near future after the operation, there is a normalization of the position of the intermaxillary bone along the sagittal, expansion of the jaw in the region of the distal groups of teeth.

2. In case of bilateral through clefts of the upper lip and palate with hypoplastic prolabium, the method of two-stage cheiloplasty according to Millard is the most justified and anatomically justified due to more effective restoration of the integrity of the circular muscle of the mouth, prolabium growth, which has a positive effect on the position of the intermaxillary bone and lateral fragments.

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