Letter to editor

Spectrum of cheiloplasty has detrimental effect on maxillary growth: myth or fact?

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Spectrum of cheiloplasty has detrimental effect on maxillary growth: Myth or fact?

Cheiloplasty is the technical term for surgery of the lip. It is a reconstructive surgical procedure to correct a physical separation or groove-like flaw in the upper lip. The extent of separation or split varies depending on the severity of the condition. In cases where the separation extends into the base of the nostril – an opening between the oral and nasal cavities is visible. Fortunately, most clefts can be repaired through cosmetic plastic surgery techniques to provide significant improvement in quality of life as well as to restore normal appearance and function. Cleft lip repair/surgery is suitable to those predisposed with these types of upper lip flaws. Cleft lip can be on one side of the nose (unilateral cleft lip) or on both sides of the nose (bilateral cleft lip). A complete cleft lip is when the split extends right up and into the base of the nostril. An incomplete cleft lip is when the split in the upper lip does not extend up to the nose.

The aim of the surgery is to:

close separation in upper lip.

facilitate feeding, talking.

evaluate ear infection and hearing problem.

aid in normal development of associated structure in mouth.

guide tooth eruption.

improve the aesthetics.

There are various types of cheiloplasty. Such as:

C. Tennison technique (triangle flap).

R. Millard technique (rotation flap).

J. Olekas technique (modified G. Pfeiffer or wave incisions with small triangle flap above the red lip) [1].

Le Mesurier technique.

Randall technique [6].

Blair-Brown-Mc Dowell technique (straight liner).

Modified Millard [2].

Modified Millard with vomer flap [2].

Onizuka technique [4].

TAN technique [7] etc.

Different studies showed different results about cheiloplasty -

Alam et al (2008) [2], analyzed subjects underwent modified Millard cheiloplasty and modified Millard with vomer flap. They used the 5-year-old index and Goslon Yardstick for the evaluation of dental arch relationship and suggested that Modified Millard cheiloplasty is more favorable than vomer flap.

Kajii et al (2013) [3], analyzed subjects with unilateral cleft lip and palate (UCLP). The Goslon Yardstick was used to assess the dental arch relationship. Their study suggested modified Millard is more favorable than modified Millard with anterior plate closure.

Apostol (2008) [4] analyzed the results obtained by utilizing the Onizuka as the main treatment scheme of the cleft lip and palate (CLP), through a potential study including 63 children with CLP. He used the first version of the Onizuka technique, a scheme that resembles the Millard technique modified for extending the outer margin of the cleft, only in 3 cases, with a satisfying result, but later he used a revised method. The results had improved. As a conclusion he considered that Onizuka technique had many advantages compared to other cheiloplasty methods: clear and precise identification of all the

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anatomical guides that describe the pre-operatory method; post operatory scars did not cross the nostril gap like others technique. This flap did not perpendicularly cross the philtrum, like in the other techniques. One of the disadvantages of using this technique is the fact the method is precise, rigorous and as a result it must be perfectly known and the pre-operator drawing must be prepared in details. Concerning the esthetical and functional results, the Onizuka technique offers bounty of satisfactions to the patients, as well as the surgeon.

Alam et al. (2012) [5], also evaluated the postnatal treatment factors affecting craniofacial morphology in Japanese unilateral cleft lip and palate (UCLP) subjects. They analyzed 60 subjects who underwent modified Millard cheiloplasty and 80 subjects who underwent modified Millard with vomer flap and used cephalograms to evaluate craniofacial morphology. Subjects treated by modified Millard cheiloplasty had significantly better maxillary growth in relation to the cranial base ($p = 0.004$), better jaw relations ($p = 0.005$), better facial convexity ($p = 0.002$), and better proclination of maxillary incisors ($p = 0.015$) than subjects treated by modified Millard cheiloplasty with anterior hard palate closure with a vomer flap.

Table 1. Results of different studies on cheiloplasty affecting maxillary growth.

Author	Type of cheiloplasty	Method used	Outcome
Alam et al (2008) [2]	1. Modified Millard. 2. Modified Millard with vomerflap.	1. 5- year-old. 2. Goslon Yardstick.	Modified Millard cheiloplasty is more favorable than modified Millard with vomer flap cheiloplasty.
Kajii et al (2013) [3]	1. Modified Millard with anterior plate closure. 2. Modified Millard.	Goslon Yardstick	Modified Millard is more favorable than modified Millard with anterior plate closure.
Apostol D (2008) [4]	Onizuka technique	Photograph	Onizuka technique offers plenty of satisfactions to the patients, as well as the surgeons regarding the esthetical and functional purpose.
Alam et al (2012) [5]	1. Modified Millard 2. Modified Millard with vomer flap	Cephalograms	Modified Millard is more favorable in relation to craniofacial morphology.
Huang et al (2002) [8]	Millard's rotation-advancement cheiloplasty	Dental casts	Cheiloplasty could mold the anterior portion of the maxillary dental arch palatally by exerting continuous pressure.
Zaleckas L et al (2011) [1]	1. C Tennison technique. 2. R Millard technique. 3. J Olekas technique.	Assessd by score from analyzing standardized photographs of naso labial triangles and the modified scale according to Mortier and Anastassoy.	Height of white lip and symmetry of Cupid's bow were better restored by using the Tennison technique. The physiological configurations of the white lip and less visible scars were achived by using the Olekas technique. All techniques were equal in red lip and nose formation.
Meyer E and Seyfer A(2010) [6]	1.Tennison- Randall technique 2. Millard technique	Photograph	1. Tennison technique presented more flexibility with wide clefts. 2. Millard technique presented outstanding results with narrow clefts.
Tan and Atik (2007)[7]	Triangular with ala nasi (TAN) repair (combined with Millard and Tennison-Randall technique).	Williams test and Lindsay-Farkas method	1. TAN lengthened the vertical lip using a triangular flap, resulting in a nonlinear, zig-zag scar on the philtral ridge and forming a symmetrical cupid's bow like Tennison technique. 2. Showed an excellent estimate of both the deep and superficial muscle groups and reduces the nasal deformity with a perialar incision like Millard technique.

Zaleckas et al (2011) [1], they analyzed 66 subjects with nonsyndromic complete unilateral cleft lip, alveolus and palate were examined. Among them 19 subjects (28.8%) underwent Tennison technique, 20 subjects (30.3%) underwent Millard technique and 27 subjects (40.9%) underwent Olekas technique. Outcome was assessed by score, which was given by analyzing standardized photographs of nasolabial triangles. For the evaluation, the modified scale according to Mortier and Anastassoy was used. Separate anatomical elements – red lip, white lip, scars, and nose were assessed. The best appearance of the red lip and white lip was found after the Tennison technique. Height of white lip and symmetry of Cupid's bow were better restored by using the Tennison technique. The physiological configurations of the white lip and less visible scars were achieved by using the Olekas technique. All techniques were equal in red lip and nose formation.

Meyer and Seyfer (2010)[6], analyzed 100 subjects with UCLP. Among them twenty-six patients received the Tennison-Randall technique and 74 received the Millard technique. After surgery they compared the results of two types of repairs, performed by a single surgeon over a period of 30 years. They found Tennison technique presented more flexibility with wide clefts, but less with narrower clefts. This associated to excellent adjustability of the volume and length of the triangular flap and Millard technique presented outstanding results with narrow clefts, but less with wide ones.

Tan and Atik (2007) [7] developed their personal technique, called the triangular with alanasi (TAN) repair, including a perialar incision and a distinct approach to the skin and muscle. They applied the TAN technique in unilateral cleft. The postoperative outcomes were assessed subjectively by Williams test and objectively by Lindsay-Farkas method. They combined the useful properties of the two popular techniques, Millard and Tennison-Randall. The TAN repair lengthened the vertical lip using a triangular flap, resulting in a nonlinear, zig-zag scar on the philtral ridge and forming a symmetrical cupid's bow, superiorities of the Tennison-Randall repair. On the other hand, their method also showed an excellent estimate of both the deep and superficial muscle groups and reduces the nasal deformity with a perialar incision, features of the Millard's technique.

Huang et al (2002) [8], analyzed infants with nonsyndromic unilateral complete cleft lip and palate to discover and examine quantitatively the development of the maxillary dental arch before and after cheiloplasty. They performed Millard's rotation-advancement cheiloplasty. Maxillary dental casts were taken before and after cheiloplasty. They found that cheiloplasty could mold the anterior portion of the maxillary dental arch palatally by exerting continuous pressure.

Different techniques showed different results. No specific techniques of cheiloplasty consistently produce ideal esthetic and functional results. Each technique can be used for the primary repair of CLP depending on the skill and training of the operating surgeon.

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