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EVALUATION OF MODIFIED MILLARD'S TECHNIQUE WITH PREMAXILLA SHORTENING IN BILATERAL LABIOPLASTY AT MALAHAYATI HOSPITALBANDA ACEH 2016- 2019

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ABSTRACT

Introduction: Cleft Lip and Palate (CLP) is a congenital abnormality in the form of gaps in the lips, gums and palate. Surgical techniques for reconstructive surgery vary greatly, but labioplasty using a modified millard technique with premaxillary shortening is a technique that we used in this study with the aim of premaxilla shortening to reduce the tension of the suture wound and will reduce the scar formed in Bilateral labioplasty after surgery.
Methods: This research is a cohort with a retrospective approach conducted on labioplasty patients at Malahayati Hospital in Banda Aceh, which was handled in the period of 2016 - 2019. The sample amounted to 23 respondents who will be analyzed using the frequency distribution table.
Results: The study found male sex as much as 60.9%, theage of patients in the age group 2 years and over as much as 69.6%, 6-9 months evaluation time as much as 87.0%, the diagnosis of complete bilateral labioplasty as much as 65.2% and good outcome in bil ateral labioplasty using modified millard technique with premaxilla shortening as much as 73.9%.
Conclusion: The majority of male sex is the most, the highest in the age group 2 years and above, the most evaluation time is 6-9 months, the most common diagnosis is complete bilateral labiolasty and the most results on bilateral labioplasty using modified millard techniques with premaxillary shortening is good outcome.

Highlights:

1. The use of a modified Millard technique with premaxillary shortening in cleft lip and palate (CLP) reconstructive surgery.
2. A majority of patients achieved positive results in bilateral labioplasty when the modified Millard technique with premaxillary shortening was employed.

INTRODUCTION

Labioschizis or Cleft Lip is the most common case of craniofacial anomaly defects. Cleft lip with or without the palate (CL/P) and palate (CP) is a congenitalabnormality that occurs on the lips that can be accompanied by abnormalities on the palate.[1] In

classification, the cleft lip can hitboth sides called bilateral labioschizis or one side called unilateral. Or it can also be followed by accompanying defects such as cleft palate and other accompanying defects.[2]

This research focused on the cleft lip on both sides and commonly known as bilateral labioschizis. Efforts to improve through surgery have been attempted with various techniques. One of them is a surgery technique initiated by Millard (Rotation Advancement Flap). This technique is considered easier and can restore the lip points to an anatomical point. Muscles in the cleft lip can be rotated to near normal lip muscles.[3] Repositioning the maxillary andalveolar segments into a more anatomic position allows the surgeon to repair the lip and associated nasal deformity under moreoptimal conditions.[4]

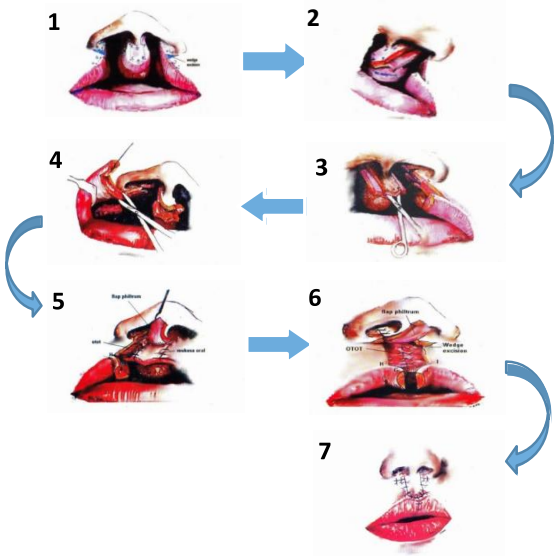
But often prominent conditions are found in bilateral labioplasty premaxilla, this causes difficulty for thesurgeon because the lip muscles cannot be directly met or when it is forced there will be tension and result in loose stitches a few days later. Millard modification technique with premaxillary shortening is a technique used in this study in order to shorten or reduce premaxilla, so the suture wound tension and scar formed in bilateral labioplasty after surgery would bereduced.[5]

METHODS

Retrospective reviews from all cases of bilateral cleft lip were performed between September 2016 and September 2019 at Malahayati Hospital. All cases were done under general anaesthesia with orotrachealintubation. Data retrieved from the hospital record which then included into the analysis were sex of patients, month of birth; type cleft deformity, Bermudez Score, and evaluation outcome. A total of 1258 patients were managed for cleft lip and palate deformity during the period. 23 (2%) of these were bilateral cleft lip. There were 9 females and 14 males. Age of patients at time of surgery ranged between 8 and 490 months. Surgical technique employed was Modified Millard's with premaxillary shortening. Surgical outcome was considered satisfactory if there were: Adequate length of the upper lip, symmetrical nostrils, reconstituted philtrum and adequate columella length. There were 17 surgical interventions (73%) which were found to be satisfaction out of 23 cases.

Data collected was subjected to simple statistical analysis using the Statistical Package for Social Sciences (SPSS), SPSS ® for Windows, version 25.0 (SPSS Inc., Chicago, IL) statistical software package. Frequencies and means of the variables were estimated. Some pre-operative, intra operative and post-operative clinical photographs were also retrieved and were presented.

After having installed the mouth-gag on the vomer bone in front of the center of growth, septumnasal bone, reduction process performed about 1 cm.



*notes: (1) Cheiloraphy Bilateral Design, Incision in Bilateral Cheiloraphy, Philtrum Correction, Muscles Correction, Mucosal Suturing, Wedge Excision, and The Result of Cheiloraphy Bilateral

Figure 1. Modified Millard's Technique[1]

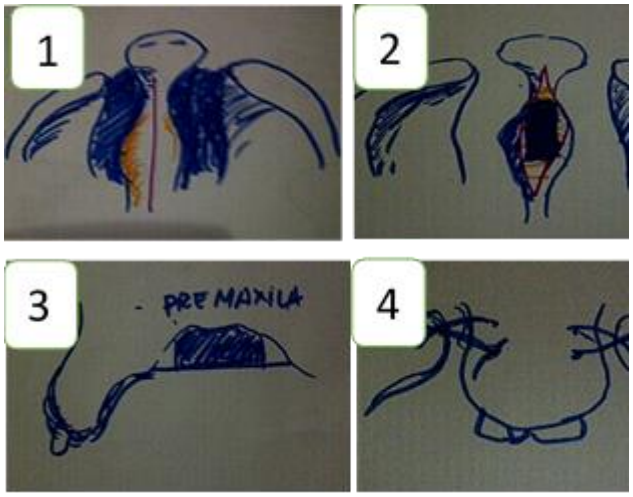


Figure 2. Premaxillary Shortening Surgery Process[1]

There are some step to modified Millard operation techniques with premakxillary shortening, first, Mucosal incision is made more or less 2 centimeters to the bone. Then, using a small rasparatorium, through mucosal incision wounds in the right and left elevation enough, premaxillary bone will appear clear and enough space to do the reduction with the knife No. 11. The bones along 1 cm are removed until the premaxilla can be pushed posteriorly. Premaxilla should be fixed by using vicrylyarn 3-0 with suture technique, figure of 8 to the right and left Alveolar.[1] (Figure 2).

Figure 3 showed a male with labioplasty using modified millard's technique with premaxilla shortening in 7 month process first, Preoperative anterior view; Second, the occlusal intra-oral view, incision process at the edge of the premaxilla bone; third, occlusal intra-oral view, showing vomero-premaxillary suture and thesite of the wedge ostectomy of the vomer with a bone cutter. And the last is occlusal intra-oral view, showing the gap after the withdrawal of the wedge osteotomized vomer.

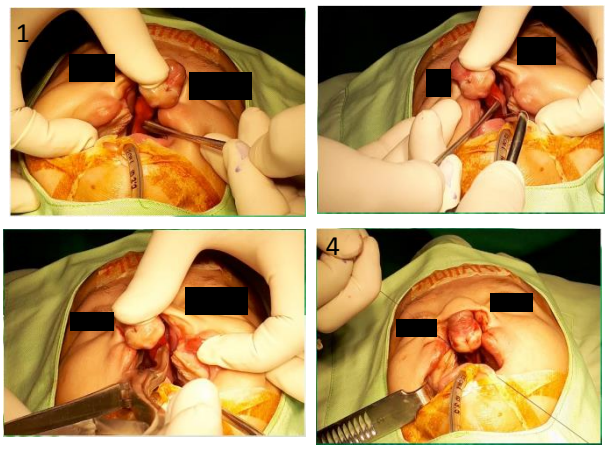


Figure 3. A 7 months male with labioplasty using modified millard's technique with premaxilla shortening[1]

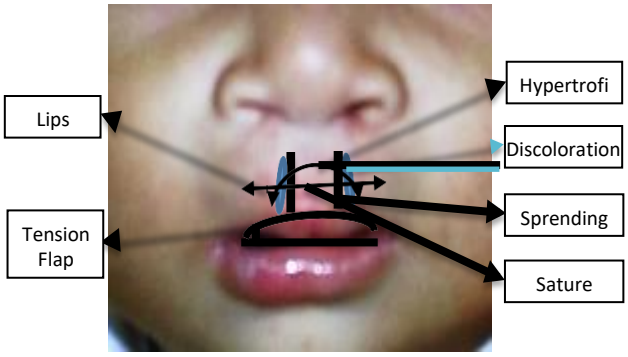
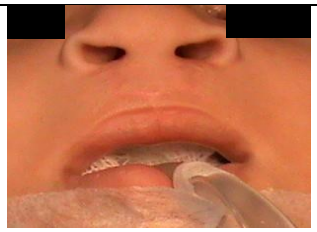
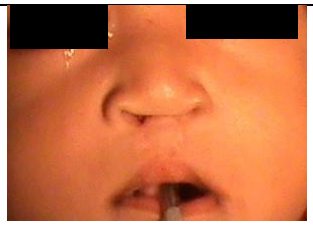
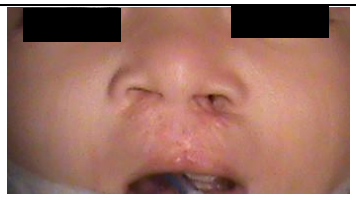
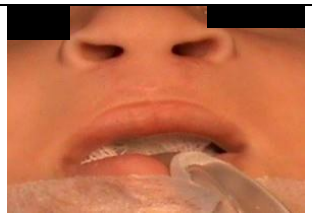


Figure 4. Repaired Bilateral Cleft Lip[13]

Table 1. Variable of Evaluation Post Labioplasty[13]

Variable of Evaluation	0 Poor	1Fair	2 Good
Lips Form Distance from commisura dextra to sinistra and vilmetrion thickness shows symmetrical. Perfome cupid bows looks good	 Completely asymmetrical between vilmeltrion thickness, Huge discrepancy of more than 2 mm (about).	 Less symmetrical, distance columella to cupid bows seems different, There is some discrepancy between about 1-2 mm.	 There is not discrepancy or it is less than about 1 mm.
Tension Flap The result after surgery makes filtrum look extracted, cupid bowsnot performed.	 Flap looks tense and so extracted and the vilmetrion looks thin	 A little tense but does not interfere with smile when smiling.	 No tension, vilmetrion formnot thin and not interested
Hipertrofi Swelling in the filtrum so that the protrusion piles over the skin	 Swelling was seen above the filtrum, protrusion was evident	 Protrusion appears but does not interfere with vilmetrion	 No visible protrusion of the collum filtrum, formed properly.
Discoloration Color discrepancy changes the former stitches	 Color discrepancy of the former stitches due to the process of healing the wound	 Discoloration is seen but does not occur in all former stitches	 There is no discoloration on the stitches, the results are good
Spreading Widening of the stitches appears	 Widening of the actual stitches due to the process of healing wounds	 Widening is seen but does not occur in all stitches	 No widening of the stitches, better results

Suture Marks Suture marks appear in the area of the filtrum and vilmetrion	 There are visible stitches in the area of the filtrum and vilmetrion	 Suture marks appear but not all stitches	 No visible form of collum filtrum, suture is formed properly.

Figure 5. Patient with Repaired Bilateral Cleft Lip After Evaluation within 6-12 Month

6-Month Evaluation

Indicator		Score
Lips Form		2
Tension Flap		2
Scar Quality	Hypertrofi	2
	Discoloration	2
	Spreading	2
	Suture Marks	2
Total Score		**12**

9-Month Evaluation

Indicator		Score
Lips Form		2
Tension Flap		2
Scar Quality	Hypertrofi	1
	Discoloration	1
	Spreading	2
	Suture Marks	2
Total Score		10

Outcome Post Labioplasty

The frequency distribution of post labioplasty outcomes with the modified millard technique with premaxillary shortening of bilateral labioschizis patients who have been operated. The result obtained through poor, moderate and good outcome.

Based on table 1 and graph 1 it was found that the post labioplasty outcome with the modified millard technique with premaxillary shortening of bilateral complete patients was moderate as many as 6 respondents (26.1%), Good as many as 17 respondents (73.9%).

Table 1. Post labioplasty outcome with modified millard technique with premaxillary shortening of bilateral complete labiopalatoschizis patient at Malahayati Hospital Banda Aceh

Outcome Post Labioplasty	Frequency (n)	Persentage (%)
Poor	0	0.0
Fair	6	26.1
Good	17	73.9
Total	23	100

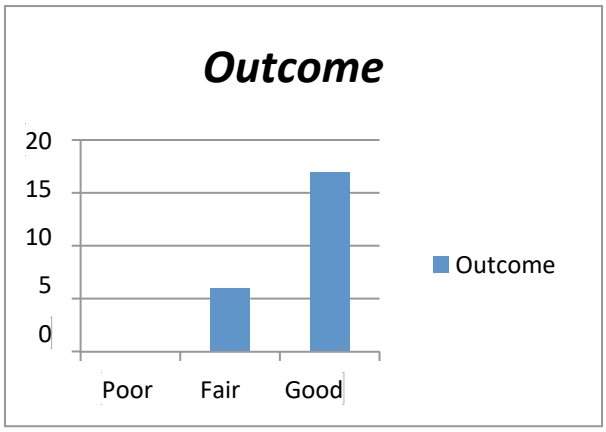


Figure 6. Post labioplasty outcome with modified Millard technique with premaxillary shortening of bilateral completelabiopalatoschizis patients at Malahayati Hospital Banda Aceh

Age

The frequency distribution of post labioplasty patients based on age, obtained in this study can be seen in Table 2 and Figure 7.

Table 2. Frequency Distribution of Post Labioplasty Patients by Age at Malahayati Hospital Banda Aceh

Age	Frequency (n)	Persentage (%)
6-12 Month	4	17.4
1-2 Year	3	13.0
>2 Year	16	69.6
Total	23	100

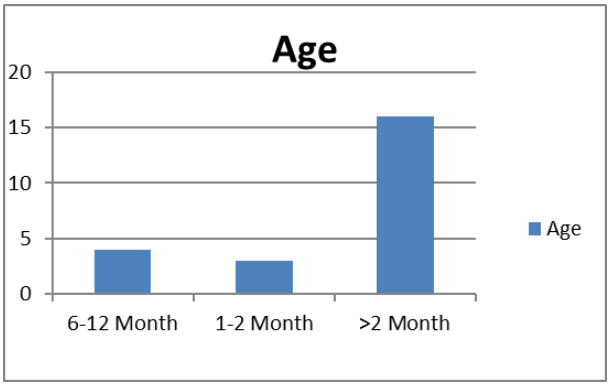


Figure 7. Frequency Distribution of Post Labioplasty Patients by Age at Malahayati Hospital Banda Aceh

Based on Table 2 and Figure 7 it was found that the most post labioplasty patients were found at age> 2 years as many as 16 respondents (69.6%), 6-12 months as many as 4 respondents (17.4%), 1-2 years as many as 3 respondents (13.0%).

Table 3. Age Frequency for Outcome Distribution of Post Labioplasty Patients by Malahayati Hospital in Banda Aceh

Age	Outcome				Total	
	Fair		Good			
	n	%	n	%	n	%
6-12 Month	3	13.0	1	4.3	4	17.4
1-2 Year	1	4.3	2	8.7	3	13.0
>2 Year	2	8.7	14	60.9	16	69.6
Total	6	26.1	17	73.9	23	100

Based on table 3, it was found that the most post labioplasty patients were foundat age >2 years as many as 16 respondents (69.6%). The results obtained were moderate respondents (8.7%) and good as many as 14 respondents (60.9%) aged 6-12 years as many as 4 respondents (17.4%) the results obtained are moderate outcomes of 3 respondents (13.0%) and good as many as 1 (4.3%) and at the age of 1-2 years as many as 3 respondents (13, 0%) the result of moderate outcome is 1 respondent (4.3%) and good is 2 (8.7).

Gender

The frequency of gender distribution patient with labioplasty, obtained in this study can be seen in Table 4 and Figure 8.

Table 4. Frequency Distribution of Post Labioplasty Patients by Gender atMalahayati Hospital, Banda Aceh

Gander	Frequency (n)	Persentage (%)
Male	14	17.4
Female	9	13.0
Total	23	100

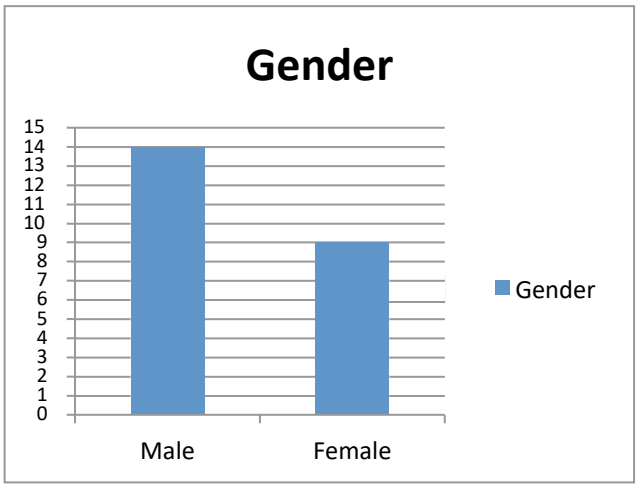


Figure 8. Frequency Distribution of Post Labioplasty Patients by Gender at Malahayati Hospital, Banda Aceh

Based on Table 4 and Figure 8 it was found that most post labioplasty patients were male as many as 14 respondents (60.9%) and females as many as 9 respondents (39.1%).

Table 5. Distribution of Outcome Frequency of Patients with Labioplasty Patients by Gender at Malahayati Hospital, Banda Aceh

Gander	Outcome				Total	
	Moderate		Good			
	n	%	n	%	n	%
Male	6	26.1	8	34.8	14	60.9
Female	0	0.0	9	39.1	9	39.1
Total	6	26.1	17	73.9	23	100

Based on table 5 it was found that post labioplasty patients were found most in the male gender as many as 6 respondents (26.1%) obtained moderate and good outcome as many as 8 respondents (34.8%) and women as many as 9 respondents (39.1 %) good outcome is obtained.

Lips Form

The frequency distribution of the lips form of post labioplasty patients obtained in this study can be seen in Table 6 and Figure 9.

Table 6. Frequency Distribution of Patients with Post Labioplasty Patients by Lips Form at Malahayati Hospital, Banda Aceh

Lips Form	Frequency (n)	Persentage (%)
Symmetrical	18	78.3
Asymmetrical	5	21.7
Total	23	100

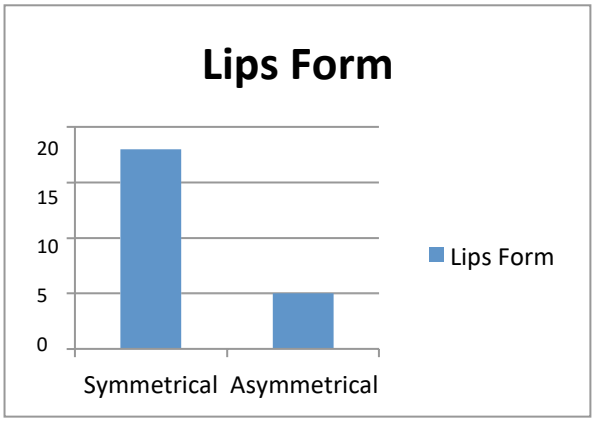


Figure 9. Frequency Distribution of Patients with Post Labioplasty Patients by Lips Form at Malahayati Hospital, Banda Aceh

Based on Table 6 and Figure 9 it was found that the lip shape of labioplasty was found most symmetrically as many as 18 respondents (78.3%), and asymmetrical as many as 5 respondents (21.7%).

Table 7. Distribution of Outcome Frequency of Patients with Labioplasty Patients by Lips Form at Malahayati Hospital, Banda Aceh

Lips Form	Outcome				Total	
	Fair		Good			
	n	%	n	%	n	%
Symmetrical	1	4.3	4	17.4	5	21.7
Asymmetrical	5	21.8	13	56.5	18	78.3
Total	6	26.1	17	73.9	23	100

Based on Table 7 it was found that the lips form in post labioplasty patients was found to be most symmetrical as many as 18 respondents (78.3%). symmetrical as many as 5 respondents (21.7%) with moderate outcome as much as 1 respondent (4.3%) and good as many as 4 respondents (17.4%).

Tension Flap

The frequency distribution of the tension flap of post labioplasty patients obtained in this study can be seen in Table 8 and Figure 10.

Table 8. Frequency Distribution of Patients with Post Labioplasty Patients by Tension Flap at Malahayati Hospital, Banda Aceh

Tension Flap	Frequency (n)	Percentage (%)
Tension	6	26.1
Normal	17	73.9
Total	23	100

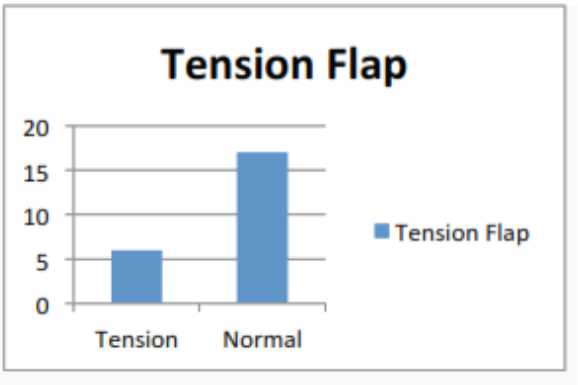


Figure 10. Frequency Distribution of Patients with Post Labioplasty Patients by Tension Flap at Malahayati Hospital, Banda Aceh

Table 9. Distribution of Outcome Frequency of Patients with Labioplasty Patients by Tension Flap at Malahayati Hospital, Banda Aceh

Tension Flap	Outcome				Total	
	Moderate		Good			
	n	%	n	%	n	%
Tension	4	8.7	4	17.4	6	26.1
Normal	2	17.4	13	56.5	17	73.9
Total	6	26.1	17	73.9	23	100

Based on Table 8 and Figure 10 it was found that the most frequent tension flap in labio plasty was not tense as many as 17 respondents (73.9%), and tense as many as 6 respondents (26.1%).

Table 9 was found that the tension flap in post labioplasty patients was found to be the least tense of 17 respondents (73.9%). The moderate outcome was 4 respondents (17.4%) and good was 13 respondents (56.5%) and tense as many as 6 respondents (26.1%) with moderate outcomes as much as 2 respondents (8.7%) and good as many as 4 respondents (17.4%).

Scar Quality

The frequency distribution of the scar quality of post labioplasty patients obtained in this study can be seen in Table 10 and Figure 11.

Table 10. Frequency Distribution of Patients with Post Labioplasty Patients by Scar Quality at Malahayati Hospital, Banda Aceh

Scar Quality	Frequency (n)	Percentage (%)
Poor	0	0
Fair	6	26.1
Good	17	73.9
Total	23	100

Figure 11. Frequency Distribution of Patients with Post Labioplasty Patients by Scar Quality at Malahayati Hospital, Banda Aceh

Based on Table 10 and Figure 11. it was found that the quality of scars in post labioplasty patients was found to be at good 17 respondents (73.9%), and 6 respondents (26.1%) fair.

Table 12. Distribution of Outcome Frequency of Patients with Labioplasty Patients by Scar Quality at Malahayati Hospital, Banda Aceh

Scar Quality	Outcome				Total	
	Fair		Good			
	n	%	n	%	n	%
Fair	3	13.1	3	13.0	6	26.1
Good	3	13.1	14	60.9	17	73.9
Total	6	26.1	17	73.9	23	100

Based on Table 12, it was found that the quality of scar in post labioplasty patients was found to be at most good as many as 17 respondents (73.9%) obtained fair outcome results as many as 3 respondents (13.1%) and good as manyas 14 respondents (60.9%) and fair as many as 6 respondents (26.1%) with fair outcomes as many as 3 respondents (13.1%) and good as many as 3 respondents (13.1%).

RESULT

The follow-up period ranged between 6 and 12 months. We examined the shape of the lips, tension flaps along with an assessment of the quality of the scar using Bermudez Score. None of the patients had any major complication, such as loss of the premaxilla for any ischemic episode or vascular compromise of the premaxilla or skin dehiscence of the lip. During followup, it was noted that the premaxilla was minimally mobile in all patients. 17 of 23 patients achieved good lip repair and 6 of them had fair results, inall cases with adequate muscle repair, with excellent lip symmetry, prolabium and Cupid bows and good scars. No fistula was found. Evaluation such as speech is recommended for the next research to assess the possibility of hypernasal or articulation disorders. However, as expected, it has not been recommendedbecause there are should need any improvements to the palate and also the effects of postoperative treatment itself.

DISCUSSION

Treatment as early as possible is the best couse of surgery because surgical scars are less visible afer surgery in infants.[7] in addition, bone tissue and soft cartilage can be formed in infants make correction easier with surgery, and normal oral function can be formed after the lip structure has been repaired anatomically. Premaxill protrusion in complete bilateral labioschizis can beseen at 10 weeks gestational age.[8] Growthof the anterior septum and anterior vomero-premaxillary is uncontrolled,combined with a lack of continuity ofbone and soft tissue, and impaired balance between oral muscles and tongueis thought to result in deformity inbilateral premaxilla.[9]

Uncontrolled growth in the premaxilla can result insignificant functional problems such as the absence of proper anterior occlusion,lateral mobility of the premaxillary segment and labial oronasal orisnasalfistula or palate causing a problem that results in disruption of speech and cleanliness mouth.[1] Repair of bilateral cleft lip with prominent premaxilla remains one of the most challenging problems for surgeons.

To our knowledge, there are reports of one-stage surgery with premaxillary shortening orvomerine ostectomy to repair complete bilateral labioschizis with protruding premaxilla.[10]

Followed by premaxilla shortening or vomerine ostectomy, followed by gingivo periosteoplasty become a technique to achieve adequate stability of the premaxilla in its new position, so that it can close the alveolar gap bilaterally, followed by sewing the orbiculus muscle then using modified Millard technique to repair the lips. Primary nasal correction is not performedbecause it increases the risk of damaging the philtrum and premaxilla vascularization that has been

performed surgery.[11]

The possibility of displaced premaxilla is very possible. treatment alone is not possible. On the other hand, surgical repositioning is technically recommended to prevent disruption of the premaxilla blood supply. A two-stage procedure is recommended in subsequent studies.[12] Premaxilla shortening, in combination with correction of lip slits, has also been reported to be successful in certain cases, especially in older patients. This procedure allows closure of large fistulas (increasing the likelihood of successful lip reconstruction without tension on the skin of the lips), facilitatingoverjet and overbite correction.[12]

Evaluation by assessing the shape of the lips, tension flaps and scar quality becomes an important correction for the surgeon to be a reference in conducting further operations. Researchers use a modified scoring system in cases of bilateral labioschizis complete with premaxillary shortening. The need for standardization in assessing the results of labioplasty is very important to improve health services by an organization, hospital or medical expert so that it gives better recommendations and actions for labioplasty in the future.[13]

The article's strength is early surgical intervention is emphasized, highlighting the advantage of performing surgery on infants to minimize visible surgical scars, the explanation of the developmental factors, such as bone and cartilage formation in infants, that make correction easier with surgery is informative, the text provides insights into the challenges faced by surgeons when dealing with complete bilateral labioschizis with protruding premaxilla, tt outlines a surgical technique involving premaxilla shortening, vomerine ostectomy, gingivo periosteoplasty, and the modified Millard technique, which can be valuable information for medical professionals. However, It's important to note that medical practices and recommendations may have evolved since the knowledge cutoff date in September 2021, and the latest developments in this field may not be reflected in the text.

CONCLUSION

The highest prevalence of male sexual activity is observed in individuals aged 2 years and older, with the most frequent evaluation period lasting between 6 to 9 months. The most common diagnosis among these individuals is complete bilateral labial fusion. When it comes to the outcomes of bilateral labioplasty using the modified Millard technique with premaxillary shortening, the results are typically favorable.

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CONFLICT OF INTEREST

There is no conflict of interest in this article.

FUNDING DISCLOSURE

There have no financial interest in this article.

AUTHORS CONTRIBUTION

MT contributed to the study's design, conducting data research, and analyzing the data. MJ, on the other hand, was involved in developing the methodology, writing the manuscript, and revising it.

REFERENCES

1. Marzoeki, D., et al. (2002) Tehnik Pembedahan Celah Bibir dan Langit-langit, Jakarta: Sagung Seto.
2. Tolarova MM et al. Pediatric Cleft Lip and Palate. Medscape; 2018.
3. Burt JD, Byrd HS. Cleft lip: unilateral primary deformities. Plas. Reconstr. Surg. 2000; 105(3): 1043-55.
4. Meara JG, et al. Unilateral cleft lip and nasal repair: techniques and principles. Iran J. Pediatr. 2011.21: 129-38.
5. Millard, D. R. (1976) Cleft Craft and A Rhinoplasty Tetralogy Vol 1 The Unilateral Deformity, Miami: American Publishing Association.
6. Zayed EF, et al. Unilateral cleft lip repair: Experience with millard technique and introduction to the concept of junctional zones repair. Egypt J. Plast. Reconstr. Surg. 2012.36:109-18.
7. Desai S . Primary lip repair in newborn babies. In: Kehrer B, et al., eds, Long Term Treatment in Cleft Lip and Palate Bern . Stuttgart, Vienna: Hans Huber Publishers; 1981: 248–53.
8. Naryanan RK, et al. Synchronous palatal closure and premaxillary setback in older children with bilateral complete cleft of lip and palate. Plast Reconstr Surg. 2006.117:527–31.
9. Latham RA, et al. A question of the role of the vomer in the growth of the premaxillary segment. Cleft Palate J. 1975.12:351– 55.
10. Murthy J. Primary bilateral cleft lip repair with management of premaxilla without preoperative orthopedics. J Craniofac Surg. 2009.20:1719–22.
11. Fakih-Gomez N, et al. Repair of complete bilateral cleft lip with severely protruding premaxilla performing a premaxillary setback and vomerine ostectomy in one stage surgery. Med Oral Patol Oral Cir Bucal. 2015.1;20 (4):e500-7
12. Abbott MM, Meara JG. Nasoalveolar molding in cleft care: is it efficacious? Plast Reconstr Surg. 2012.130:659–66.
13. Bermudez L., Lizarraga A.Operation Smile: How To Measure Its Success. Annals Of Plastic Surgery September 2011, 67(3):205-208.