Original Article

Efficacy of Modified Millard's Technique for Repair in Children Presenting with Cleft Lip in Jamshoro, Sindh

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ABSTRACT

Objective: To assess the efficacy of Modified Millard's technique for repair in children presenting with cleft lip
Study Design: Descriptive case series
Place and Duration of Study: This study was conducted at the Department of Plastic and Reconstructive Surgery, Liaquat University Hospital, Jamshoro from August 2016 to February 2017.
Materials and Methods: Patients of age from 3 months to 10 years of both gender and all 3 types of cleft lip (Incomplete, Complete and Microform) on clinical examination were included. Syndromic patients (with other clefts) on clinical examination, associated congenital anomalies including neural tube defect (on clinical examination) and anemic children (Hb<10mg/dl) were excluded. All children underwent cleft lip repair under general anaesthesia by a single surgical team. Millard classical repair consists of a straight line closure at vermilion. All the information was recorded in a pre-designed written questionnaire.
Results: Total of 80 children with cleft lips was included. The mean age of the children was 3.28±3.24 Years. There were 54(67.5%) male and 26(32.5%) female. Efficacy of Modified Millard's technique for repair in children presenting with cleft lip was 76.25% (61/80) children.
Conclusion: It is concluded that Modified Millard's Technique for cleft lips is an effective method to achieve better cosmetic outcome and a reliable & versatile technique associated with excellent surgical outcome.

Key Words: Cleft of lip, Cranio-facial malformations, Modified Millard's technique

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INTRODUCTION

A cleft of lip is a significant component of craniofacial malformations.(1) It occurs as a consequence of failure of fusion of maxillary process with median nasal process. Multifaceted genetic and environmental factors are involved in its etiology. Family history reveals in most cases of cleft lip, in our country, are associated with first degree cousin marriage.(2) The incidence of cleft lip is more common in males at a 2:1 ratio. Unilateral clefts with left dominance show a 2:1 ratio.

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Phenotypically cleft lip is classified into microform, complete and incomplete.(3) Repair of cleft lip is a demanding procedure for a Plastic surgeon. Aim of surgery is to compensate for the functional and aesthetic deformity of a lip.(4) Several different techniques and their modifications are used to repair unilateral and bilateral cleft lip including Millard technique, Mohler's, Nordhoff vermillion flap, Onizukatriangular advancement flap, Tennisson and Manchester procedure.(5, 6)

Modified Millard technique is used, at our set up, to repair all types of cleft lip. It is frequently being observed that different post-operative complications are seen with different frequency in different age groups. In under developed countries, like ours, patients frequently presents beyond the recommended age for cleft lip repair.(7)

The optimal, most agreed age for surgery of cleft lip is 10-12 weeks after birth.(8) Reports of early repair imply better aesthetic and functional outcome. Surgical correction of defect with late presentation is technically more demanding especially at teen age and puberty.(9) One study has showed that the efficacy of 72% was achieved with modified millard technique for cleft lip repair in children.(10) Therefore, the purpose of this study is to evaluate the efficacy of cleft lip repair, by Modified Millard technique. Literature has showed that

modified Millard technique is an effective method to achieve better cosmetic outcome. But no local evidence was available in this regard so we want to conduct this study to get local evidence. Repair of cleft lip is highly dependent on surgeon's experience. The results of this study will therefore enable practicing surgeon to counsel and undertake procedure with sufficient knowledge of expected complication in this particular age group.

MATERIALS AND METHODS

This descriptive case series was conducted from August 2016 to February 2017 at the Plastic & Reconstructive Surgery Department, Liaquat University Hospital, Jamshoro after getting the ethical approval from the research and ethics committee of LUMHS, Jamshoro. All patients aged from 3 months to 10 years of either gender and all 3 types of cleft lip (Incomplete, Complete and Microform) on clinical examination were included. Syndromic patients (with other clefts) on clinical examination, associated congenital anomalies including neural tube defect (on clinical examination) and anemic children (Hb<10mg/dl) were excluded. Sample size of 80 cases is calculated with 5% level of significance, 10% margin of error and taking expected percentage of efficacy i.e. 72% with Modified Millard's technique for repair of children presenting with cleft lip.

Written or informed consent was obtained from their parents. Demographic variables including age, gender, type of cleft defect, site of the defect was noted. Then all children underwent cleft lip repair under general anesthesia by a single surgical team having at least 4 years residency experience. Millard classical repair consists of a straight line closure at vermilion. After surgery, children were shifted to post-surgical ward and were followed-up there for 1 week. After 1 week, wound was examined and efficacy was labeled if there was no notch. Informed consent from patient's parents/guardians was sought. Confidentiality was maintained by securing the data in the locker and this was not shared with anyone else without permission of the patient.

The data was analyzed using SPSS version 21. Age was presented as mean ± SD. Gender, type of cleft defect, site of the defect and efficacy was presented as frequency & percentage. Data was stratified for age, gender, type of cleft defect and site of the defect. Post-stratification, chi square test was applied to compare efficacy. The p value ≤ 0.05 was taken as significant.

RESULTS

Total 80 children were included. The mean age of the children was 3.28±3.24 Years. Majority of patients were male compared to their counterparts. Unilateral site of defect was observed in most of the patients while regarding type of defect, most of them have incomplete defect. (Table I).

Table No.1: Distribution of Gender, Age, Side of defect (n=80)

		n (%)
Gender	Male	54(67.5%)
	Female	26(32.5%)
Age	Mean ±SD	3.28±3.24
	<1 years	30(37.50%)
	1-5 year	30(37.50%)
	6-10 year	20(25%)
Side of Defect	Unilateral	48(60%)
	Bilateral	32(40%)
Type of defect	Microform	21(26.25%)
	Incomplete	49(62.25%)
	Complete	10(12.5%)

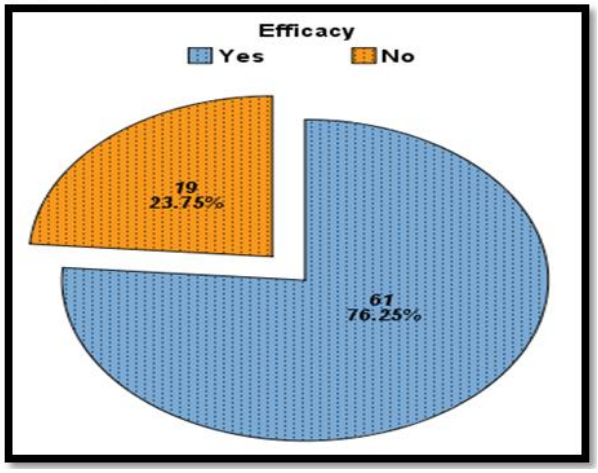

Figure No.1: Efficacy of Modified Millard's Technique for repair in children presenting with cleft Lip

Table 2 is presenting the stratification analysis of efficacy of modified MILLARD's technique for repair in children presenting with cleft Lip. There was no significant effect of age, gender, side of defect and type of defect on efficacy (Table 2).

Table No.2: Efficacy of modified MILLARD's technique for repair in children presenting with cleft Lip

		Efficacy of Modified Millard's Technique		P value
		Yes	No	
Age	Below 1 year	20(66.7%)	10(33.3%)	0.285
	1-5 year	25(83.8%)	5(16.7%)	
	6 -10 year	16(80%)	4(20%)	
Gender	Male	28(70.4%)	16(29.6%)	0.075
	Female	23(88.5%)	3(11.5%)	
Side of Defect	Unilateral	3$(70.8%)	14(29.2%)	0.163
	Bilateral	27(84.4%)	5(15.6%)	
Type of defect	Microform	15(71.4%)	6(28.6%)	0.675
	Incomplete	39(79.6%)	10(20.4%)	
	Complete	7(70%)	3(30%)	

DISCUSSION

One of the most common craniofacial developmental defects is cleft lip & palate.[11] According to reports, the prevalence of these anomalies varies by ethnicity, gender, and cleft type. The central 3rd of the face is distorted by the cleft & restoring the normal facial form is one of the primary goals for the reconstructive surgeon. Modern techniques in reconstructive surgery can make many abnormalities almost undetectable with the goal of restoring form and function. Early lip closure has been suggested to avoid unwanted anxiety and psychological effects on children and families.[12] The initial method developed by Millard for treating cleft lips.[13] The success of the Millard rotation/advancement approach in hiding incisions is demonstrated by the fact that 46% of North American surgeons claim to have used it without any modifications, and another 38% have done so while employing different modifications.[14]

Males are greater likely to have cleft lip with or without cleft palate & females are more likely to have isolated cleft palates, across different ethnic groups; the sex ratio changes depending on how to severe the cleft, additional abnormalities present, number of affected siblings in a family, ethnic origin, and perhaps the father's age.[15] The gender ratio for cleft lip even without cleft palate in white people is roughly 2:1. Cleft lip and palate in populations exhibits a considerable male excess, however, this excess is not limited to cases of cleft lip. [16] The male excess in cleft lip with or without cleft palate is noticeable in white populations as the severity of the defect increases and less noticeable when more than one child is affected in the family.[17]

In our study 80 children fulfilling selection criteria were enrolled. There were 67.5% male and 32.5% female. Our data showing predominance of male gender is supported by various studies. A local study, conducted by MM Elahi et al, reported male predominance in 117 cases of cleft palate from 61,156 live births. [18] The second most prevalent congenital abnormality is a single cleft lip (after club foot), accounting for about 13% of all congenital anomalies. The overall incidence of cleft lip with or without a cleft palate is approximately 1 in 750,000 live births. Unilateral clefts are 9.0 times common as bilateral clefts, and occur frequently twice on the left side than on right. [19]

In our study out of 80 patients we found Unilateral site of defect in 60% in which 13(16.3%) right and 35(43.8%) left. Overall prevalence shows 1 in 5000–6500 infants with bilateral clefts (BLC).[20] Bilateral cleft lip & palate has the potential to greatly change the shape and structure of the face. This malformation has serious psychosocial repercussions including aesthetic, eating, speech, and dental development issues.[21] In our study Bilateral clefts were observed in 40% cases. Around the world, the majority of surgeons employ rotation/advancement procedures in some capacity, Although there is no ideal method, Millard's rotation/advancement methodology was radically new, and several changes have been suggested to solve its shortcomings.[22,23] We found the efficacy of modified millard's technique for repair in children presenting with cleft lip was 76.25%.

A review study of outcomes of incision for primary repair of unilateral complete cleft lip in patients were carried out by Markus et al., using Millard rotation advancement technique and Pheiferwavy line incision.[24] They observed that there isn't a single method of cleft lip restoration that works in every circumstance. Individual clefts must be treated using a philosophy that includes ideas from several techniques and allows the surgeon to alter it as needed to meet a specific requirement.

CONCLUSION

The study concludes that Modified Millard's Technique for cleft lip is an effective method to achieve better cosmetic outcome & a reliable & versatile technique associated with good surgical outcome. Numerous techniques are employed with equivalent long-term outcomes, demonstrating the existence of multiple therapy options for permanent restoration.

Author's Contribution:

Concept & Design of Study:	Shahzad Shaikh
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Revisiting Critically:	Shahzad Shaikh, Yasir Arafat Memon
Final Approval of version:	Shahzad Shaikh

Conflict of Interest: The study has no conflict of interest to declare by any author.

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