

Postoperative Parents' Satisfaction in Cases of Simple Unilateral Cleft Lip Repaired by Millard's Procedure

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ABSTRACT

Background: Cleft lip is the second most common congenital anomaly (after club foot) accounting for about 13% of all congenital anomalies, and the overall incidence is 1 in 1000 live births. An individual with a disfigurement may be more prone to developing psychological problems. Patient and parent satisfaction is a key indicator of treatment quality. **Objective:** The purpose of this study was to improve satisfaction after repaired simple unilateral cleft lip by Millard's procedure. **Patients and Methods:** This was a prospective cohort study including 24 patients with unilateral cleft lip. The study was performed in the Pediatric Surgery Department, Zagazig University Hospitals. The study was performed in the period from September 2020 to May 2021. All patients were subjected to full history taking, general and local examinations and investigations; including complete blood count and coagulation profile tests. **Results:** There was statistically significant relation between severity of cleft lip and symmetry at the Cupid's bow $p=0.043$ and nasal symmetry $p=0.002$. It was obvious that incomplete cleft lip had hundred percent good result regarding symmetry at the Cupid's bow and nose while there was statistically insignificant relation between parents opinion about symmetry and severity of cleft lip $p>0.05$. **Conclusions:** Counseling the parents and thereby motivating them and educating them regarding the cleft and the various procedures by which the deformity can be tackled are one of the most important aspects of treatment.

Keywords: Millard's, Parents, Unilateral Cleft Lip.

INTRODUCTION

Clefts of the lip (CLP) are common congenital malformation⁽¹⁾. The incidence of cleft lip, globally, is 3.4 to 22.9 per 10,000 live births. An individual with a disfigurement may be more prone to developing psychological problems⁽²⁾. The impact on quality of life for the child and the family can be severe, particularly in unsuspecting families. Emotional and psychological needs must be recognized and addressed, in addition to surgical care, for all those involved with the patient⁽³⁾.

Several techniques have been described for surgical management of cleft lips. The Millard rotation-advancement flap, which aims to preserve the philtral dimple, remains the most widely used approach, comprising 84% of all repairs performed in North America⁽⁴⁾. The Mohler modification on the Millard technique uses the columella to lengthen the lip to minimize scarring on the upper third of the philtrum. Recently, Fisher described a method that produces a scar mirroring the non-cleft side's philtral column from the base of the nose to the peak of the Cupid's bow. Fisher's technique also uses a smaller triangle back cut and has lower tension on the lip repair and purportedly approximates natural anatomic subunits more closely than the Millard or Mohler techniques. However, the Fisher technique uses 25 anatomical landmarks to guide the reconstruction, making it time-consuming and complex⁽⁵⁾.

A repaired cleft lip is characterized by presence of scar tissue that generally results in obvious deformities like asymptomatic upper lip vermilion, tightened and

flattened upper lip and loss of the shape of the cupid's bow⁽⁶⁾.

Thus, the method used by surgeon to determine whether a patient needs a lip revision has been based mainly on the surgeon subject evaluation of the nasolabial appearance at rest. On the other hand, objective functional or movement measures developed to assess the outcome of facial soft tissue surgeries⁽⁷⁾. So we designed this study to improving satisfaction after repaired simple unilateral cleft lip by Millard's procedure.

PATIENTS AND METHODS

A prospective cohort study was carried out in the Pediatric Surgery Department, Zagazig University Hospitals. The study was performed at a period from September 2020 to May 2021. It included 24 patients with unilateral cleft lip.

Ethical consent:

An approval of the study was obtained from Zagazig University Academic and Ethical Committee. Every caregiver of each patient signed an informed written consent for acceptance of the operation. This work was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Inclusion Criteria:



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Pediatric patients ranged from 3 months to 3 years of age, who were eligible for the surgery. Both sexes included. Patients with simple unilateral cleft lip without cleft palate. Parents who wrote informed consent.

Exclusion Criteria:

Patients having cleft lip with cleft palate. Age over than 3 years and less than 3 months. Patients with multiple congenital anomalies. Patients with diabetes mellitus. Patients with chromosomal abnormalities. Patients with autoimmune diseases. Parents who refused to participate in the study.

Preoperative:

Before proceeding to surgery, full history was taken from all patients, clinical examination was done with special stress on state of nutrition, associated anomalies, presence of other diseases such as cardiac, respiratory, renal or hepatic diseases and excluding syndromes, Local examination of the cleft lip and nose defect and investigations; including complete blood count, liver function, renal function and coagulation profile tests.

Operative Technique:

The procedure was done under general anesthesia with orally centrally located endotracheal intubation with intravenous line. Lip repair was done using Millard rotational advancement repair by **Millard** ⁽⁸⁾.

Postoperative:

All patients were followed up for one day postoperative to watch for early complication e.g., respiratory complication, bleeding, and edema that may affect air way. Antibiotic in the form of amoxicillin/clavulanate (50 mg/kg) for five days, anti-inflammatory and analgesic in form of ibuprofen (5 mg/kg) were prescribed.

Follow-up:

Results were assessed by clinical examination and postoperative photographs one week and 4 weeks postoperatively then at 3 and 6 months postoperatively (Fig. 1DE). The postoperative outcome was evaluated according to esthetic appearance parent’s satisfaction as regarding overall improvement of the lip and symmetry of the nose. The evaluation was based on the responses to a questionnaire to the parents.

Statistical Analysis

All data were collected, tabulated and statistically analyzed using IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp. Quantitative data were expressed as the mean ± SD and range, and qualitative data were

expressed as numbers and percentage. Categorical variables were compared using Fisher’s exact test. All tests were two sided. P-value < 0.05 was considered statistically significant.

RESULTS

Table 1 shows the demographic data of the studied patients.

Table (1): Demographic characteristics of studied patients (n=24)

Parameters	Mean ±SD	(Range)
Age per months	10.04±9.5	4-36
Gender	N.	%
Females	10	41.7
Males	14	58.3
Only child		
Yes	11	45.8
No	13	54.2
Parent social status		
High	12	50.0
Low	12	50.0
Parent economic status		
High	13	54.2
Low	11	45.8
Caregiver		
Father	9	37.5
Mother	15	62.5

Table 2 shows that none of studied patients complained of postoperative wound dehiscence.

Table (2): Postoperative complications of simple unilateral cleft lip repaired by Millard’s procedure (n.24)

Parameters	N.	%
Wound dehiscence		
No	24	100.0
Edema		
Yes	8	33.3
No	16	66.7
Fever		
Yes	14	58.3
No	10	41.7
Infection		
Yes	2	8.3
No	22	91.7

Five features at the nasolabial area were evaluated as shown in figure 2.

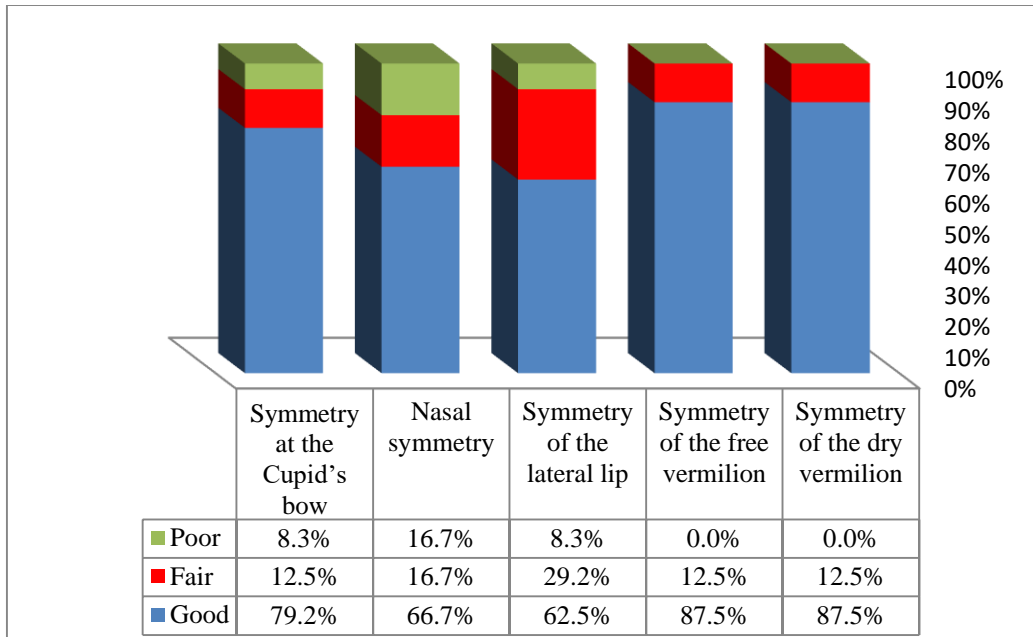


Figure (2): Frequency of postoperative outcome of five features at the nasolabial area among studied children.

Table 3 shows that parents were satisfied maximally with postoperative dental appearance of their children and minimally with the beauty aspect (Table 3).

Table (3): Parents' satisfaction about simple unilateral cleft lip repaired by Millard's procedure (n.24)

	n.	%
General care satisfaction		
Good	18	75.0
Fair	6	25.0
Facial appearance or beauty satisfaction		
Good	12	50.0
Fair	8	33.3
Poor	4	16.7
Functional satisfaction		
Good	19	79.2
Fair	5	20.8
Social and emotional aspects		
Good	14	58.3
Fair	6	25.0
Poor	4	16.7
Parents opinion about symmetry		
Good	14	58.3
Fair	6	25.0
Poor	4	16.7
Dental appearance satisfaction		
Good	22	91.7
Fair	2	8.3
Intention for further surgery		
Yes	4	16.7
No	20	83.3

There was significant relation between severity of cleft lip and symmetry at the Cupid's bow as well as nasal symmetry. It is obvious that incomplete cleft lip had hundred percent good result as regard symmetry at the Cupid's bow and nose (Table 4).

Table (4): Comparison of postoperative assessment of nasolabial area of simple unilateral cleft lip repaired by Millard’s procedure ad regard severity of cleft lip

Parameters	Severity of cleft lip				P
	Complete cleft lip		Incomplete cleft lip		
	N.	%	N.	%	
Symmetry at the Cupid’s bow					
Good	7	58.3	12	100.0	0.037
Fair	3	25.0	0	0.0	
Poor	2	16.7	0	0.0	
Nasal symmetry					
Good	4	33.3	12	100.0	0.002
Fair	4	33.3	0	0.0	
Poor	4	33.3	0	0.0	
Symmetry of the lateral lip					
Good	7	58.3	8	66.7	0.667
Fair	3	25.0	4	33.3	
Poor	2	16.7	0	0.0	
Symmetry of the free vermilion					
Good	9	75.0	12	100.0	0.217
Fair	3	25.0	0	0.0	
Symmetry of the dry vermilion					
Good	9	75.0	12	100.0	0.217
Fair	3	25.0	0	0.0	

This study showed statistically insignificant relation between parents’ satisfaction and severity of cleft lip (Table 5).

Table (5): Comparison Parents’ Satisfaction about Simple Unilateral Cleft Lip Repaired by Millard’s Procedure regard severity of cleft lip

Parameters	Severity of cleft lip				P
	Complete cleft lip N=12		Incomplete cleft lip lip N=12		
	N.	%	N.	%	
General care satisfaction					
Good	7	58.3	11	91.7	0.155
Fair	5	41.7	1	8.3	
Facial appearance or beauty satisfaction					
Good	5	41.7	7	58.3	0.133
Fair	3	25.0	5	41.7	
Poor	4	33.3	0	0.0	
Functional satisfaction					
Good	8	66.7	11	91.7	0.317
Fair	4	33.3	1	8.3	
Social and emotional aspects					
Good	5	41.7	9	75.0	0.089
Fair	3	25.0	3	25.0	
Poor	4	33.3	0	0.0	
Dental appearance satisfaction					
Good	10	83.3	12	100.0	0.478
Fair	2	16.7	0	0.0	
Intention for further surgery					
Yes	4	33.3	0	0.0	0.093
No	8	66.7	12	100.0	

DISCUSSION

In this study, the studied patients were 14 males (58.3%) and 10 females (41.7%). This came in agreement with **Adetayo et al.**⁽⁹⁾ who found that out of 56 patients, 32 subjects (57.1%) were males and the male: female ratio was 1.3:1. Also, **ELMaghraby et al.**⁽¹⁰⁾ found that there were 15 males (53.6%) and 13 females (46.4%) (Ratio of 1.2:1). **Adetayo et al.**⁽¹¹⁾ found that of the 48 subjects, 27 (56.3%) were male, and 21 (43.8%) were female (Ratio=1.3:1).

The mean age of all patients was 10.04±9.5 months and it ranged from (4-36) months, where 11 of them were single child (45.8%), 12 of parents had high social status (50.0%) and 13 of them had high economic status (54.2%). Caregiver was mother for 62.5% of studied children. This came in agreement with **Atri et al.**⁽¹²⁾ who found that the mean age group of patients was 14.67 ± 45.33 months.

Among the studied patients, there were 14 patients (58.3%) complained of postoperative fever, 8 patients (33.3%) had postoperative edema, 2 patients (8.3%) had postoperative infection, none of studied patients complaint from postoperative wound dehiscence.

Regarding five features at the nasolabial area, which were evaluated postoperatively; they indicate a good outcome by the following percent; (87.5%) for symmetry of the free vermillion, (87.5%) symmetry of the dry vermillion, (79.2%) symmetry at the Cupid's bow, (66.7%) and (62.5%) of symmetry of the lateral lip. Thus, we used nasolabial appearance to assess treatment outcomes in this study, which was consistent with previous studies⁽¹³⁾. **ELMaghraby et al.**⁽¹⁰⁾ found that nasolabial appearance is, arguably, one of the most important measures of the success of treatment for unilateral cleft lip. In their study, twenty-one percent of the cases were not satisfied with the Cupid's bow. Millard repair has been criticized by various authors, e.g. **Sameh et al.**⁽¹⁴⁾ and **Chait et al.**⁽¹⁵⁾, as it was producing a wider than normal Cupid's bow. This difference may be related to the ability of the Millard's surgeon in this study to produce a normal-looking Cupid's bow.

In our study (91.7%) parents were satisfied from postoperative dental appearance of their children while 16.7% of them believed that their children needed further surgery. (79.2%) of parents were satisfied from functional aspect, (75.0%) from general care, and 58.3% from both social and emotional aspects. Least parents' satisfaction was with beauty aspect (50.0%).

In a study done by **Bhat et al.**⁽¹⁶⁾ they found that regarding general care, sixty-three percent of parents were satisfied with the treatment received by their son/daughter for cleft lip. Regarding facial appearance or beauty, 58.3% were dissatisfied with their children's smile whereas 70% of parents were satisfied with their children's symmetry. When they were asked about how satisfied they were with the appearance of lip, 61.5% of parents answered that they were dissatisfied, whereas

60% of parents were satisfied with their children's chin. Regarding dental appearance, 58% were satisfied with the orthodontic treatment to align upper incisors, whereas 58.5% of parents were satisfied with the alignment of lower incisors and 63% of parents were satisfied with the incisor exposure. Regarding social and emotional aspects, when asked whether they felt that cleft lip had affected their children's school or college results, 36.5% of parents responded that they felt that cleft had fairly affected their children's studies and 46.5% of parents answered that cleft lip has made very little difficulty to their children to make friends.

Van Lierde et al.⁽¹⁷⁾ noted patients with unilateral CLP were satisfied with facial appearance following treatment. **ELMaghraby et al.**⁽¹⁰⁾ found that most parents in their study were very happy with the appearance of the scar (92.9%). This means that surgical repair of unilateral cleft lip is important and can provide hope to distressed parents and patients. This is in agreement with prior studies of **Abdurrazaq et al.**⁽¹⁸⁾, **Sameh et al.**⁽¹⁴⁾, and **Christofides et al.**⁽¹⁹⁾ where the majority of repairs with this technique were judged to be good by the parents/patients. A plausible explanation for this high percentage of satisfaction is that the parents/patients see the repair as a considerable improvement of the deformity⁽¹⁸⁾.

In the present study, there was statistically significant relation between parents opinion about symmetry, gender $p=0.005$, only having one child $p=0.009$, parent social status $p=0.044$ and parent economic status $p=0.01$. It obvious parents of female children while no significant difference regarding age. Those having only one child were less satisfied with the operation symmetry. In contrast, parent with high social and economic status were more satisfied from operation symmetry.

In agreement with our study, **Marcusson et al.**⁽²⁰⁾ have shown that women's ratings of their mouth and profile were significantly lower than those of men, suggesting that female patients, particularly adolescents, may have more psychosocial issues of and concerns about appearance and undergo more facial corrections as a result of social and internalized pressure⁽²¹⁾. In disagreement with our study, a study done by **Chen et al.**⁽²²⁾, found that apart from higher smile satisfaction in female patients than male patients, no association was found between satisfaction with facial appearance or quality of life and gender. Other studies have reported similar results⁽¹⁷⁾.

In the current study, there was statistically significant relation between severity of cleft lip and symmetry at the Cupid's bow, nasal symmetry. It is obvious that incomplete cleft lip had hundred percent good result regarding symmetry at the Cupid's bow and nose. This came in agreement with **Atri et al.**⁽¹²⁾ who found that complete and incomplete cleft lip patients had severe and moderate deformity, respectively. The esthetic outcome of complete and incomplete cleft lip

patients when repaired with Millard methods showed better outcome in incomplete unilateral cleft lip patients with excellent esthetic outcome. The severity of the preoperative deformity (e.g., complete cleft lip) has an effect on the outcome of the repair, with more severe deformity having less better results.

CONCLUSIONS

Counseling the parents and thereby motivating them and educating them regarding the cleft and the various procedures by which the deformity can be tackled are one of the most important aspects of treatment. Psychological sessions need to be incorporated in the treatment plan of these cleft lips-affected individuals, and psychological aspects regarding the cleft lip need to be assessed regularly. Though, the majority of cleft lip patient's parents were satisfied with their children's dental appearance, functional aspect, general care, social and emotional aspects and symmetry, half of them were unsatisfied with their children's facial appearance or beauty. We recommend that a larger study group with long term follow up for up to period would extend to adulthood.

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