



## Assesment of Results of Cleft LIP Operations at A Tertiary Health Care Centre

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### ABSTRACT

**Introduction:** Of all the procedures that fall under the umbrella of plastic surgery, the goal of restoration of form as well as function is perhaps most germane to cleft lip and palate surgery. Various studies comparing different techniques of unilateral cleft lip repair have been reported and continuing attempts to improve results with surgical repair of cleft lips is clearly evident by the frequent appearance of new methods or modifications of old techniques. This descriptive study of review of results of cleft lip aims to assess surgical results both subjectively and objectively as possible with an attempt to achieve a functionally and aesthetically acceptable lip and hence maintaining high standards in cleft lip surgery.

**Material and Methods:** The Present Prospective Study was undertaken to assess the result of Cleft Lip Operations over a period of one year. Photographic records were maintained Preoperatively & Post-Operatively which included frontal view for Lips and for Nose both Inferior and lateral view was taken. Appearance of scar on the skin following Lip repair was compared with the non-cleft side and was graded good, satisfactory and non satisfactory depending on appearance of scar. A total of 10 parameters were taken into account with a maximum of 3 score, thus constituting a total of 30 score. The cosmetic appearance assessment was done using a scoring system containing 10 parameters both on patients & their Photographs taken pre-operatively & post-operatively.

**Results:** In 53.3% of patients we got satisfactory score. 33.3% of patients had good score. Rest included 13.3%. It was found that in 86.6% of patient no Nasal tip drooping was present. 10% showed mild nasal tip drooping and 3.33% had significant Nasal tip drooping. Final grading done based on score achieved 13.3% of patients had Excellent results, 60% of the patients got good grade and 26.6% of patients had satisfactory grade.

**Conclusions:** We still believe we need to work on Nasal part of our repair so that we are able to get better nostril symmetry. By devising our own assessment scale, much simplified than used earlier in literature it appears that in future many more assessment can be done not only using a single technique but different ones depending upon the suitability of every case and even assessment of Cleft Lip Repair results shall be done between different institutes.

### KEYWORDS

Cleft Lip Repair, Millard's Rotation Advancement, Scoring System, Cleft Lip Deformities.

### INTRODUCTION

The congenital malformations form the major surgical problems in children. Cleft lip is among the most common congenital deformities<sup>[1]</sup>. The incidence of cleft lip in the general population is approximately 1 in 1000 live births with incidence in Asian population twice common. Male children are affected more often than female children<sup>[2]</sup>. Isolated unilateral clefts occurs twice as frequently on the left side as on the right and are nine times more common than bilateral clefts. Presentation wise combined unilateral cleft lip and palate is the most common presentation (50%) followed by isolated cleft palate (30%) and isolated cleft lip (20%), fewer than 10% of clefts are bilateral. B/L clefts are almost always associated with cleft palate; with 86% of patients with such clefts of lip presenting with palatal clefts<sup>[2,3]</sup>. U/L clefts of lips are associated with palatal clefts in 68% cases<sup>[4]</sup>. Clefts of the lip may manifest as microform, incomplete or complete clefts.<sup>[5]</sup> Microform clefts are characterized by a vertical groove and vermilion notching with varying degrees of lip shortening. Unilateral incomplete lip manifest varying degrees of lip disruption associated with an intact nasal sill or simonart band. Complete clefts of the lip are characterized by disruption of the lip alveolus and nasal sill.<sup>[20]</sup>

Clefts of lip are usually repaired in early infancy. The "rule of over 10" serves as a safe guidelines i.e. body weight should be over 10 pounds, Hemoglobin over 10 grams and age over 10 weeks<sup>[6]</sup>.

Of all the procedures that fall under the umbrella of plastic surgery, the goal of restoration of form as well as function is perhaps most germane to cleft lip and palate surgery. Satisfactory results depends not only on cleft type but the techniques used for repair, timing of the repair and experience of the Surgeon. Surgical repairs has been modified from time to time and various improvements in technique made largely through the evaluation of post operative results and self criticism that surgeons have practiced in recent years<sup>[7,8]</sup>. Various studies comparing different techniques of unilateral cleft lip repair have been reported and continuing attempts to improve results with surgical repair of cleft lips is clearly evident by the frequent appearance of new methods or modifications of old techniques.<sup>[15-19]</sup>

This descriptive study of review of results of cleft lip operations in Government Medical College, Jammu will be an attempt to assess surgical results both subjectively and objectively as possible with an aim to achieve a functionally and aesthetically acceptable lip and hence maintaining high standards in cleft lip surgery.

### MATERIAL AND METHODS

The Present Prospective Study was undertaken to assess the result of Cleft Lip Operations in the Department of Surgery Government Medical College Jammu over a period of one year. An Hospital based Observational Study was done.

All patients attending Government Medical College

Hospital diagnosed to be having Cleft Lip or Cleft Lip and Palate were made eligible for selection in to the study. The purpose of study was detailed to the attendants of patients and informed consent was taken.

All patients were subjected to detail history regarding present complaints. A semi structural Performa containing both open and close ended questions were used to collect the relevant information. The Cleft deformities were recorded using LAHSAL System of classification of Clefts of Lip and palate and Kernahan Modified Y classification.<sup>[9]</sup>

Photographic records were maintained Preoperatively & Post-Operatively which included frontal view for Lips and for Nose both Inferior and lateral view was taken. All patients were subjected to Millards Rotation and Advancement technique of Cleft Lip repair<sup>[6]</sup>. Follow up was done on weekly and monthly basis.

The cosmetic appearance assessment was done using a scoring system containing 10 parameters both on patients & their Photographs taken pre-operatively & post-operatively. Various measurements were done using vernier caliper on patients.

Appearance of scar on the skin following Lip repair was compared with the non-cleft side and was graded good, satisfactory and non satisfactory depending on appearance of scar. The scar was graded good and given score of 3 if it was pale, flat and blended with the surrounding tissue. Satisfactory score of 2 was given if scar was pale, flat not bending with the surrounding tissue. Pigmented, depressed scar was allotted 1 score and was included under not satisfactory group.

Alar facial groove was assessed and evaluated whether groove formed and symmetrical in comparison to the non-cleft side and 3 score were allotted. Distorted and asymmetrical facial groove was allotted 2 score. And if alar facial groove is absent or any other distortion seen 1 score was given.

Horizontal length of the repaired cleft side of lip was measured from the base of columella to the commissure of Lip and was graded normal with allotment of 3 score if length was same as the non-cleft side. If it was lengthened or shortened less than 2mm, allotment of 2 score was done. 1 score was given for length shortened or lengthened more than 2mm.

Vertical length of the Cleft side of Lip was compared with the non-cleft side measuring from the base of columella to cupid's bow and marks were allotted accordingly 3 score for equal length, 2 score for shortened or lengthened less than 2mm and 1 score for length shorten or lengthened more than 2mm.

Cupid's bow placements of repaired Cleft Lip was compared to the non cleft side and was graded as same level, difference up to 1mm, difference more than 1mm and were given 3,2,1 score respectively. Formation of white line was also taken into consideration 3,2,1 score were given based on observation that white line was formed, mildly disrupted or grossly disrupted respectively.

Philtral ridge symmetry were allotted 3,2,1 score if it was good, satisfactory or poor in formation respectively.

Columella length was graded as of same length as normal side and was given 3 score, if the difference in comparison to the normal side was less than 2mm, a score of 2 was given. If the difference with the normal side was more than 2mm score of one was given.

Nasal tip drooping assessment included No Nasal Tip drooping, Mild Nasal tip drooping, significant Nasal droop and were allotted 3,2,1 score accordingly.

Further Nostril Symmetry of repaired Cleft Lip was compared

with non-cleft side and allotment of 3,2,1 score were done based on symmetrical, asymmetrical or significantly asymmetrical findings respectively.

## RESULTS AND DISCUSSIONS

A prospective study was conducted in Government College Jammu over a period of 1 year to assess the surgical results of cleft lip repair. It was an attempt on our part not only to improve our management of cleft lip repair but also an effort to expand and evolve better techniques for evaluation of results. All patients irrespective of age attending the surgery OPD of Government Medical College Jammu with a diagnosis of cleft lip or cleft lip and palate were made eligible for selection in to the study. All patients were detailed about the purpose of study and their informed consent was taken. All the patients were subjected to detailed history regarding present complaints and a semi structural proforma containing both open and close ended questions was used to collect the relevant information.

The cleft deformities were recorded using LAHSAL system of classification of cleft of lip and palate and Kernahan Modified Y classification.<sup>[9]</sup> After thorough investigations patients were subjected to Millard's Rotation Advancement method of cleft lip repair under General Anaesthesia. Follow up of patients was done on weekly and monthly basis. To assess the post-operative results precise and detailed measurements were taken on patient using vernier caliper and pre-operative and post-operative photographic records of the patients were maintained.

For assessment of our surgical results we devised our own scoring system. After reviewing the literature and net we came across few studies which had assessed the cosmetic results following cleft lip and Nose repair utilizing various parameters which were cumbersome.<sup>[7,10]</sup> Our study was attempt to objectively simplify the assessment parameters using simple scoring system.

In our scoring system, a total of 10 parameters were taken into consideration with a maximum of 3 score each, thus constituting a total of 30 score. The various parameters included appearance of scar, alar facial groove, horizontal length, vertical length, cupid's bow placement, philtral ridge symmetry, white line formation, columella length nasal trip drooping and nostril symmetry. On the basis of points scored repaired cleft side of lip was compared with normal side. In case of Bilateral cleft comparison between two repaired sides was done, with lesser deformity side taken as control.

A total of 30 patients were studied which included 15 males and females each. The youngest of the patients was 5 month old female and oldest being 22 year old female (Fig. 1)

Among 30 patients 15 patients were 1st in birth order (Fig. 2). Which constituted about 50% of cases however it needs further studies with large number of patients to elucidate its statistical significance. We came across 18 complete cleft lips which included 10 on left side and 8 on right side. Incomplete unilateral cleft included 4 each on left and right side Rest 4 were bilateral. In 15 patients there was an associated cleft palate also. Secondary operations were done in two patients who were included in incomplete cleft lip in view of their cosmetic appearance. During the end of the study we also came across right lateral cleft lip but however it could not be included in the study because we needed time for its follow up.

All suturing was done using polyglactin 910 and polydioxanone suture materials. Stitch removal was done on 5th post-operative day except in patient No. 21 who went home for some personal reasons and stitch removal was done on 12th post-operative day and this was the patient of Bilateral Cleft Lip and palate who scored minimum marks in our score and had complication of wound infection. In follow up assessment of scar was done as good, satisfactory and not satisfactory. We found out of 30 patients, 16 (53.3%) patients had

satisfactory score, 10 patients (33.3%) had good score out of which 8 had complete cleft lip (Fig. 3). These results was some what different from the study conducted by Trauner et al, they got good scars in 58% patients, mediocre in 36% and 6% had bad score.<sup>[11]</sup> This ratio was about the same in complete and incomplete clefts. But in our study patients scoring good score were 10 out of which 8 had complete cleft lip thus constituting 80% of the total.

Assessment of Alar facial groove gave us promising results. In 22 patients (73.3%) out of 30 we could make symmetrical alar facial groove. And 8 (26.6%) had distorted & asymmetrical alar facial groove. (Table I). Dado in his study was able to reconstruct alar facial groove in 83.3% of patients and in one patient it was distorted and in another one it was absent.<sup>[12]</sup> But in our study we were able to reconstruct alar facial groove in all our patients.

Horizontal length assessment was made with caliper on patients, measuring from base of columella to the lip commissure. It was found that 8(26.6%) out of 30 repaired clefts had normal length in comparison to Non Cleft side 13 (43.3%) patients has difference of less than 2mm than normal and mostly shortening of length was noticed. Rest had differences of more than 2 mm (Fig.4). Williams also noticed shortening of lip with Millards Method of Cleft Lip repair both in horizontal and vertical dimensions while doing comparison study between Le.Mesurier and Millards technique.<sup>[13]</sup> A study done by Fernandes et al who however compared Rotation Advancement repair with Modified Z-Plasty.<sup>[14]</sup> They also noticed shortness of the repaired lip in patients undergoing Millard Rotation Advancement method.

Vertical length was measured with caliper from base of columella to cupid's bow 10 (33.3%) out of 30 patients normal length was maintained. In 12 (40%) patients there was a difference of less than 2 mm in comparison to normal side. 8 (26.6%) patients had difference of more than 2mm.

Cupid's Bow placement assessment showed that 8 (26.6%) out of 30 repaired clefts had cupid's bow in same level. 18 (60%) repaired clefts showed a difference of 1mm. Rest had difference of more than 1mm constituting 13.3%.

Philtral ridge symmetry gave satisfactory score in 22 (73.3%) out of 30 repaired clefts, with only 3 (10%) patients showing poor score 5. (16.6%) of the patients showed good results.

White line formation was complete in 12 (40%) of repaired clefts with mild disruption in 15 patients constituting 50%. A gross disruption was seen in 3 (10%) patients.

Assessment of columella length showed 12 (40%) patients to have same length as normal, 15 (50%) patients had difference of less than 2mm in comparison to normal, 3 (10%) patients had difference of more than 2mm.

Assessment of Nasal Tip drooping showed promising results with 26 (86.6%) of 30 repaired clefts showed no postoperative Nasal tip drooping. Mild Nasal tip drooping was noticed in 3 (10%) cleft patients. One patient with B/L complete cleft however showed significant Nasal tip drooping. In our study we assessed Nasal tip drooping and Nostril Symmetry, Columella and ala as separate parameters William in his study assessed nose as a single component comprising of tip, ala, floor, columella and septum and found highest ratings in Millards incomplete repairs.<sup>[13]</sup> In our study also complete cleft has more of Nostril asymmetry. Maintaining Nostril symmetry gave us real tough job with 12 (40%) out of 30 repaired clefts it was asymmetrical and 5(16.6%) patients had gross asymmetry (Fig.4). We applied transverse rim incision over ala in an attempt to improve nostril symmetry but it gave a vertical scar and later on flaring was noticed giving asymmetry to nostril.

Patients who underwent secondary surgeries for cosmetic ap-

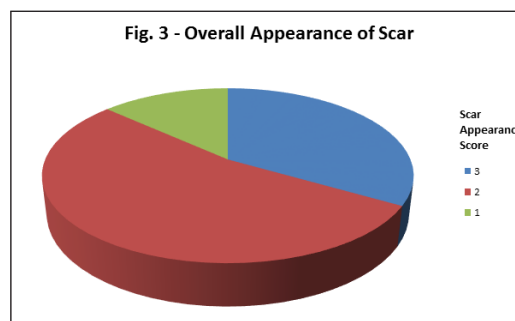
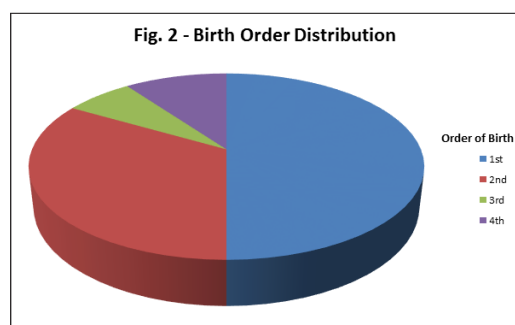
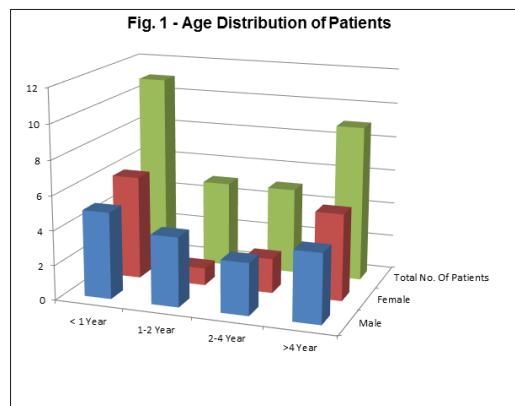
pearance, we were able to improve their cosmetic appearance and got satisfactory results. A total score was made of 30 points and grading was done as Excellent if the score achieved was 26 or more, as good grade if score fell between 21 to 25. A score between 16 to 20 was given satisfactory grade and 16 score or less was considered in not satisfactory grade (Table. 2).

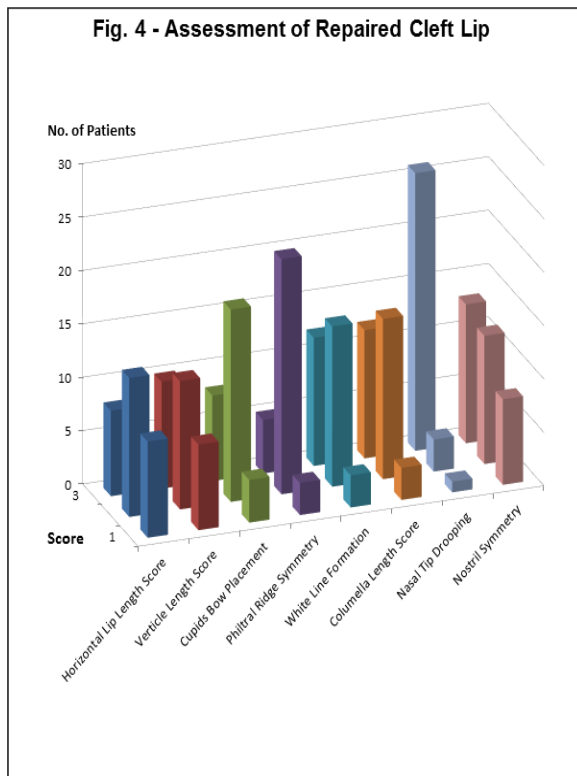
In our study we were able to get Excellent Grade in 4 (13.3%) patients, Good Grade in 18 (60%) patients, and Satisfactory Grade in 8 (26.6%) patients.

But we still believe that in view of brief follow up period, the ultimate outcome of our surgeries and assessment of results needs follow up of many more years. However by devising our own simplified scale for assessment of results of cleft lip surgeries we believe in future many more assessments can be done not only between different techniques but between different institutions.

**CONCLUSIONS**

We still believe we need to work on Nasal part of our repair so that we are able to get better nostril symmetry. By devising our own assessment scale, much simplified than used earlier in literature it appears that in future many more assessment can be done not only using a single technique but different ones depending upon the suitability of every case and even assessment of Cleft Lip Repair results shall be done between different institutes.





**TABLE - I**  
**ASSESSMENT OF ALAR FACIAL GROOVE**

Alar Facial Groove Score	Total No. of patients (n = 30)	Percentage of patients
3	22	73.3%
2	8	26.6%
1	Nil	

None of the patient in our study had absent alar facial groove.

**TABLE - 2**  
**FINAL GRADING**

Grade	Score Range	Total No. of Patients	Percentage of Patients
Excellent	>26	4	13.3%
Good	21-25	18	60%
Satisfactory	16-20	8	26.6%
Not Satisfactory	<16	-	---

4 out of 30 patients had an Excellent Grade and 18 patients had good grade. None of the patients were found in not satisfactory grade.

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