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Aesthetic Evaluation by Laypersons of Noordhoff's Technique of Unilateral Cleft Lip Cheiloplasty

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Abstract

Background: **Successful surgical repair of the unilateral cleft lip is commonly defined as having a normal orbicularis oris function and a near perfect symmetry of the lip and nose. It is important that the aesthetic evaluation should not only be evaluated by the surgical team, as there may be a tendency to give a higher score. It should also be evaluated by members of family and relatives in their community.**

In Srinagarind Hospital, we found that Noordhoff's technique cheiloplasty for unilateral cleft lip with particular attention to the primary nasal repair provided the best outcome. However, we did not have accurate parameter to evaluate aesthetic results by general public.

Objective: **The aim of this study was to develop an aesthetic index for the evaluation of complete unilateral cleft lip repair by general public.**

Materials and Methods: **The photographs of the post operative outcome were graded by direct observation and by random from twenty relatives of the patients in the out patient clinic, none of them were related to the surgical department personnel.**

Complete unilateral cleft lips were repaired by the author from March 2002 to July 2003. The 1-10 analog scale was evaluated separately from the aesthetic score of nose, lip and general appearence.

Results: **Results showed moderate to good outcome score. The mean score of general appearance was in the range of 6.50-8.60, the aesthetic of the mouth was 6.30-8.50 and the nose was 6.15-8.30.**

Successful surgical repair of the unilateral cleft lip is commonly defined as having a normal orbicularis oris function and a near perfect symmetry of the lip and nose. In the aesthetic evaluation,[1] it is important that it should not only be evaluated by plastic surgeons because the surgeons tend to give a higher score than general public.[2] It should also be evaluated by other people living in that community.

In Srinagarind Hospital, the Noordhoff's technique of cheiloplasty for unilateral cleft lip with particular attention to the primary nasal repair provides the best outcomes. However, there is no accurate parameter to evaluate aesthetic results by general public.

The aim of this study was to develop an aesthetic evaluation index for the complete unilateral cleft lip repair by general public.

Materials and Methods

Cases of complete unilateral cleft lip repair in 10 patients using the Noordhoff's technique and primary rhinoplasty performed by the author from March 2002 to July 2003 were reviewed. The standardized three view photographs, frontal, worm's-eye and lateral views of the post operative outcome at least 3 months after surgery were graded by direct observation. Laypersons who graded and scored the photographs were randomly

selected from relatives of the patients in the out patient clinic. Twenty laypersons were included as representative of population.[3] The 1-10 analog scale was evaluated separately from the aesthetic score of nose, lip and general appearance. The rating scale of zero means the surgical outcome was not improved from the pre-operative picture and the rating scale of ten means the patient was not different from the healthy child.

Technical details of the primary repair were described by Noordhoff.[16] The unilateral cleft lip is operated by lining the pyriform area with turbinate mucosal and C flap. On the red lip, orbicularis peripheralis muscles are brought into approximation and the excess mucosa is excised. Insertion of the triangular vermilion flap is carried out beneath the Cupid's bow.

In primary rhinoplasty, the nose is approached through a precartilaginous incision, the lower lateral cartilage is freed from the skin then placement of alar transfixion sutures are made.

Results

The patients' age at the time of surgery was in the range of 3-4 months old. All of the scores were shown in Table 1. The mean score for general appearance was in the range of 6.50 -8.60, the aesthetic of mouth was 6.30-8.50 and the nose was 6.15-8.30. Of the 10 cases, patient No. 1 received the highest scores which was followed by patient No. 3. Patient No. 2 received the lowest scores (Figure 2).

The patients No. 1 and No. 3 showed good outcome with near perfect symmetry of the lip and nose. Patient No. 2 had fair outcome and showed that the distance from the Cupid's bow peak of the cleft side to a line tangential to the base of the columella (lip height) was shorter than the distance in the non- cleft side. This resulted in a short lip. Regarding the nasal problem, the alar dome depressed more on the non cleft side and the level of the alar base appeared not symmetry.

Discussion

In this report, which only studied the immediate post operative evaluation of the results of surgery, the outcome of the treatment was satisfactory. However,

Table 1 Mean scores for evaluation of the 10 unilateral cleft lip nose appearance that rated by the laypersons (M was aesthetic of mouth, N was aesthetic of nose and G was aesthetic in general appearance)

Patient	Aesthetic Part	Min	Max	Mean	SD
1	M	6	10	8.50	1.24
	N	5	10	8.30	1.42
	G	7	10	8.60	0.99
2	M	5	7	6.30	0.86
	N	5	7	6.15	0.75
	G	5	7	6.50	0.76
3	M	5	10	7.90	1.45
	N	5	10	7.55	1.64
	G	5	10	8.00	1.21
4	M	5	10	7.40	1.76
	N	5	10	7.80	1.79
	G	5	10	7.50	1.64
5	M	5	9	7.55	1.23
	N	6	9	7.85	0.99
	G	5	9	7.70	1.17
6	M	6	9	7.95	0.89
	N	5	9	7.30	1.03
	G	6	9	7.85	0.81
7	M	5	9	7.25	1.29
	N	4	9	7.25	1.21
	G	5	9	7.00	1.17
8	M	7	9	8.10	0.85
	N	6	9	7.55	0.83
	G	7	9	7.70	0.66
9	M	5	10	8.10	1.25
	N	6	9	7.55	0.94
	G	6	9	7.70	0.86
10	M	5	9	8.00	1.08
	N	5	9	7.50	1.15
	G	6	9	7.65	0.86

from literature review of the cheiloplasty of the unilateral cleft lip, symmetry of the lip height was reported by some to be maintained during long-term follow-up monitoring, whereas others noted that lip height either increased or decreased postoperatively.[5-10]

However, it may be too early to conclude the end results. It is also still debatable about the necessity of performing primary rhinoplasty. Some authors reported that primary nasal correction in infants was not successful in restoring nasal shape and symmetry at this late age of presentation.[11,12]

In patients who have undergone primary repair of the lip and/or nose deformity, secondary rhinoplasty is generally required regardless of the technique used

Fig. 1 Photographs of patient No. 1 at 4 months after operation compared with before operation.

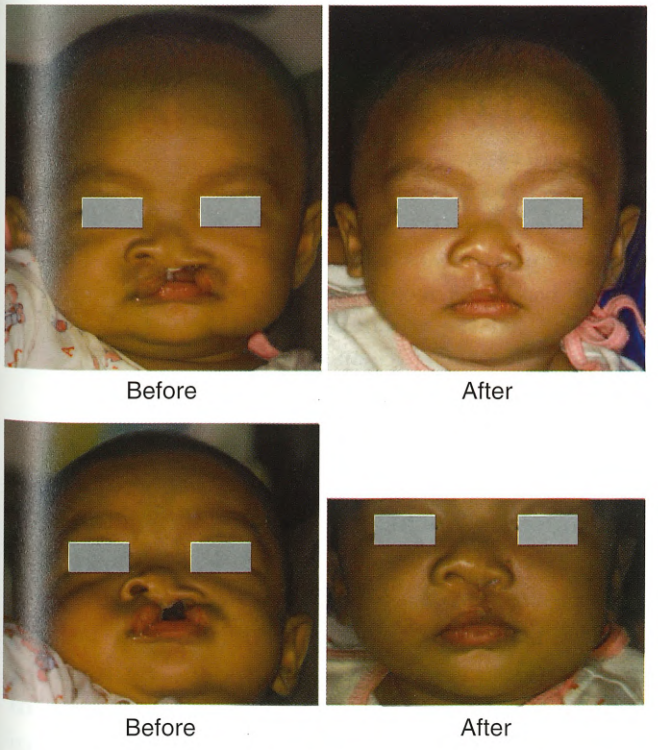

Fig. 2 Photographs of patient No. 3 at 3 months after operation compared with before operation.

Fig. 3 Photographs of patient No. 2 at 6 months after operation compared with before operation.

at the primary repair. The degree of nasal deformity, however, was less severe following primary repair of the asymmetric nasal tip.[1] Yeow et al showed that postoperative nasal splinting in the primary management of the unilateral cleft nasal deformity served to preserve and maintain the corrected position of the nose after primary lip and nasal correction, resulting in a significantly improved aesthetic result. Therefore, it is recommended that all patients undergoing primary correction of complete unilateral cleft deformity use the nasal retainer postoperatively for a period of at least 6 months.[22]

The evaluation in general is in the hand of the surgical team.[11,13-20] Computer-assisted anthropometry for outcome assessment of cleft lip was reported by Hurwitz et al.[12] Video recordings to assess cleft surgery outcome was also reported by Morrant et al.[15] Evaluation by laypersons is a simple method for surgeons to evaluate outcome of the treatment and to correct the remaining defect for perfect surgical outcome. This is still a preliminary report and long term follow up of this group of patients is needed.

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