

Unilateral Cleft Lip Repair by using White-skin-roll Flap from Cleft Side of Lip

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Background:

With all due consideration to the restoration of function, post-operative aesthetic appearance of the cleft patient still needs significant attention, and the room for further improvement to achieve better aesthetic result cannot be over emphasized.

In this presentation, we introduce our refined technique using the white skin roll flap, which is directed towards solving the commonly encountered problem of peaking deformity after unilateral cleft lip repair.

Materials and Methods:

From January 2001 to December 2014, the patients of unilateral cleft lip repaired primarily by the senior author were reviewed. Patients had standard digital photographs taken at pre-op, intra-op, immediately post-op, and during follow-up visits. Only those who had regular follow-up visits at our out-patient clinic at least for 3 years were included in the study groups. Post-operative peaking deformity in the repaired lip is the primary focus of the post-operative evaluation of the two subgroups.

Results:

The charts and photo of 198 consecutive patients who underwent primary cheiloplasty for their unilateral cleft lip by the single surgeon from January 2001 to December 2005 at Kaohsiung Chang Gung Memorial Hospital were reviewed. Of these patients, 37 were excluded for lack of regular follow-up. The classical Noordhoff's method of lip repair was used in 81 cases; otherwise, 80 cases were repaired with use of the WSR flap. The age at the time of surgery, gender, and type of unilateral cleft lip among the two groups were similar.

Sub-optimal results noted in both groups were peaking deformity (12/161), step-deformity of WSR (11/161), poor-scar (18/161), and a long lip on the cleft side (18/161). The classical Noordhoff technique resulted in a higher number of peaking deformity, 10 (12.3%) and more disruption 9 (11.1%) compared to the outcomes seen in the WSR flap where there were 2 (2.5%) peaking deformity and 2 (2.5%) step-deformity. A resultant poor scar was noted in 9 (11.1%) of the classical group and 9 (11.2%) in the WSR group; Long lip deformity was noted in 8 (9.9%) cases in the classic method compared with 10 (12.5%) cases of WSR

From 2006 to 2015, the author has repaired 253 patients with unilateral cleft lip by WSR flap technique. The sub-optimal results noted by photo were 5 peaking deformity (2.0%), 6 step-deformities (2.4%), 15 poor scars (5.9%), and 12 long-lip deformities (4.7%). From follow-up photographs (taken at age of 3, 5, 7, 9, and 11 years), esthetic outcomes were evaluated by using a 5-point Litter's scale. Esthetic outcome score, evaluating the cutaneous scar, symmetry of philtral columns, alignment of lip line and vermillion border, and nasal tip symmetry was a mean of 4.2 (+/- 0.4).

Conclusion:

The problem of peaking deformity often noted in unilateral cleft lip repair is avoided by use of the WSR flap. An attractive feature of this new technique that we have described here, when performed by an experienced surgeon is an aesthetically pleasing result, especially in the appearance of the newly created Cupid's bow, even in the long term.

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Effect of Palate Length in Velopharyngeal Function after Primary Palatoplasty

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Introduction:

The goal of cleft palate surgery is to achieve normal speech and adequate velopharyngeal function. In this regard, often the term palate lengthening is met in various articles and discussions. However, as of yet, there is no consensus or strict definition as to what constitutes a short palate which consequently is at a high risk for poor velopharyngeal function (VP) despite skillful repair of the cleft palate. This article presents a method for measuring the cleft palate and relates these measurements to the resulting velopharyngeal function of the patients.

Materials and Methods:

The charts of cleft lip and palate patients who underwent surgery (done by the senior author) from January 1997 to December 2012 were retrospectively reviewed. Patients of nonsyndromic unilateral cleft lip and palate who had complete palate measurements and regular speech evaluation during follow-up till 4 years of age were included in the study. The patients were placed into two groups (Good VP Function and Inadequate VP Function) based on the results of their speech assessments focusing mainly on the evaluation of velopharyngeal function.

The following measurements were taken prior to and immediately after palatoplasty.

- 1) A1: Pre-Operative –the curvilinear length of the palate from the alveolus to the tip of the uvula
- 2) B1: Pre-Operative – the length of the soft palate, defined by a point at the level of the tubercle until the tip of the uvula
- 3) A2: Post-Operative – the curvilinear length of the palate from the alveolus to the tip of the uvula immediately, after closure of the cleft.
- 4) B2: Post-Operative – the length of the soft palate, defined by a point at the level of the tubercle until the tip of the uvula, immediately after closure of the cleft.
- 5) D : the width of the cleft gap along the level of the tubercle

The following ratios and differences were also calculated based on the above measured points / dimensions.

1. ratioBA : pre-operative - the ratio of the length of the short palate (B) and the entire palate (A)
2. ratioB2A2 : post-operative – the ratio of the length of the short palate (B2) and the entire palate (A2)
3. ratioDA1 : the ratio of the gap size(D) to the entire length of the palate(A)
4. diffA2A1 : the difference of the post-operative palate length (A2) and the pre-operative palate length (A1)
5. diffB2B1: the difference of the post-operative short palate length(B2) and the pre-operative palate length (B1)

Results:

All 378 patients under two flap palatoplasty by a single surgeon. The average age of the patients at the time of palatoplasty was 9.7 months with a range of 6 months to 16 months.

There were a total of 321 patients in the Group 1 and 57 patients in Group 2. The overall VP competency rate was 85%. But once the A2 value was shorter than 48 mm or RatioB2A2 was less than 0.33 the VP competency rate was significantly decreased to 66%.

Conclusion:

A short palate for a 9-month-old cleft palate patient may now be defined as one shorter than 48mm with a short palate to entire palate ratio of 0.33 or less. Knowing this, we may now be able to identify patients who are at a high risk for developing VPI. The term short palate is no longer a vague description but quantifiable. A lengthening procedure may now be considered for these patients who are at risk.

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Revision of Secondary Cleft Lip Nasal Deformity

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Purpose:

Secondary deformities of lip and nose, if not necessarily, are happened often in cleft patients after primary cleft lip repair. Moreover, it is a unique challenge to the cleft surgeon. The timing and choosing surgical method confound surgeons much. The patient's growth affects surgical results. Conversely, the surgery may adversely compromise nose growth.

This presentation is intended as an introduction to certain surgical options for correction of secondary cleft lip nasal deformity following protocol of our craniofacial center.

Patients and Method:

We retrospectively reviewed patients treated for secondary cleft lip nasal deformity from 1998 to 2017 in our center. The patients' profile, operation method, complications and nasal function were recorded. The outcome after corrections was evaluated by 3 paramedical personnel through photo.

Result:

The most common method used as intermediate rhinoplasty at age of 6 years was Tajima operation. The nasal tip projection was improved significantly, but other stigma of cleft nasal deformity, such as deviation of columella and nasal septum, hypertrophy of turbinate, asymmetry of nostrils were still present. The definite rhinoplasty for unilateral cleft lip nasal deformity was performed mostly after adolescence or orthognathic surgery. Rib cartilage and conchal cartilage were the most common materials used as grafts to reconstruct deformed nasal cartilage and deviated septum by open method. For severe bilateral cleft lip nasal deformity often associated with short columella and upper lip, rhinoplasty combined with Abbe flap was the method of choice. All the patients had significant improvement after surgeries.

Conclusion:

Cleft lip nasal deformity is a complex anomaly, and proper correction requires considerable surgical talent and experience. Surgeons must continue to tailor approaches to individuals and evolve techniques to best serve each patient.

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Cleft Orthognathic Surgery: Planning and Execution

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Dentofacial deformities occur more commonly in patients with cleft lip and palate (CLP) than in the general population, and approximately 40% of CLP patients manifest a dentofacial deformity requiring orthognathic correction. The cause of maxillary hypoplasia in this group of patients is likely multifactorial.

The extraordinary amount of maxillary advancement (MA) for maxillary hypoplasia is one of the common surgical procedures for CLP patients. The 3D simulation and planning technique appears to have an advantage in pre-surgical evaluation of patients with facial asymmetry, such as CLP patients. Intraoperative realization with navigation by surgical guide and positioning plates has been performed at our center for the past 8 years, and we have gained extensive experience from more than 200 clinical applications to orthognathic surgeries for cleft patients. These passive localization systems supply the surgeon with direct intraoperative support while performing the surgeries. We can thereby achieve a reduction in operational risk and duration, which in turn results in a considerable stress reduction for the patient.

The purpose of this presentation is to demonstrate our planning and execution of 3D simulation and guiding in OGS of cleft patients.