Component restoration in the unilateral intermediate cleft lip rhinoplasty: Our experience and technique modification

Original Article

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ABSTRACT

Background: During a critical stage of children's psycho-social development, tip asymmetries are addressed with an intermediate cleft lip rhinoplasty. The idea of individual restoration of each anatomical component is the foundation upon which the authors explain and assess the long-term results of that method for patients with unilateral cleft lip.

Patients and Methods: Modified component restoration technique was used in all the study patients. The outcomes were compared with age-matched unilateral cleft lip control individuals (n=20) in this prospective comparative study. As control patients, a different set of individuals with unilateral cleft lip who did not have an intermediate rhinoplasty was examined. Age-matched control patient photos were included at every interval in the study group. Preoperatively (time 0), immediately postoperatively (time 1), 3–6 months postoperatively (time 2), and more than a year postoperatively (time 3), if available, were the four time periods at which standardized basal view images were evaluated.

Results: Preoperative (time 0) baseline comparison between the study and the control groups showed significant differences regarding the nostril dimensions at the cleft side (*P value 0.027*) and alar symmetry (*P value 0.000*) denoting more severe deformity in the study group. At time 1, the study showed significant improvement regarding the alar symmetry (*P value 0.000*), and nasal tip protrusion (*P value 0.004*). At time 2, the study added significant improvement regarding the nostril dimensions at the cleft side (*P value 0.049*) that may reflect the importance of follow-up and using the nostril silicon retainer. At all times no significant changes regarding the nostril measures at noncleft side were noticed.

Conclusion: Alar symmetry, nostril diameters at the cleft side, and nasal tip protrusion are all improved by the modified component restoration approach used in the unilateral intermediate cleft lip rhinoplasty.

Key Words: Cleft lip nose, cleft lip, intermediate, rhinoplasty.

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INTRODUCTION

Since nasal asymmetries sometimes affect child's growth and development, the cleft nasal deformity presents a significant difficulty for the majority of reconstructive surgeons. There are three stages of cleft rhinoplasties: primary, which takes place in the first year of life; intermediate, which happens before the full development of the face; and secondary, which happens after the skeletal and dental maturity[1,2].

While correcting a nasal abnormality at any of these phases usually yields satisfactory results, patients may still require follow-up revision rhinoplasty treatments[3].

Multiple cleft rhinoplasties are frequently performed on patients to address both functional issues such as speech difficulties, sleep apnea, and nasal blockage[4,5].

Intermediate rhinoplasty is indicated in the following cases: (1) extreme deviation of the septum leading to functional blockage of the nose; (2) severe abnormalities of the alar cartilage; and (3) when a kid experiences significant psychological anguish from peers as a result of his nasal abnormality. Around the ages of 8 to 10, children with orofacial clefts have the highest rates of anxiety, sadness, and bad peer interactions. This is in favor of a tiered strategy that combines surgery, counseling, and psychological support within a multidisciplinary cleft and craniofacial team[6].

Surgery should be conducted in a way that balances minimum damage with a predominance of benefits. Improved nasal photo-morphometric associations were shown by Ayeroff *et al*. in 2019[7] for a maximum of 3 years following intermediate component repair for unilateral cleft nasal deformity. Ages around 3 to 6 years to coincide with lip revision and 8 to 12 years after orthodontia has been treated and alveolar bone grafting is finished to provide for a stable maxillary skeletal foundation are the two recommended intervals for intermediate rhinoplasty[8].

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Cleft nasal deformities may require cartilage grafting to successfully support and replace deficient tissue or camouflage existing nasal structures; the lower lateral cartilage at the cleft side is almost always deficient and that's why cartilage graft is used to reinforce and contour the ala at the cleft side. Besides the cartilage can be used as a strut graft to support the nasal septum and therefore compensate for the short columella of the cleft nose. The used cartilage graft can be either a conchal or costal cartilage graft[9,10].

There are currently no common recommendations for the treatment of cleft nasal abnormalities. A surgeon's ability to perform a successful surgical repair is frequently reliant on his education and experience. Furthermore, there is debate on the timing and procedures for cleft rhinoplasty due to the lack of a defined link between the patient's age, physical growth, and the required number of revisions[11].

The research has demonstrated a significant degree of diversity in the outcomes obtained from the primary and intermediate cleft rhinoplasty methods. Furthermore, contradictory opinions on the effects of primary or intermediate rhinoplasty surgeries on nose development have been documented in several studies[12,13].

However, a study conducted by Pai and colleagues in 2019 assessed long-term nasal growth in patients with bilateral cleft lip and palate who underwent primary rhinoplasty (with or without intermediate rhinoplasty) by a single surgeon between 1995 and 2002 and reached skeletal maturity using three dimensional nasal photogrammetric measurements. There were no differences at all in nasal height, tip/midline deviation, nasal dorsum angle, dome-to-columella ratio, columella height/alar width ratio, area surface, and volume parameters. That study showed that primary and intermediate rhinoplasty performed in patients with bilateral cleft lip and palate during infancy and childhood does not result in a deficiency of the nasal dimensions relative to controls[14].

PATIENTS AND METHODS:

This was a prospective comparative study that included 20 patients with unilateral cleft lip nose deformity ranging from 3 to 9 years old

Patients with bilateral deformity, severe facial clefts, other maxillofacial anomalies, or associated severe comorbidities were excluded from the study.

The procedure findings in this study were compared with control individuals who had unilateral cleft lip and palate and were age-matched. As control patients, a different set of individuals with unilateral cleft lip who did not have an intermediate cleft lip rhinoplasty was examined.

Age-matched control patient photos were included at every interval in the intermediate cleft lip rhinoplasty group.

Preoperatively (time 0), immediately postoperatively (time 1), 3-6 months postoperatively (time 2), and more than a year postoperatively (time 3), if available, were the four time periods at which standardized preoperative and postoperative basal view images were evaluated.

The authors employed a basic random selection technique; patients seeking rhinoplasty who had previously had their unilateral cleft lip corrected and we obtained informed permission from the caregivers.

Technique

Recommendations for intermediate cleft lip rhinoplasty were made based on patient/parent preferences and/or clinical assessment results.

All patients received general anesthesia with the endotracheal tube put orally, centrally, and directed downwards.

An open rhinoplasty approach was used as follows:

(a) The patient is placed supine with a suitable ring under the head to add some stability

(b) After sterilization it is advised to expose all the patient's face within the surgical field (not only the lip nose region) to make aesthetic evaluation easier.

(c) Marking of the columellar and bilateral nasal rim incision. The columellar incision extended intranasally as a marginal incision to expose the lower lateral cartilages. Also, marking of the tip and domes of both lower lateral cartilages can help.

(d) Nasal degloving follows just above the superficial muscloapponeurosis.

(e) De-fattening of the nasal tip keeping in mind that this fat can be used as an on-lay graft to augment the depressed cleft LLC or to define the tip.

(f) Identification of the nasal septum followed by fine dissection of both lower lateral cartilage followed by dissection of the LLC from its vestibular lining which is important step to avoid lining defect as much as possible and this is the authors' technique modification (Fig. 1).

(a) Lateral release of the cleft LLC may be needed in selected cases to upward medially rotate its dome in its proper position.

(b) The normal to cleft-side lower lateral cartilage was united by intra- and inter-abdominal sutures (Fig. 2).

(c) The medial crura was stabilized with a Monocryl 4/0 suture.

(d) If necessary, the alar base was repositioned with a PDS 4/0 Cinch suture.

(e) Cartilage grafts either from septal cartilage or conchal cartilage were used as on-lay grafts after restoration of the normal nasal tip components if needed (Figs 3-6).

(f) The columellar incision is then closed by multiple interrupted 5/0 Prolene sutures and 5/0 Vicryl sutures are used for the rim incisions.

(g) Finally, Inverted Tajima sutures may be needed in some cases to widen the cleft nostril aperture and support the repositioned LLC in its new position.

Figure 4 Another case showing, A) Preoperative frontal view showing markings, B) Preoperative basal view showing markings, C) After nasal degloving showing The Cleft LLC is dysplastic and showing inward buckling that needs to be released first and medial advancement, D) The tip is defatted. Intra-domal and inter-domal suture was placed uniting the normal to the cleft-side lower lateral cartilage.

Lastly, a silicone nostril retainer (postoperative molding) was placed in the operated nostril for removal 7 days postoperatively. Also, the prolene stitches were routinely removed on day 7 postoperative

After that, patients were advised to keep on using the silicon retainer only overnight for 3 months postoperative.

Patient follow-up

Assessments of control and intermediate cleft lip rhinoplasty patients were carried out using four photo-morphometric relationships:

(a) Alar symmetry,

(b) Nasal tip protrusion to alar base width,

(c) Cleft nostril dimensions, and

(d) Non-cleft nostril dimensions.

The ratio (prn-ABnc/prn-ABc) of the distances from pronasale to alar base on the noncleft versus the cleft side was used to assess alar symmetry.

Nasal tip protrusion from pronasale to subnasale in proportion to the width of the alar bases (prn-sn/ ABc -ABnc) defines the nasal tip's overall height-to-width dimensions.

The distance between the top and lower inner borders of the nostril opening is used to construct a horizontal tangent, which is then used to compute the nostril height-to-width proportions. Vertical tangents are made on the medial and lateral inner edges of the nasal opening to estimate nostril width. The ratio of nostril height to nostril width is used to measure nostril size. (Fig. 6).

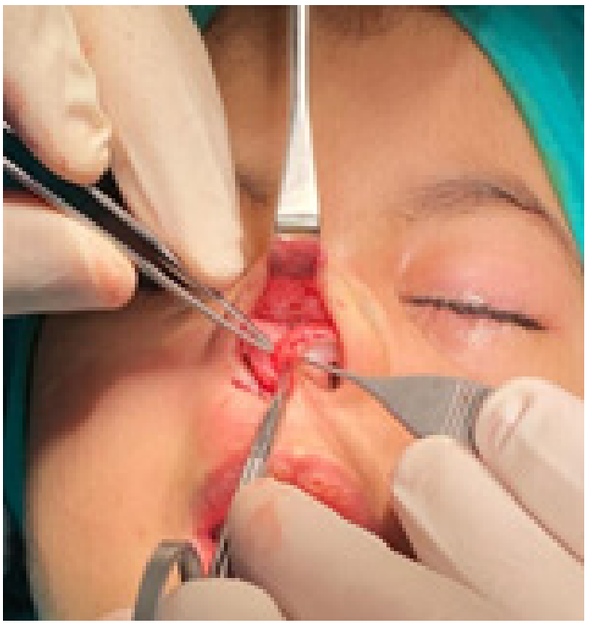

Fig. 1: An important step showing fine and complete dissection of the lower lateral cartilage from its vestibular lining.

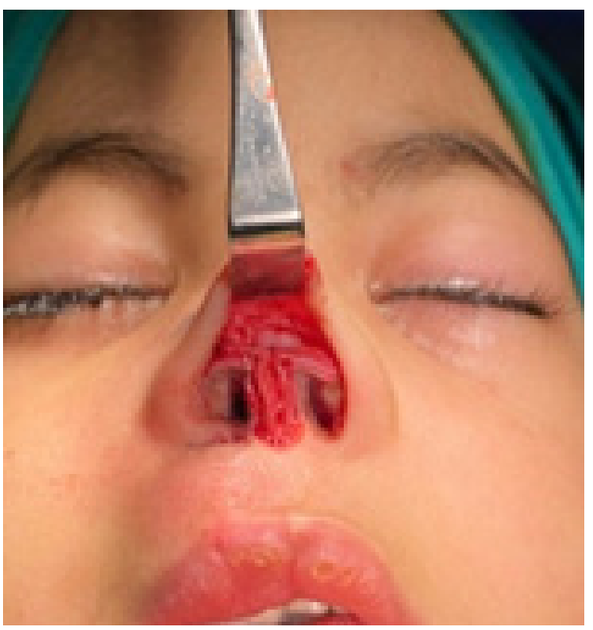

Fig. 2: After the interdomal sutures showing good alignment with no vestibular lining defect.

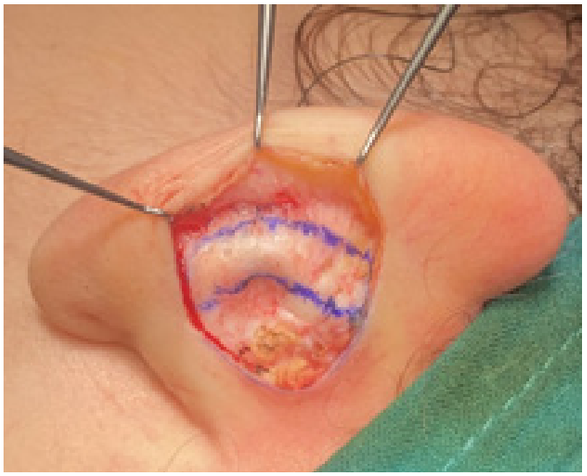

Fig. 3: Showing the marking of the conchal cartilage that was harvested in one of our cases using posterior auricular incision.

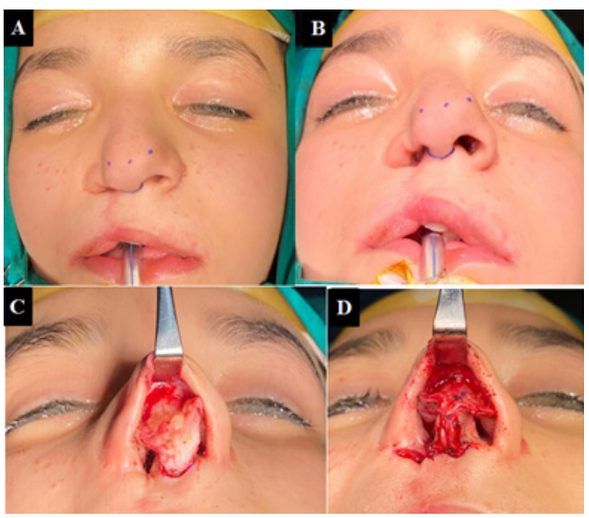

Fig. 4: Another case showing, A) Preoperative frontal view showing markings, B) Preoperative basal view showing markings, C) After nasal degloving showing The Cleft LLC is dysplastic and showing inward buckling that needs to be released first and medial advancement, D) The tip is defatted. Intra-domal and inter-domal suture was placed uniting the normal to the cleft-side lower lateral cartilage.

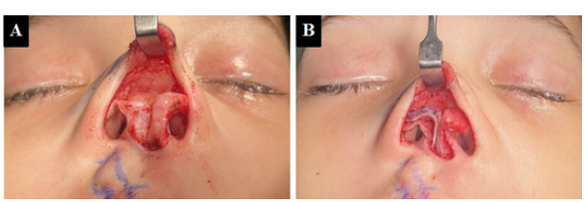

Fig. 5: Another case with severe, right LLC displacement and buckling that needed application of on-lay cartilage graft A) After nasal degloving and complete LLC dissection, B) After application of the cartilage graft to reinforce the dysplastic LLC.

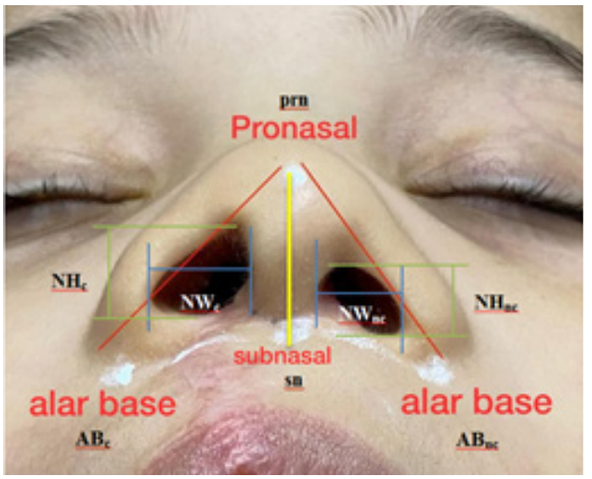

Fig. 6: Landmarks on the nose and anthropometric connections. prn, pronasale (the nose tip's most protruding point when viewed from the base of the head); prn-sn, columella height; sn, subnasale (midpoint of the columella base at the columella-labial junction); The alar base on the cleft side is represented by ABc; on the noncleft side by ABnc; the width of the alar base is represented by ABc - ABnc; the distance between pronasale and alar base on the cleft side and the noncleft side by prn-ABc; NHc, the cleft-side nostril height; NWc, the cleft-side nostril width; NHnc, the non-cleft-side nostril height; NWnc, the non-cleft-side nostril width.

RESULTS:

This study included 20 patients with mean age ± SD at the time of surgery 6.68±1.73 years old ranging from 4 to 9 years old. The study included 12 (60%) males and eight (40%) females. 13 (65%) patients had right sided unilateral cleft lip nose deformity while seven (35%) patients were left sided.

There were no statistically significant age differences between the intermediate cleft lip rhinoplasty patient group and the control group at any time point. Furthermore, there were no statistically significant variations in the two groups' sexes or ethnicities.

Revisions or wound issues did not arise in the group of patients undergoing intermediate cleft lip rhinoplasty.

Analysis of nasal relationships

Baseline differences between control and intermediate cleft lip rhinoplasty patients

There were no statistically significant variations in the noncleft nostril dimensions, nasal tip protrusion–to–alar base width ratio, or the severity of alar symmetry between the control and intermediate cleft lip rhinoplasty groups when baseline comparisons were made at time 0 (Fig. 7).

In contrast to the control group, the intermediate cleft lip rhinoplasty group had a wider and shorter cleft nostril

at time 0 (0.51±0.21 vs. 0.67±0.23; *P=0.027*), indicating a statistically significant difference in the height-to-width relationships of the cleft nostril. This difference reflects the increased severity of the nasal deformity in this group.

Note the significant difference in cleft nostril dimensions, indicating a more severe preoperative deformity in the intermediate cleft lip rhinoplasty group compared with controls.

Regarding alar symmetry, in the study group at time 0; Mean ± SD was 0.81±0.06 ranged from 0.65 to 0.94, at time 1; Mean ± SD was 1.03±0.02 ranged from 0.97 to 1.06 and at time 2; mean ± SD was 1.00±0.03 ranged from 0.91 to 1.04.

In the control group, at time 0, time 1 and at time 2; mean ± SD was 0.89±0.04 ranging from 0.82 to 0.97.

There was highly statistically significant difference regarding alar symmetry at time 0, time 1 and time 2 between the study group and control group. (Fig. 8).

Regarding nasal tip protrusion, in the study group at time 0; Mean ± SD was 0.53±0.06 ranged from 0.43 to 0.64, at time 1; the Mean ± SD was 0.62±0.12 ranged from 0.44 to 0.9 and at time 2; mean ± SD was 0.64±0.11 ranged from 0.5 to 0.9. In the control group, at time 0, time 1, and at time 2; mean ± SD was 0.53±0.06 ranging from 0.43 to 0.64.

There was highly statistically significant difference regarding nasal tip protrusion among the studied patients at time 1 and time 2 while there was no significant difference at time 0 between the studied groups. (Fig. 9).

Regarding nostril C dimensions, in the study group at time 0; Mean ± SD was 0.51±0.21 ranged from 0.18 to 0.92, at time 1; Mean ± SD was 0.81±0.21 ranged from 0.53 to 1.25, and at time 2; mean ± SD was 0.84±0.27 ranged from 0.4 to 1.2. In the control group, at time 0, time 1, and at time 2; the mean ± SD was 0.67±0.23 ranged from 0.28 to 1.18.

There was statistically significant difference regarding nostril C dimensions among the studied patients at time 0 and time 2 while there was no significant difference at time 1. (Fig. 10).

Regarding nostril NC dimensions, in the study group at time 0; Mean ± SD was 1.22±0.32 ranged from 0.64 to 1.8, at time 1; Mean ± SD was 1.22±0.19 ranged from 0.83 to 1.5, and at time 2; mean ± SD was 1.15±0.21 ranged from 0.62 to 1.42. In the control group, at time 0, time 1 and at time 2; mean ± SD was 1.18±0.28 ranged from 0.78 to 1.7.

There was no statistically significant difference regarding nostril NC dimensions among the studied patients at time 0, time 1 and time 2. (Fig. 11).

Comparison of the nasal measures over time in the study group

At time 1, the study showed significant improvement regarding the alar symmetry (*P value 0.000*), and nasal tip protrusion (*P value 0.004*), while the changes regarding nostril dimension at the cleft side were nonsignificant (*P value 0.057*).

At time 2, the study added significant improvement regarding the nostril dimensions at the cleft side (*P value 0.049*) that may reflect the importance of follow-up and using the nostril silicon retainer.

At all times no significant changes regarding the nostril measures at the noncleft side were noticed.

Follow-up pictures of a few research patients taken before (time 0), during (time 1), and 3 months after (time 2) an intermediate cleft lip rhinoplasty performed using the modified component restoration approach. (Figures 12–15) show t0, time 0; t1, time 1; and t2, time 2.

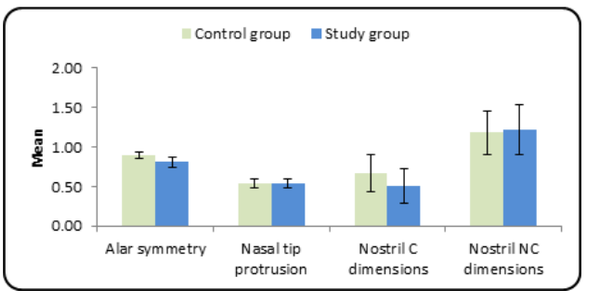

Fig. 7: Baseline differences between control and intermediate cleft lip rhinoplasty (ICLR) patients. Preoperative pairwise comparisons between control and intermediate cleft lip rhinoplasty groups among the four output variables (time 0).

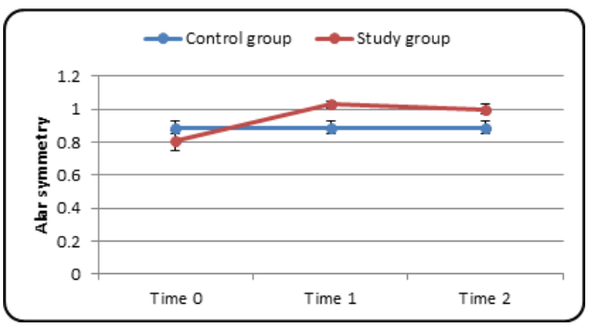

Fig. 8: Comparison between control and Study group regarding alar symmetry among the studied patients.

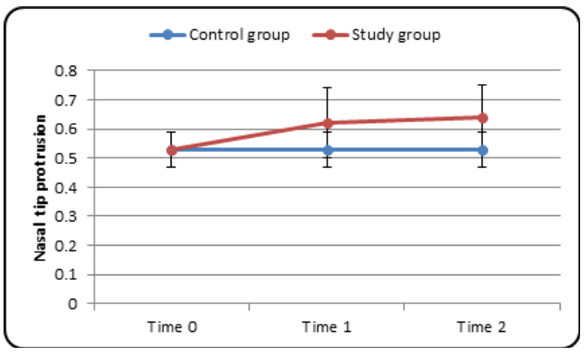

Fig. 9: Comparison between control and Study group regarding nasal tip protrusion among the studied patients.

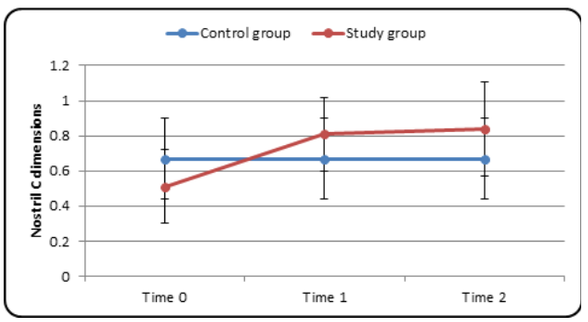

Fig. 10: Comparison between control and Study group regarding nostril C dimensions among the studied patients

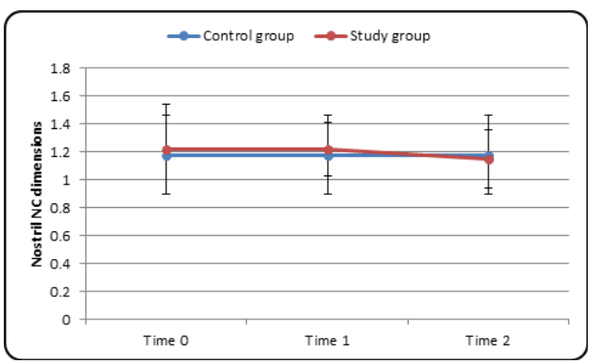

Fig. 11: Comparison between control and Study group regarding nostril NC dimensions among the studied patients

Fig. 12: A case of right-sided cleft lip nose, (a) time 0, (b) time 1 and (c) time 2.

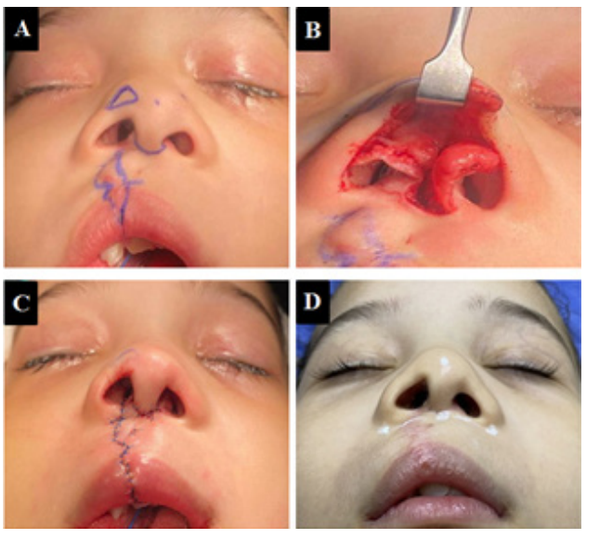

Fig. 13: A case of right sided cleft lip nose (a) time 0 showing the preoperative marking, (b) intraoperative photo showing severely distorted LLC, and (c) time 1 and (d) time 2. This case needed an on-lay cartilage graft to support the cleft side LLC. Also, a lip scar revision was done.

Fig. 14: A case of left-sided cleft lip nose a) time 0, b) time 1 and c) time 2. Also, a lip scar revision was done.

Fig. 15: A case of right-sided cleft lip nose follow-up frontal views, (a) time 0, (b) time 1, (c) time 2, basal views, (d) time 0, E) time 1, and f) time 2. This case had also, limited lip scar revision.

DISCUSSION

Any nasal surgery done following the first cleft lip repair but before the patient achieves facial skeletal maturity is referred to as intermediate cleft rhinoplasty. Intermediate cleft rhinoplasty is less common than primary or secondary cleft rhinoplasty, however it may still be necessary in certain situations. Specifically, children and adolescents with CLND (Cleft Lip Nose Deformity) who experience considerable

psychological discomfort (e.g., peer taunting) or functional impairment (e.g., nasal blockage due to a severe septal deviation) may be candidates for intermediate rhinoplasty[15].

Before the maturation of the facial skeleton, both primary and intermediate cleft rhinoplasties take place. While the age of nasal maturity might differ between people and genders, the cartilaginous structure and nasal skeleton have typically fully grown by the time a girl is 16 years old and a guy is 17 years old[16].

Due to the possibility of nasal and midfacial development limitations, several surgeons advise against conducting nose surgery on juvenile patients; however, new research has called into question this conventional wisdom[17]. For example, 52 individuals (mean age of 19 years) with nonsyndromic unilateral cleft lip who received primary rhinoplasty at 3 months of age were tracked by Seo and colleagues. The columellar angle and nasal tip height ratios between the age-matched controls and the cleft group were found to be similar. They concluded that primary rhinoplasty did not impede nasal development in patients with clefts[18]. Remaining nasal irregularities were also noted by the authors in the cleft group, which is noteworthy and supports the idea that many cleft patients may need secondary (final) rhinoplasty to resolve them.

Also, Choudhary *et al*., in 2020[19] assumed that intermediate rhinoplasty would affect the definitive rhinoplasty if need, making exposure more difficult at the time of future rhinoplasty because of the extensive tip correction and composite graft placement performed previously at the time of intermediate.

However, the influence of the intermediate rhinoplasty on the definitive rhinoplasty has not been thoroughly evaluated in the literature or systematically evaluated. As with any secondary rhinoplasty, dissection is expected to be more challenging.

Furthermore, there is a compelling reason to try to restore a child's normal appearance during childhood rather than waiting for full growth, as demonstrated by recent data showing that the self-reported psychosocial distress of children with craniofacial anomalies between the ages of 8 and 10 far outweighs that of older children with the same diagnoses[6].

Despite the abundance of surgical techniques for treating cleft nose tips in the literature, systematic care is typically not used in the intermediate stage[20]. Before the final septorhinoplasty, reported techniques for the cleft nasal tip primarily rely on multiple concepts: cartilage repositioning alone, cartilage repositioning with release and/or replacement of the nasal vestibular lining, or cartilage repositioning with structural support[21,22].

The general philosophy of the intermediate rhinoplasty is to address each patient's specific need with as little soft tissue dissection as possible given this procedure is not the definitive rhinoplasty. Therefore, techniques will vary based on each patient. Exposure of the nasal tip through an open rhinoplasty approach allows for visualization of the cleft alar deformity. Attempts at direct lateral cural steal can be performed but are often, just as in definitive rhinoplasty, limited by scarring and soft tissue deficits within the nasal vestibular lining. Complete release of the lateral crus from the vestibular lining to allow medial rotation can be done but the inflexibility of the nasal mucosa often continues to create hooding and asymmetry. Vestibular release methods such as V to Y advancement should be used with caution as all incisions and dissection create future scars for definitive surgeries[23].

So, using the component restoration technique is beneficial and easy to apply depending on the idea of the main three components of a normal nasal tip. The defects of the tip include:

(a) Cartilage malposition.

(b) Cartilage weakness.

(c) Lining deficit.

A logical approach would include reconstruction that systematically accounts for all three components[24].

The component restoration technique idea is to restore the previously mentioned three nasal tip components. The evolution of this technique was over the past decades and inspired by many cleft surgeons who addressed the three problems but not in a single technique

Mcindoe was the first to treat the malposition of lower lateral cartilage in 1938. He explained how the split lower lateral cartilage was fixed and the skin envelope was undermined[25].

Potter noted that nasal lining deficit invariably imparted a point of fixation laterally, which was tied to lower lateral cartilage relocation. Consequently, Potter was the first surgeon to report a V–Y advancement after a composite cleft lower lateral cartilage and nasal lining release[7,26].

Lastly, the idea of lower lateral cartilage reinforcement was adopted by many surgeons starting

from Milliard who used the on-lay auricular cartilage graft to support the weak dysplastic cleft lower lateral cartilage[27].

The idea of component restoration that combines the previously mentioned three principles was described before in a small case series that included Five children with bilateral cleft lip nasal deformities who had nasal reconstruction using conchal composite grafts through an open tip rhinoplasty approach, averaging 5 years in age at the time of surgery. Patient follow-up averaged 21 months.

The conchal composite graft was obtained from the lateral aspect of the ear and was used to reconstruct the lateral alar mucosal defects.

Conchal cartilage was used as a columellar strut. The columellar skin was closed in a 'V–Y' fashion, giving greater columellar length

Although that study depended only on visual inspection of each child's nose and no quantitative measurements were made, the author noticed improved nasal contour, columellar length, and tip projection in all study patients[28].

The reasoning behind attempting to restore each anatomical disturbance of the cleft nasal tip is not unique; rather, it is grounded in the substantial body of knowledge regarding nasal reconstruction that Burget established, as well as the principles of tip refinement in adult aesthetic rhinoplasty that have been developed by several surgeons. His 'early attempts at nasal reconstruction were unsuccessful because they lacked: 1. Strong nasal support and 2. Adequate nasal lining,' as Burget wisely pointed out.26 This is valid for the cleft patient during childhood as well as at the final septorhinoplasty[7,29,30].

Ayeroff *et al*., in 2019[7] described the component restoration technique for intermediate unilateral cleft lip rhinoplasty in a comparative study that involved 50 patients.

He followed up his patients for 3 years using photometric analysis and the comparison was regarding the main nasal measures (alar symmetry, nasal tip protrusion–to–alar base width ratio, and height-to-width dimensions for the cleft and noncleft nostrils. The component restoration technique improved all four nasal relationships at all postoperative time points compared with the preoperative status in a statistically significant manner

So, due to the paucity of papers in the literature that illustrate that technique especially in childhood, the main aim of this study was to assess the technique, feasibility, and short-term outcome of component restoration in unilateral intermediate cleft lip rhinoplasty.

In this study, authors used the technique of component restoration as described by Ayeroff, with the exception that Ayeroff used the composite cartilage graft in all patients depending on the cartilaginous part of the graft to provide strength to the infrastructure and the cutaneous part of the graft to cover the vestibular lining after lateral release of the cleft LLC.

Here, authors found out that after fine dissection of the cleft LLC from its vestibular lining it can be easily rotated upward medially and fixed in its new position leaving no or small raw area of lining that can be closed easily either primarily or using simple V–Y advancement as described by Potter. After that, conchal cartilage graft can be used as an on-lay graft to support the weak LLC.

The main results of this study were as follows: Preoperative (time 0) baseline comparison between the study and the control groups showed significant differences regarding the nostril dimensions at the cleft side (*P value 0.027*) and alar symmetry (*P value 0.000*) denoting more severe deformity in the study group compared with the control group.

At time 1 (just postoperative), the study showed significant improvement regarding the alar symmetry (*P value 0.000*), and nasal tip protrusion (*P value 0.004*), while the changes regarding nostril dimension at the cleft side were non-significant (*P value 0.057*)

At time 2 (3-6 months postoperative), the study added significant improvement regarding the nostril dimensions at the cleft side (*P value 0.049*).

At all times no significant changes regarding the nostril measures at the noncleft side were noticed.

These results were consistent with Ayeroff's results, despite that this study showed no significant improvement regarding nostril dimensions at the cleft side at time 1 post-operative that was later on improved when reviewed at time 2.

This may reflect the importance of the postoperative molding using the silicon cleft side nostril retainer for 3 months postoperative and also showing that immediate postoperative nostril measures is not that important as long as the LLC is well repositioned, supported by on-lay cartilage graft if needed and no vestibular lining defect.

Still this study has limitations

(a) The lack of a group of age-matched and ethnically matched noncleft children for comparison.

(b) The reliance on two-dimensional photographs Future studies using three-dimensional photography to quantitatively analyze anatomy for more definitive analysis are surely needed.

(c) No objective measures or findings clarify which patients will need cartilage grafts. It is completely left to the surgeon's subjective evaluation of the affected LLC (Lower Lateral Cartilage). In this case surgeon must balance between the risks and benefits of cartilage grafting. In most cases, it will add support and strength to the tip infrastructure. But still unnecessary cartilage graft will not add anything except more difficult dissection during the future definitive rhinoplasty stage.

(d) The loss of most of the study patients after 6 months of follow-up made it difficult to assess the long-term effect of that rhinoplasty technique.

(e) More studies with larger sample sizes and longer follow-up duration are surely needed to prove the long-term results of component restoration rhinoplasty and know the impact of intermediate rhinoplasty on the definitive septorhinoplasty whether the definitive stage becomes easier with fewer steps needed or more difficult due to more distorted anatomy and extensive scarring.

CONCLUSION

The modified component restoration technique for the unilateral intermediate cleft lip rhinoplasty improves all nasal relationships regarding alar symmetry, nostril dimensions at the cleft side, and nasal tip protrusion with results persistence up to 3 months postoperative.

CONFLICT OF INTEREST

There are no conflicts of interest.

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