

Pediatric Facial Plastic and Reconstructive Surgery

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Chapter 10: Management of Unilateral Cleft Lip

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This chapter will discuss the basic surgical management of a patient with a unilateral cleft lip. There are many factors that influence the management of the patient with this disorder. They depend on the extent of the cleft deformity, the presence or absence of any other associated abnormalities, and the techniques favored by the surgeon performing the repair, which are all important variables in determining the final management of the cleft patient.

It must be emphasized that the importance of having a cleft team is vital and benefits the management of every patient.

Anatomy

In the normal patient, the orbicularis oris is a complete muscular sphincter of the opening of the oral cavity. This muscle is not covered by fascia and consequently contacts the skin anteriorly, and on the oral surface contacts the labial mucosa.

In the unilateral cleft deformity, the extent of the muscular deformity is dependent on the degree of the cleft deformity. When there is a minimal cleft deformity, the majority of the orbicularis oris muscle is intact and does form a sphincter with only the lowest portions of the orbicularis oris muscle divided at the cleft margins. When the cleft itself involves a significant portion of the lip, there is complete disruption of the orbicularis oris muscle (Fig 1). The fibers are directed upward along the margins of the deformity and may not connect with fibers of the opposite side of the cleft deformity. In a near-total or any complete cleft of the lip, these muscle fibers are directed superiorly with fibers inserting into the area of the base of the ala on the cleft side on the lateral segment and the medial segment fibers insert near the base of the columella. Thus, these muscle fibers have both an abnormal direction and insertion.

The vascular supply is also abnormal in the cleft lip patient (Fig 2). The normal arterial supply of the upper lip is obtained from the superior labial artery. This is a branch of the facial artery. These arteries arise near the corner of the mouth and are directed close to the free border of the upper lip. In the normal patient, the arteries from each side have several anastomoses in the area of the midline of the lip. During its passage through the upper lip, the superior labial artery has several branches that course upward, including the lateral nasal artery toward the area of the nasal alar base, branches that course superiorly to the midportion of the lip, and the ascending septal branch is directed toward the columella, which anastomoses with its fellow of the opposite side. In the unilateral cleft, the superior labial artery follows along the margins of the cleft when there is a significant degree of clefting and does not anastomose with its fellow of the opposite side. On the medial side of the cleft defect, the superior labial artery is usually much smaller in the area of the nasal columella,

which results in a diminished blood supply to this area.

Patients with an incomplete cleft and a complete cleft of the lip are illustrated in Figs 3 and 4.

Timing of Lip Repair

In the USA the majority of lip repairs are performed in accordance with the "rule of tens". Basically, this rule is designed to insure that the infant is of adequate size and allows a proper period of time for complete evaluation of the infant for other abnormalities before the lip repair is performed. In the "rule of tens" the infant should be at least 10 weeks of age, have a hemoglobin of 10 g per 100 mL, and weigh at least 10 pounds.

A few surgeons in the USA and in other countries operate on infants at a much earlier age. This varies from a few hours after birth (usually performed under local anesthesia) to a few weeks of age. The advantages of a much earlier lip repair are alleged by its proponents, who believe that maximal healing potential is present at this time, it avoids an additional separate hospitalization, allows the parents to take home a more normal-appearing child, and it may provide earlier, balanced facial musculature to facilitate feeding.

Goals of Primary Lip Repair

The primary goal of lip repair is to reconstruct a functional lip that has a normal cosmetic appearance. In order to achieve these goals, there should be reconstruction of the lip with correct alignment of the orbicularis oris muscle, a Cupid's bow, symmetric reconstruction of the vermilion, the creation of a nasal floor and sill, and symmetrical placement of the base of the ala and columella. In addition, many surgeons perform a reconstruction of the nasal deformity of the lower portion of the nose at this time. The goal of this reconstruction is to lengthen the columella on the side of the cleft, correct the deformity of the lateral crura of the lower cartilage, and correctly position the alar base. These goals should be attempted to be attained without the excessive sacrifice of tissue in the area of the cleft and in as nontraumatic a manner as possible. One must always remember that animal studies have shown that unilateral lip repair does influence facial growth. This consideration is vital and must be remembered whenever a unilateral cleft lip repair is performed.

Lip Adhesion

In some centers lip adhesion may be used as a preliminary step in the management of complete unilateral clefts of the lip. The procedure is a surgical technique that uses tissue that is usually discarded at the time of primary lip repair to convert the complete unilateral cleft into an incomplete unilateral cleft. This allows the lip to act as an orthodontic appliance, which can improve the alignment of the maxillary arches and may allow an enhanced result from the repair of the lip at the time of the definitive lip repair.

There are basically two types of lip adhesion used. The original description of the use of medial and laterally based rectangular flaps of tissue normally discarded located in the superior portion of the cleft was described by Randall (Fig 5). Walker et al used inferiorly

based flaps at the vermilion border to construct the lip adhesion (Fig 6). In these techniques, lip adhesion is performed on patients from 1 to 4 weeks of age with the definitive lip repair usually performed 3 to 6 months later.

The primary advantages of lip adhesion or the conversion of a complete cleft to an incomplete cleft is the improvement in the alignment of the maxillary arches and a subsequent narrowing of the width of the cleft defect itself. Disadvantages include the extra operation required, the possible increase in the amount of tissue that must be excised at the time of the definitive lip repair, and the possible dehiscence of the adhesion itself. In addition, not all cases result in improved alignment of the alveolar arches, as occasionally the smaller arch segment will collapse inward rather than improve its alignment.

The alignment of the alveolar arches may be markedly improved by the use of the nonsurgical technique of presurgical orthopedics by a maxillofacial prosthodontist. This technique involves the use of the prosthetic appliance to improve the position and alignment of the maxillary arches prior to the surgical procedure. When successful, this will allow repositioning of the abnormally placed maxillary segments and the subsequent decrease in the width of the cleft defect. This also facilitates the definitive lip repair and eliminates excessive tension in wide clefts of the lip.

In this method of therapy, treatment by a prosthodontist usually begins at approximately 2 weeks of age with the use of a functional appliance that is fitted to the nipple of the feeding bottle and pacifier (Fig 7). The functional appliance is constructed from an impression taken during the second week of the cleft infant's life. An appliance is designed so that pressure is applied in the designated area to move the maxillary segments into a more favorable anatomical position. This appliance obviously functions only when a child sucks and must be readapted every 2 weeks as the segments move and facial growth occurs. The readaptation of the appliance usually involves obtaining a new dental impression and redesign of this appliance. Successful use of this procedure usually requires 3 to 6 months with the vast majority of patients ready for the definitive lip repair at 4 months of age.

The advantages of a presurgical orthodontic therapy include the improvement in the alignment of the maxillary arches, which facilitates improved surgical results with better symmetry in the underlying skeleton and nose, and the completion of a repair with less tension. It eliminates the necessity of a surgical procedure such as the one used in lip adhesion to attempt to correct this problem and allows a more controlled correction of the underlying skeletal position than does the adhesion. Disadvantages include the necessity of an experienced prosthodontist in order to construct this appliance and the requirement of multiple visits and modifications of the appliance itself to obtain the desired results. In addition, this therapy may not be covered by the patient's health insurance.

It would appear that lip adhesion at this time in the USA is used less frequently than it was 10 to 15 years ago. However, in selected cases it has the potential to yield improved results when presurgical orthopedics are not available or cannot be used because of the multiple visits required prior to performing this definitive lip repair.

Definitive Lip Repair

There have been numerous methods of lip repair described in the medical literature. The two most commonly used techniques in this country are the rotation-advancement method and the interdigitation of triangular flaps; they will be discussed and described in detail.

The rotation-advancement method was originally described by Millard and has undergone some changes, but the basic concept still remains. In this technique the medial flap is rotated downward while the lateral flap is advanced as illustrated in Fig 8. This technique is probably the current method of choice for the repair of most clefts of the lip. The advantages of this technique include minimal discarding of tissue; a suture line that is superior to all others as it recreates the philtrum on the cleft side; easy access; and the facilitation of primary reconstruction of the columella, nasal tip, lower lateral cartilage, and alar base, and the creation of a nasal sill during its performance. Most importantly, it is an extremely flexible technique that enables the surgeon to adjust the repair as it proceeds. The disadvantages of this technique include the occasional difficulty in closing an extremely wide cleft without extensive undermining of the lip and the tissue overlying the face of the maxilla, which may result in an excessive tension on the lip closure, and the potential for creating a small nostril on the side of the cleft, which in the author's experience is nearly impossible to adequately correct. In addition, it is often difficult for an inexperienced surgeon to obtain optimal results as it requires a significant amount of surgical judgment at the time of the procedure, rather than being based on exact, measured methods.

The second most common method of lip repair involves the use of a triangular flap to reconstruct the cleft defect. This technique was described by Tennison and popularized by Randall. In this technique a single inferiorly based triangular flap on the cleft side of the defect is inserted into an incision on the noncleft side in the middle portion of the lip (Fig 9). The main advantages of this technique are that it is based on exact and careful measurements using defined landmarks, which are easily taught, and it can be performed by the inexperienced or occasional operator. In addition, it can be easily used on wide clefts and it maximally preserves tissue. Disadvantages of this technique include a failure to restore the philtral column, the creation of a scar that is occasionally not cosmetically pleasing, a greater degree of difficulty in performing a primary nasal repair at the time of the lip repair, and the inability to modify or adjust the repair once it is initiated by the surgeon.

Surgical Technique - General

Lip repair is performed under general anesthesia using a noncuffed endotracheal tube. The anesthesiologist must secure this endotracheal tube in the midline without distorting the lower lip or commissure. At our institution this is usually obtained by taping the tube to the chin. Once the tube is secured in place, a hypopharyngeal pack is placed to prevent aspiration of blood during the procedure. Some authors also inject a small amount of a local anesthetic agent with a vasoconstrictor to decrease bleeding. However, blood loss is usually minimal (less than 30 cc when general anesthesia is used without the injection of any vasoconstricting agent). If a vasoconstricting agent is injected, a minimal amount must be used to prevent significant tissue distortion that would affect the final result. After the infant has had his skin prepped and is draped, important anatomical landmarks are marked using gentian violet applied with a fine-pointed, wooden, cotton-tip applicator used as a marking pen. It has been

my experience that most commercial marking pens do not have a fine enough point to be adequately used for this purpose (Fig 10). All of these landmarks can be visually identified and these include the peak of Cupid's bow on the noncleft side (3 on Fig 10), the midpoint of the central portion of the lip (4), the base of the columella on the noncleft side (2) and on the cleft side (8), the base of the ala on the noncleft side (6) and on the cleft side (7), the commissure on the noncleft side (12) and on the cleft side (13), and the midpoint of columella (1). Once these points have been determined, the remaining points may be located. The peak of Cupid's bow on the medial side of the cleft (5) is determined by measuring the distance between the peak of Cupid's bow on the noncleft side and the midpoint of the lip (the distance from 3 to 4). The peak of Cupid's bow on the medial side of the cleft is an equal distance from the midpoint of the lip and this determines point 5. The peak of Cupid's bow on the lateral portion of the cleft side is determined by measuring the distance from the commissure to the peak of Cupid's bow on the noncleft side (the distance from 12 to 3) and is an equal distance from the commissure on the side of the cleft (5' equals the distance from 12 to 3 to 13 to 5'). This is usually located where the vermilion portion of the lip begins to attenuate on the side of the cleft. This may frequently be further lateral than the measured location of points in the actual surgical repair. This more lateral point should be the location of point 5'. Prior to initiating the operative repair itself, the high point of Cupid's bow on the medial and lateral cleft segments should be permanently marked so that it does not become obliterated during the procedure. This is usually performed by dipping a 25-gauge needle in gentian violet and tattooing these points on the lip by inserting the needle through the skin at points 5 and 5'.

Surgical Technique - Rotation Advancement

In the rotation advancement technique the same anatomical landmarks described in Fig 10 are utilized. The medially based rotation flap is outlined beginning at the high point of Cupid's bow on the medial cleft segment and follows the vermilion cutaneous junction initially in a superior direction and then curves obliquely upward toward the base of the columella to the midportion of the columella (Fig 11). The superior aspect of the incision is no longer at the vermilion cutaneous junction but is medial to this. This allows the creation of the c-flap when the vermilion cutaneous junction incision is continued superiorly into the floor of the nose. When undermined, this flap may be sutured on itself to lengthen the columella on the cleft side (Fig 12).

The laterally based advanced flap is developed by following the vermilion cutaneous junction from the high point of Cupid's bow on the lateral cleft segment (5' on Fig 10) into the nose, as is done on the medial segment. A horizontal incision at the junction of the lower margin of the ala with the lip on the lateral segment is then made following along the margin of the ala laterally and then superiorly. This will allow the lateral flap to be advanced medially into the defect created by the downward rotation of the medial cleft segment. It also allows the alar margin to be freed totally from the underlying maxilla, and provides wide exposure to the lateral portion of the cleft nose.

When performing the incisions on the medial segment, the incision along the curvilinear line from 5 to 1 is through the skin only (Fig 12). The incision from point 5 along the vermilion cutaneous junction to the floor of the nose is through the skin and underlying subcutaneous tissue all the way down to but not through the mucosa on the oral side of the

medial cleft segment. This will allow the creation of a turnover flap of additional oral mucosa based on the mucosal surface of the medial segment of the flap. It can be used to augment the mucosal closure of the cleft defect if necessary.

On the lateral cleft segment the incisions are through-and-through directly downward through the previously drawn lines from points 5' to 1' and extending into the floor of the nose. This allows the creation of a vermilion flap laterally based on the vermilion of the lateral cleft segment, which can be used to augment vermilion fullness when the vermilion is reconstructed in the final stage. This is frequently necessary in bilateral clefts of the lip.

The skin is then undermined from the underlying muscle for a distance of approximately 1 cm on the medial and lateral segments of the lip. The underlying mucosa is also dissected from the overlying muscle for a similar distance. This provides direct exposure of the abnormally inserted orbicularis oris muscle underlying the skin. The muscle attachments are transected from its insertion at the base of the columella medially and at the base of the ala laterally. Then a back cut is performed as illustrated in Fig 13. This allows the creation of medially and laterally based flaps of orbicularis oris muscle, which then can be rotated downwards and sutured together to reconstruct the orbicularis oris muscle later in the procedure.

Next, attention is directed toward the nose itself. The skin is elevated off of the entire columella and dissection is continued superiorly over the most medial portion of the dome of the lower cartilage on the cleft side (see fig 16) and over the entire surface of the lateral crura on the medial side of the cleft (Fig 14). The base of the ala is completely separated and freed up from the underlying maxilla and the skin is elevated off of the lateral crura of the lower cartilage from the lateral aspect, as illustrated in Fig 15. Then, with great care, the nasal mucosa is elevated from the undersurface of the lateral crura primarily from a lateral approach. This will allow the repositioning of the deformed alar cartilage on the side of the cleft and the maintenance of its position by bolsters later in the procedure, to re-drape the mucosa and skin in an appropriate position over this cartilage.

At this time a skin hook is placed at the junction of the skin of the upper portion of the columella and the lateral crura. When the skin hook is elevated superiorly, it causes the c-flap to fold on itself (Fig 12). This may now be sutured to itself with interrupted 6-0 nylon to lengthen the skin of the columella on the side of the cleft. At this time the medial flap is rotated downward to determine if the medial cleft segment has obtained adequate lengthening (Fig 16). If not, the incision beneath the base of the columella may be extended to allow greater rotation to provide additional length to the medial cleft segment. The lateral cleft segment can then be advanced until adequate lip length is obtained in the lateral cleft segment.

The previously constructed muscle flaps are then rotated downward and approximated together with two or three sutures of 4-0 Dexon (Fig 13). Following this, a 5-0 nylon stitch is placed between the high points of Cupid's bow on the medial and lateral cleft segment and tied, and it can be used as a traction suture to aid in the suturing of the lip.

A permanent deep suture of 5-0 nylon can then be placed from the most advanced of the lateral advancement flap (1' on Fig 16) to the area of the anterior nasal spine. This is a

stabilizing suture and should, at this time, provide a lip which is of adequate length and symmetry.

Once adequate lip length and symmetry is obtained, the skin is then closed with interrupted 6-0 nylon sutures. It should be noted that prior to placing the stay suture, the floor of the nose is closed with interrupted 5-0 chromic stitches from the mucosal flaps, which were obtained from the incision along the vermilion cutaneous junction extended into the floor of the nose. This reconstructs the anterior portion of the floor of the nose.

Care must be taken not to have any distortion or excessive narrowing of the nostril on the side of the cleft. If this occurs an elliptical excision of skin only is performed around the alar margin to correctly position the base of the ala (Fig 17). By excising an ellipse of only skin here, it allows anterior positioning of the usually retroplaced alar base of the lateral cleft segment. These incisions are then closed with interrupted 6-0 nylon (Fig 18).

The vermilion is then closed. If this is attenuated it may be augmented by using a primary Z-plasty or the vermilion flap still attached to the lateral segment may be de-epithelialized and inserted into a submucosal pocket created in the medial vermilion segment. The external surface of the reconstructed vermilion is closed with interrupted 6-0 nylon. The inner surface and the mucosal layer is closed with interrupted 5-0 chromic.

At the conclusion of the procedure bolsters are placed to stabilize the repositioned skin and mucosa over the lower portion of the nose and the side of the cleft. Usually two bolsters are used with one bolster going through the lateral nasal mucosa and overlying skin and through the lower lateral cartilage. A medial bolster is usually placed from the area of the apex of the inner surface at the junction of the lateral crura and the columella and extending superiorly and somewhat laterally toward the other side of the nose to correctly re-drape and reposition this reconstructed portion of the nose.

The lip repair is now complete. It should be noted that some surgeons prefer not to do any significant dissection in the lower portion of the nose and do not perform the steps of the nasal tip reconstruction at the time of the primary lip repair, other than the repositioning of the alar base. Figures 19 and 20 show the pre- and postoperative photographs of a patient who had a complete unilateral cleft repaired by the use of the rotation advancement technique.

Surgical Technique - Triangular Flap Method of Reconstruction

When performing the triangular flap technique of lip reconstruction the same previously described anatomic landmarks (Fig 10) are utilized. In addition, initially the distance the lip must be lengthened is determined by the difference in length between the base of the columella and the high point of Cupid's bow on the noncleft side (3-2) compared with the cleft side (5-8). The difference in these two distances is the number of millimeters that the lip must be lengthened. To compensate for scar contracture, the author always adds 2 mm to this number. When this distance, including the 2 mm added, is greater than 6 mm, the author uses a two-triangular flap technique with the inferior flap based laterally and a small superior triangular flap based medially. In the vast majority of cases, however, only the inferior triangular flap is used (Fig 21).

When the size of the triangle is 6 mm or less, the incisions are outlined with gentian violet as illustrated in Fig 21. The triangle on the lower portion of the lip is based on the lateral lip segment. It is drawn starting at the high point of Cupid's bow on the lateral segment and continued upward on the vermilion cutaneous junction for the predetermined distance (the number of millimeters the lip needs to be lengthened), and an equilateral triangle is constructed according to points 5', 10', and 11 as shown in Fig 21. Thus, the distances from 5' to 10', 10' to 11, and 11 to 5' are equal. This triangle will be inserted into a defect created by an incision of equal length from the high point of Cupid's bow on the medial cleft segment that is perpendicular to the vermilion cutaneous junction (5-10). This incision is, again, the same length as the previously determined distance necessary to adequately lengthen the lip.

If an upper triangle or second triangle is necessary, an upper equilateral triangular flap is based on the medial cleft segment near the columella. This incision starts toward the base of the columella and meets the vermilion cutaneous junction with any additional length that is required greater than 6 mm. The equilateral triangle is then constructed based on this line (points 8, 9, and 12). This triangle will be inserted into a defect created by an incision of equal length on the lateral segment located in the crease at the junction of the nasal ala with the lip (8' to 9'). Following this, the high points of Cupid's bow on the medial and lateral cleft segments (5 and 5') are tattooed with a 25-gauge needle dipped in gentian violet.

The actual incisions are then performed once the drawing of the repair is completed (Fig 22). On the medial cleft segment the incision along the vermilion cutaneous junction from 5 to 9 and extending into the floor of the nose are through the skin and underlying subcutaneous tissue and to, but not through, the underlying oral mucosa on the medial cleft segment. When an incision from point 5 through the vermilion is performed, this will create a turnover flap of mucosa based on the oral mucosal service of the medial cleft segment, which can be used for additional mucosa, if necessary, in the reconstruction of the defect. The incision from the high point of Cupid's bow (5) on the medial cleft segment is through skin only. If an upper triangular flap is necessary this incision is also through skin only.

On the lateral cleft segment a through-and-through incision along the vermilion cutaneous junction from 5' to 8', which extends into the floor of the nose, is then performed. This again creates a flap of vermilion based on the vermilion of the lateral cleft segment, which can be used to augment the vermilion of the central portion of the lip if this is deficient. The incision of the lower triangular flap from 5' to 10' to 11 is through skin only. The curvilinear incision from point 11 to the vermilion cutaneous junction is also through skin only. There is a small triangular piece of skin here that is then excised and discarded.

The skin and underlying mucosa on both the medial and lateral cleft segments are then dissected free from the underlying orbicularis oris muscle for a distance of approximately 1 cm. Following this, the attachment of the orbicularis oris muscle to the base of the columella medially and to the base of the ala laterally are then excised. As illustrated in Fig 23, the flaps of the orbicularis oris muscle are dissected free, which can then be used to reconstruct the muscular sphincter of the orbicularis muscle.

The base of the nasal ala can then be dissected free from the underlying facial skeleton on the side of the cleft. This will facilitate the correct positioning of the ala during the reconstruction, if desired by the surgeon.

The flaps to create the floor of the nose are then elevated from the lower anterior septum and from the lower anterior portion of the lateral nasal wall. The reconstructed floor of the nose is closed with interrupted 4-0 or 5-0 chromic sutures. A permanent 5-0 nylon or absorbable 4-0 Dexon suture may then be used to place the nasal ala in the desired position prior to closure of the lip. It is deeply placed from beneath the base of the ala to the area of the anterior nasal spine and tightened until the ala base is in the proper location.

The muscle flaps are then rotated inferiorly, approximated, and closed with two or three sutures of 4-0 Dexon (Fig 23).

A 5-0 nylon suture is then used to approximate the high points of Cupid's bow on the medial and lateral cleft segments and is maintained as a traction stitch. The triangular skin flaps are then transposed and inserted and held in place by a Gillies corner stitch of 6-0 nylon. The skin is then closed with multiple interrupted 6-0 nylon sutures.

Again, the vermilion is managed the same way as in the rotation advancement method of repair to create an adequate and symmetrical vermilion. The external vermilion sutures are 6-0 nylon, and 5-0 chromic is used to close the inner vermilion sutures and the mucous membrane on the undersurface of the repaired lip (Fig 24). A patient with a cleft deformity that was reconstructed by the use of the triangular flap technique is illustrated in Figs 25 and 26.

Postoperative Care

Postoperative care is as vital as the technique used in performing the procedure itself. Without adequate postoperative care, optimal results cannot be attained.

The incision must be kept free of crusting to prevent separation when the sutures are removed. The incision should be cleaned with 3% hydrogen peroxide, and an antibiotic ointment applied using a cotton-tip applicator twice a day. This should keep the incision itself free of crusting.

Arm restraints are used so that the infant cannot bend his arms at the elbow and are kept in place for 2 to 3 weeks following the surgical procedure. During this period the infant should be fed by the use of an ear bulb syringe rather than nursing. During the initial postoperative period the arm restraints are kept pinned to the mattress or an infant seat. However, it is not feasible to do this for the entire 3-week period. All sutures are removed at 6 to 8 days. At this time Steri-Strips may be applied to the lip for the next 6 weeks. This is done in an attempt to decrease the postoperative scarring by reducing the tension on the incision itself.

Systemic antibiotic coverage with penicillin is used intraoperatively and for a 5-day period following the procedure.

Complications

Severe complications are not common following primary lip repair. The most common complication is the presence of secondary lip and nasal deformities. These may include

inadequate or excessive length to the lip, notching or asymmetry of the vermilion, a short or deviated columella, a horizontal orientation of the nares, and an abnormality in size of nostril and alar base location.

Other complications include infection, wound dehiscence, and scar contracture or hypertrophy. These are uncommon and rarely seen. If hypertrophy of the scar occurs, the use of intrascar injections of steroids along with massage have eliminated this problem.

The author always advises the parents that an additional procedure may be necessary in the future to achieve the desired cosmetic result when performing any cleft lip repair. Although the majority of these patients do have an additional procedure performed at an older age, it is hoped this can be of a minor nature rather than a major complete reconstruction.

Summary

The techniques of repairing the unilateral cleft lip have been discussed and the two most common techniques have been presented in detail. It will appear that at times each is the optimal technique to use. Selection of the technique may well depend on the surgeon's experience and comfort in performing the procedure. In the future, careful studies are needed to attempt to delineate the parameters that will improve the selection of the proper technique in each individual patient. This would be a major benefit in the reconstruction of the unilateral cleft lip deformity.