The Rotation-Advancement Technique (Millard) as a Secondary Procedure in Cleft Lip Deformities

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In 1957 Millard described a rotation-advancement operation for clefts of the lip (*5*). The operation meets all the requirements of a good technique for lip repair and has become popular for repair of primary clefts of the lip. In 1962, Joss and Rouillard presented a critical evaluation of 25 cases in which this method was used (*2*). In 1963, Manekksha reported on the use of this technique in over 200 cases (*3*). These reports stressed the advantages of the method. We have found it to be a very satisfactory repair for most cases of cleft lip and, in addition, have used the technique for correction of certain secondary cleft lip deformities. We should like, therefore, to emphasize the value of the principle of rotation-advancement even after primary repair has been accomplished.

The advantages of the rotation-advancement operation for primary lip repair have been well documented by Millard in a series of papers (*6–10*). The advantages are the same when the method is to be used in the correction of secondary deformities.

Preservation of the cupid's bow on the cleft side is the single most important reason for recent improvement in the results of cleft lip surgery, regardless of the method utilized. This was first pointed out by Tennison (*13*) and Marcks (*4*) and has since been emphasized by Randall (*11*), Brauer (*1*), and Wang (*14*). In the primary Millard repair the main incision follows the philtrum, resulting in a scar which simulates that structure even when some hypertrophy ensues (see Figure 1). This becomes, then, a matter of placing all the existing landmarks into a more normal position. Scars of previous incisions are often limiting and the best results of secondary repair are achieved when normal anatomical landmarks had not been destroyed (see Figure 2). In these cases it becomes more difficult to recognize landmarks for the normal and to

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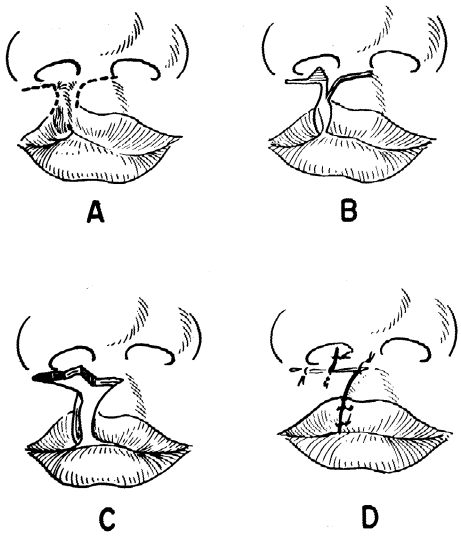

FIGURE 1. Diagrammatic representation of the rotation advancement operation as applied to secondary cleft lip deformities. A. Planning of the incision along the philtrum underneath the columella. The flap on the cleft side is outlined. B. and C. The incision under the columella is continued until the cupid's bow has been dropped to the proper level. The flap on the cleft side is planned to fit the defect under the columella. D. Rotation and advancement of the flap completed.

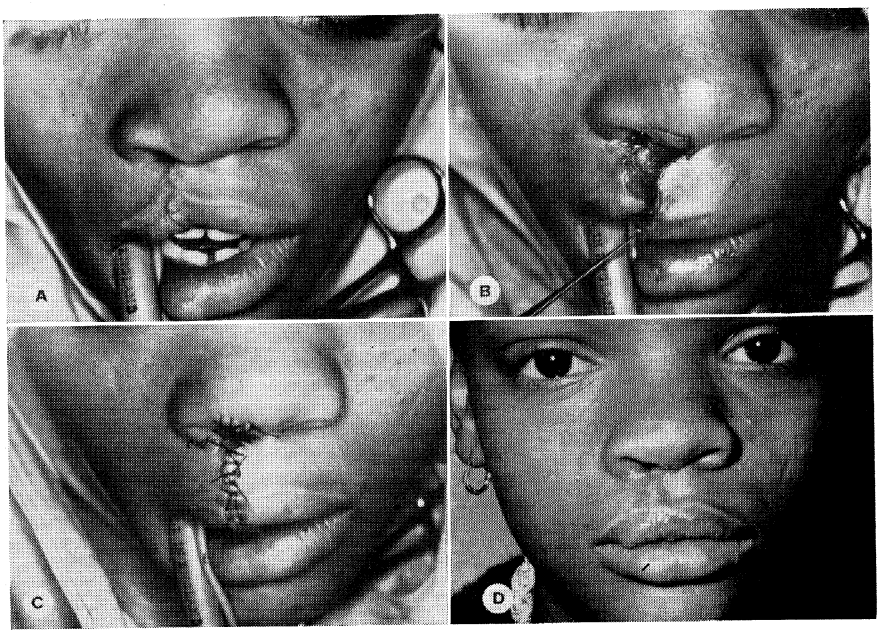

FIGURE 2. A. Pre-operative. Note scar contracture with the cupid's bow on the cleft side pulled up toward the nostril. Note also the abnormal position of the ala. B. Incision along philtrum and under the columella. The flap on the cleft side is then planned. Nostril margin excision also carried out at this time. C. Rotation advancement completed. D. Six months post-operative. Note equal level of cupid's bows. Note improved position of alae, central dimple, and scar along philtrum.

reposition them. When the cupid's bow has been preserved in the primary repair (as in a straight line closure) the results of the revision are strikingly better. Even when lost, however, a new cupid's bow can often be produced by placing the incision through the vermilion at the same distance from the central depression as the apex of the cupid's bow on the normal side (see Figure 3).

The common secondary deformity which lends itself to rotation-advancement may be described as follows. The philtral scar on the cleft side is short and the cupid's bow is pulled up toward the nostril. The nostril floor is wide and the ala is displaced laterally and downwards (see Figures 2 to 5). Correction requires release and rotation of the cupid's bow by incising the lip along the philtrum and under the columella, allowing the cupid's bow to drop into a normal position. This incision

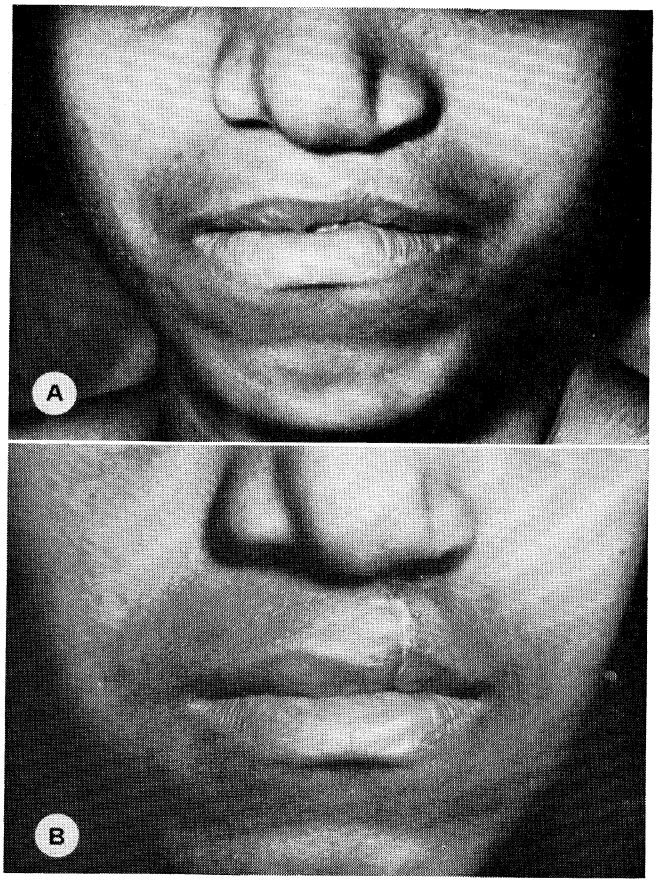

FIGURE 3. A. The vermilion border is pulled up toward the nostril and the cupid's bow has been partially destroyed in the initial operation. B. Note improvement in position of the cupid's bow and vermilion alignment. Slight spreading of scar may require revision.

creates a triangular defect under the columella (see Figures 2b and 5b). Advancement of a flap from the lateral aspect of the upper lip, as described by Millard, fills the triangular defect and maintains the cupid's bow at the proper level (see Figure 2c). This also corrects the nostril deformity by bringing the ala into a more medial position. On occasion, the central dimple mentioned by Millard appears when the lip is incised underneath the columella (see Figure 4) and allowed to assume a more normal position.

An additional advantage of this technique is conservation of tissue where there already may be a deficiency. Very little tissue is discarded with the method. In secondary corrections, only scar tissue is removed and occasionally even this can be saved.

We have found that, for secondary procedures, rigid adherence to preoperative measurements is not satisfactory due to the variability of the defect. The initial incision can be extended under the columella until the position of the lip is appropriate and the apices of the cupid's bow are at the same level. Then, advancement of the flap from the cleft side is accomplished to fill the resulting subcolumellar defect. Adjustments are made until the correction is satisfactory.

The procedure allows for proper realignment of the orbicularis oris muscle, a consideration not sufficiently stressed in the past. The correc-

FIGURE 4. Note severe scar contracture with vermilion on cleft side pulled up toward the nostril. Note also lateral and inferior position of ala. B. Rotation advancement with realigned vermilion, simulates a cupid's bow on the cleft side, and improves nostril position in a patient in whom the normal landmarks were destroyed by the initial procedure.

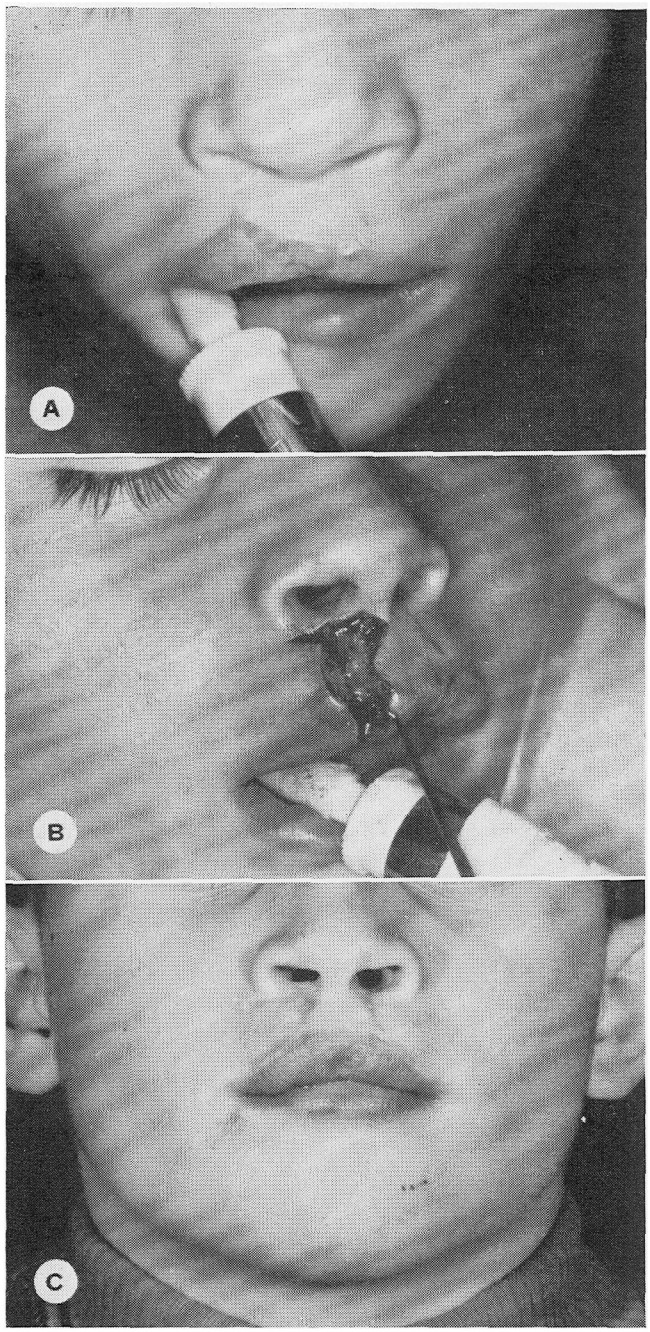

FIGURE 5. A. Bilateral cleft lip with scar contracture and abnormal position of cupid's bow into normal position. B. Note formation of advancement flap to fill triangular defect under columella. C. Three months post-operative. Note nostril symmetry and realignment of vermilion with improved position of cupid's bows.

tion of abnormal muscle pull helps to eliminate the distortion frequently seen during lip function. Interdigitation of the lateral and medial flaps and the rotation of the ala medially also facilitates closure of the nostril floor. An oro-nasal fistula can be repaired at the same time. In severe nostril deformities, additional correction may be necessary in the form of skin excision from the nostril edge or rotation of the entire nostril as described by Schjelderup (*12*). These combined procedures are being utilized and will be reported subsequently.

Millard mentions the possible use of rotation-advancement in cases where straight line closure has previously been carried out and the normal lip components have been preserved. This is the ideal indication for its use, but, as we have demonstrated, other primary repairs have not precluded this type of secondary correction.

Millard has adapted the principle of rotation-advancement to bilateral cleft lip as well. We find this appealing and have used it, with satisfactory result, in one case of secondary repair (see Figure 5).

Summary

The rotation-advancement technique of Millard has been adapted to the correction of secondary cleft lip deformities. Indication and techniques are discussed and the advantages pointed out. This material is presented as an additional useful procedure in the management of the difficult problem of secondary cleft lip deformities.

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