Forked Flap Columellar Advance

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Among the usual deformities of the operated cleft lip are the double vertical scars, upper lip vermilion of inconsistent width, short columella, blunt nasal apex, and wide round nares. These late sequelae of surgery, however well performed, point up the mesodermal paucity that leads to maldevelopment of the primary palate with labial, dentigerous, columellar, and septal deficiencies.

Correction of the labial or of the nasal deformities alone, without correction of both defective areas, condemns the patient to at least one stigma of the anomaly, as the nasal malformation is equally as pathognomonic as is the scarred and mismatched upper lip. An ideal solution to this dilemma would be a single operation designed to correct both lip and nose simultaneously, and just such a procedure is advanced herein.

History

In the past, operations have been devised to correct the nasal tip, using lip tissue. The midline V-Y advancement flap by Gensoul (*4*) was the parent procedure, improved upon by the fleur-de-lis modification by Brown and McDowell (*1*). The disadvantages to these advancements were that not only was no correction of the lip attempted, but, on the contrary, the lip was scarred unnaturally in the midline.

Many operations have been devised to correct the nasal tip using nasal tissue or tissue from a distance. Safian (*8*) elevated the nasal apex using the alar cartilages. He transected the alar cartilages lateral to their medial crura, straightened their L-shaped angulations, then sutured the two in the midline to produce an upright, post-like support to the apex. Others have used an L-shaped bone graft for dorsal and apical support. Clarkson (*2*) advanced the prolabium upward to lengthen the columella, and filled the void in the central lip with a primary Abbe flap in infancy. Cronin (*3*) preferred to rotate the nostril bases and floors upward from either side.

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The round flaring nostrils were improved in these procedures by wedge resections of the nostril floor, or by cresentic excisions of the nostral bases as suggested by Weir (*10*). The columella has been advanced also, and the resultant defect filled with a tubed pedicle from the hand, nasolabial fold, or submental region; or it has been filled by an Abbe flap. Meade (*6*) has chosen to transplant a free composite graft from the ear.

Operations to correct simltaneously the scarred lip and snub nasal apex with short columella have been few. Marcks (*5*) devised an operation which elevated forked flaps from the bilateral wide scars, each based at the nostril floor. The columella was transected at its base and advanced. The void produced was filled by interpolating the two flaps medially about 90° and setting them into the void transversely, in a side-to-side fashion.

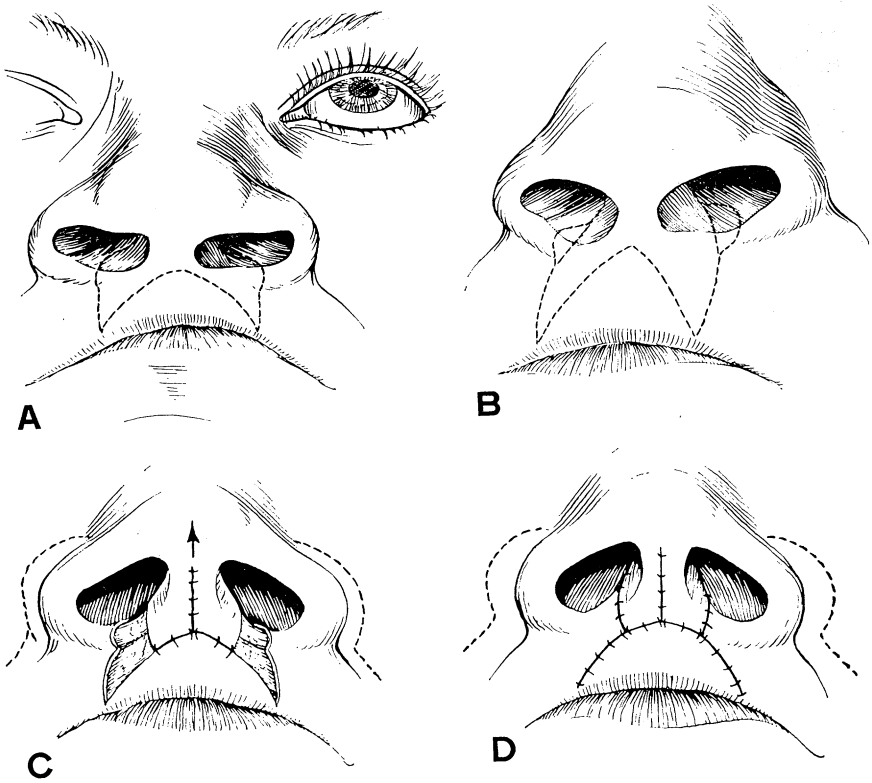

FIGURE 1a. A secondary cheiloplasty designed to correct distortions of the lip as well as the nasal tip is the basis for the forked flap procedure. Bilateral flaps approximately 4 to 5 mm in width are raised from each lateral margin of the prolabium, extending from the mucocutaneous line to the columellar base.

FIGURE 1b. The wide round nares are improved by wedge resections from the nostril floors. The columella is separated from the inferior septum and this division is carried upward as bilateral intercartilaginous incisions so as to raise the nasal apex.

FIGURE 1c. The forked flaps are sutured in the midline to furnish additional columella.

FIGURE 1d. Closing the defects that have yielded the forked flaps, the prolabium is narrowed and the scars made nearly simulate the missing philtrum.

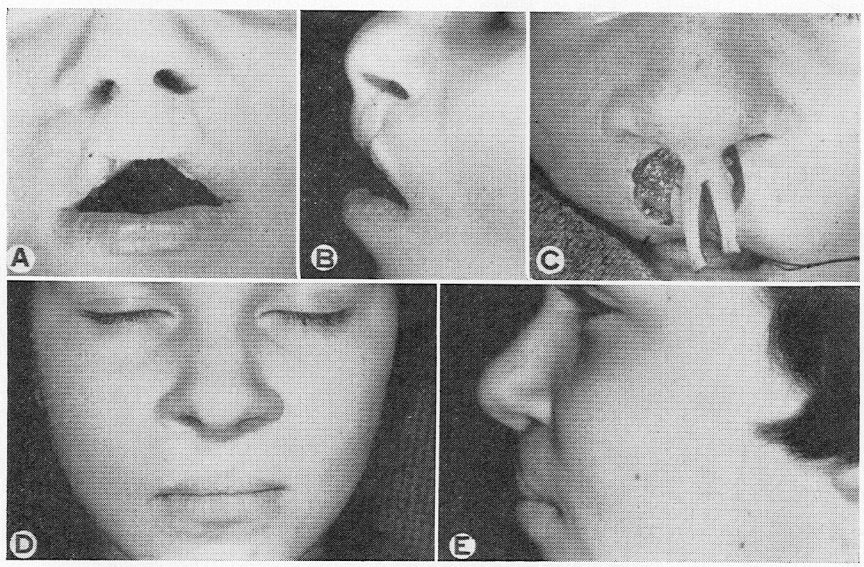

FIGURE 2a, b. Anterior and lateral views of typical lip and nasal deformities resulting from bilateral total cleft lip. c. Forked flap is elevated. d, e. Anterior and lateral views of postoperative result.

Millard (*7*) and Stark (*9*), working independently, suggested procedures that were fundamentally alike. Millard, however, deserves priority. The present authors have performed the operation eight times, the first case having been operated upon in 1961.

Procedure

The operation consists of elevating two pointed flaps that connect at the columellar base, forming a "forked" configuration. The flaps, taken from the lateral sides of the prolabium, are about 4 to 5 mm in width and extend in length from the mucocutaneous line to the columellar base (Figure 1a). Scar tissue lateral to the donor defects is excised. The flaps of skin and subcutaneous tissue are elevated, and the donor defect is closed. By virtue of the latter step, the vertical lip scars are brought close together and thus simulate the philtrum which is missing in these cases. The columella is separated from the inferior nasal septum and by extending the incision upward as bilateral intercartilaginous incisions, the nasal apex, thus freed, is elevated as the forked flap is advanced (Figure 1b). The two "prongs" of the fork are sutured in the midline to form the new columellar base (Figures 1c and 1d). The remaining facet of the procedure includes bilateral wedge excisions of the nostril floor. Closure of these defects will narrow the nostril bases.

Case Report (See Figures 2a to 2e for illustrations.) H. P. (St. Luke's Hospital No. 35-38-36), a 10-year-old girl, was a typical case. H. P. was born with the un-

usual anomaly of bilateral complete cleft of the primary palate (i. e., lip, alveolus, and premaxilla) with the secondary palate (hard and soft) intact. The lip had been closed in two stages at the age of four years and six months at another hospital. When seen for the first time at St. Luke's Hospital, the patient's speech was good and her hearing unaffected. Her lip, however, was pushed forward cruelly by the mobile premaxilla. The prolabium was wide and short and did not cover her central incisor teeth. The columella was short and the nasal apex snub. The nostrils were broad. After orthodontic consultation, the premaxilla was resected and an ample sulcus constructed. A tooth-bearing prosthetic plumper was inserted into this void. (The prosthodontia and orthodontia were performed by Dr. Joseph Eby, Consultant in Orthodontia, St. Luke's Hospital.)

On August 10, 1961, a forked flap columellar advance was performed, with dramatic improvement in the appearance of the patient. It is apparent, in consultations with the patient and her mother, that because of this operation an enormous psychological preoccupation has been swept away.

Summary

In bilateral complete clefts of the lip, the mesodermal paucity that exists usually produces a snub nasal apex and short columella, which is as characteristics of the anomaly as the lip stigmata. The nasal as well as the lip defects should be corrected, preferably at the same operation. After a review of the history of operations designed to advance the columella, a procedure for simultaneous lip revision and columellar advance is offered which has as its aims the matching of the vermilion, the production of lip scars which simulate the philtrum, the narrowing of the nostril bases, and the elevation of the nasal apex.

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