# Repair of Unilateral Cleft Lip Nasal Deformities

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The results of unilateral cleft lip repairs have improved markedly since the introduction and subsequent widespread use of the Le Mesurier, (*12*) Tennison (*27*) Randall, (*22*) and Millard (*15*) methods of repair. Indeed, the lip is rarely a contributor to the stigmata of a unilateral cleft lip. Unfortunately the nasal deformity is often obvious and disfiguring in spite of treatment at the initial operation. (*1*) In addition to the osseous and cartilaginous septal defects, the salient features of the tip have been defined in two classic works. Huffman and Lierle (*10*) singled out the defect of the lower third of the nose as due to alar cartilage deformity, while Stenstrom and Öberg (*25*) incriminated the tilt of the alar cartilage towards the nostril floor.

Based on our own observations, the factors which appear to contribute to the alar deformity in unilateral cleft lip are: (1) alar cartilage subluxation and deformity, (2) ipsilateral columellar shortening, (3) broadening of the scar of the lip, and (4) absence of maxillary bone in the cleft.

The first factor has been so well described it needs no further comment. Ipsilateral columellar shortening decreases the height of the involved nostril and lowers the involved apex below that of its opposite member. The ala is displaced laterally as much as the broadening of the scar of the lip allows it. The osseous deficiency of the maxilla contributes to this stretching and lateral alar displacement. In addition it also causes a retrodisplacement of the ala. These factors are present in varying degrees in deformities of the nose seen in unilateral cleft lip and the final form depends on which aspects are the most severe. (Figure 1a)

A synchronous repair for correction of these four components has been designed. (Figure 1b to 1f inclusive) This involves the correction of the osseous defect of the maxilla by an onlay rib graft, repositioning of the alar cartilages, columellar lengthening by a labial-columellar pedicle, and correction of the alar flare by closure of the labial defect. The results of

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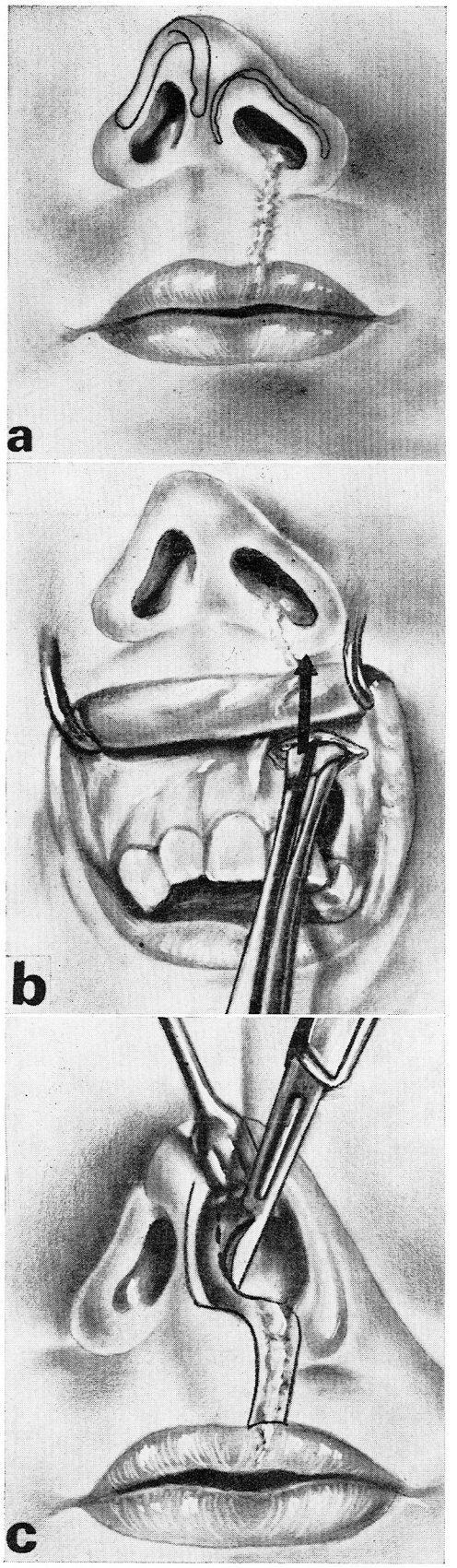
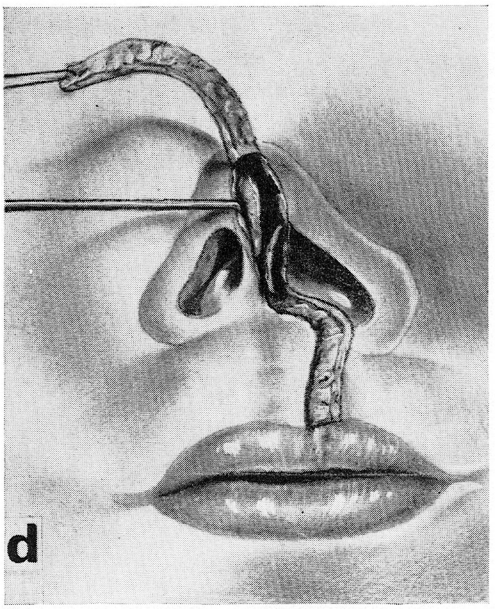


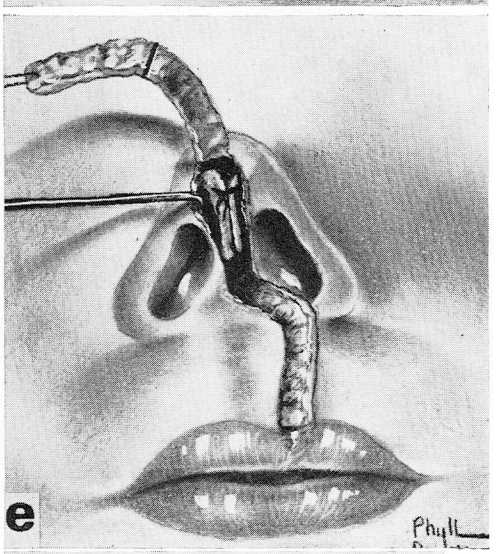

FIGURE 1

(a) Artist's concept of factors contributing to nasal deformity. Subluxation of the involved alar cartilage with depression of the nasal tip and flattened alar curve. Shortening of the ipsilateral columella and conversion of the long dimension of the naris from a more vertical to a more horizontal plane. Osseous defect of the maxilla with lateral alar drift, retrodisplacement of the alar base, and increased tension on the labial cicatrix. As the latter broadens lateral alar drift is increased. A synchronous repair of these four elements has been devised.

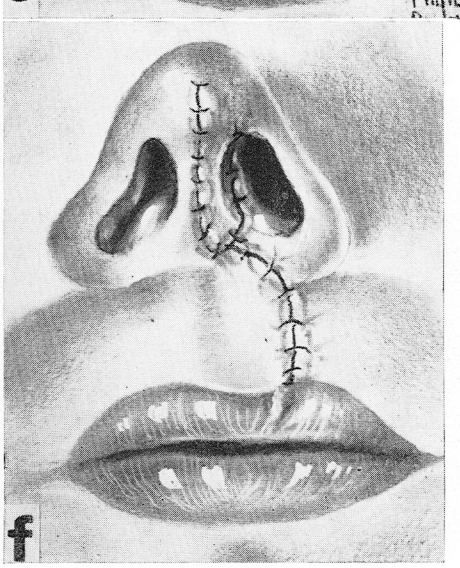
(b) One element of the repair is placing an autogenous onlay rib graft beneath the alar base.

(c) A flap is elevated commencing at the junction of the skin and vermilion and extending upwards to include the hemicolumella. The width of this flap is determined by the difference between the involved and normal nostril floor widths. This is usually the breadth of the scar.




(d–e) The medial crura and domes of both alar cartilages are dissected free and the involved cartilage is moved upwards, medially, and back to occupy a position similar to the normal cartilage. It is sutured into place with 3–0 white silk sutures. This lengthens the hemicolumella; the additional tissue being supplied by the portion of the flap from the lip. The remainder is excised and discarded. This flap can provide up to 1 cm. of tissue length but the average needed is usually 0.5 cm.




(f) The flap is inset with fine silk sutures while the labial defect is closed with medium chronic catgut sutures deep and fine silk sutures for the skin. Closure of the defect symmetrizes the nostril floors and the incision heals to resemble the cicatrix of a Millard cleft lip repair.

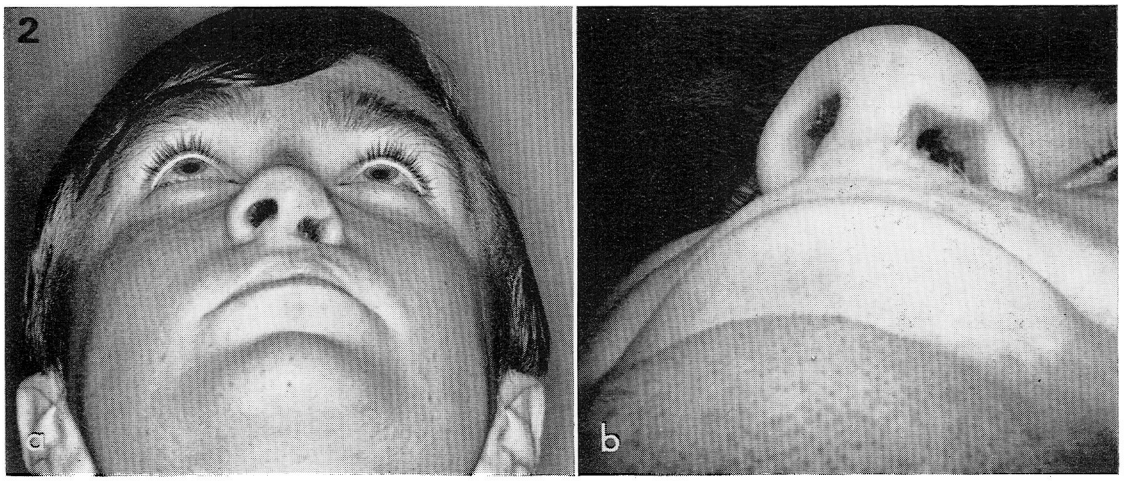



FIGURE 2 (above) An 18 year old man born with complete cleft of primary and secondary palates. (a) Three years previously revision of labial scar, shifting of alar base, and columellar lengthening resulted in appearance just prior to our operation. (b) Appearance one year following operation.

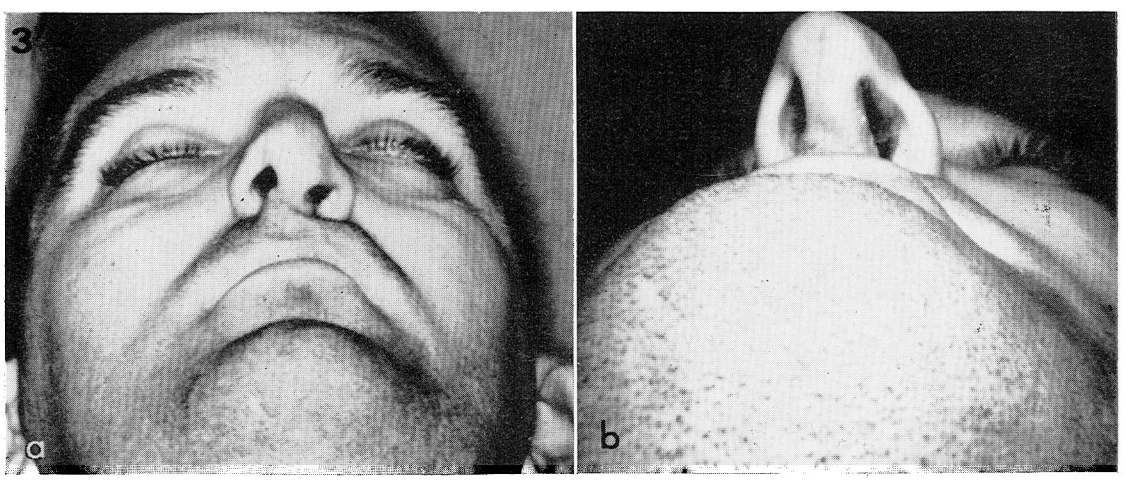
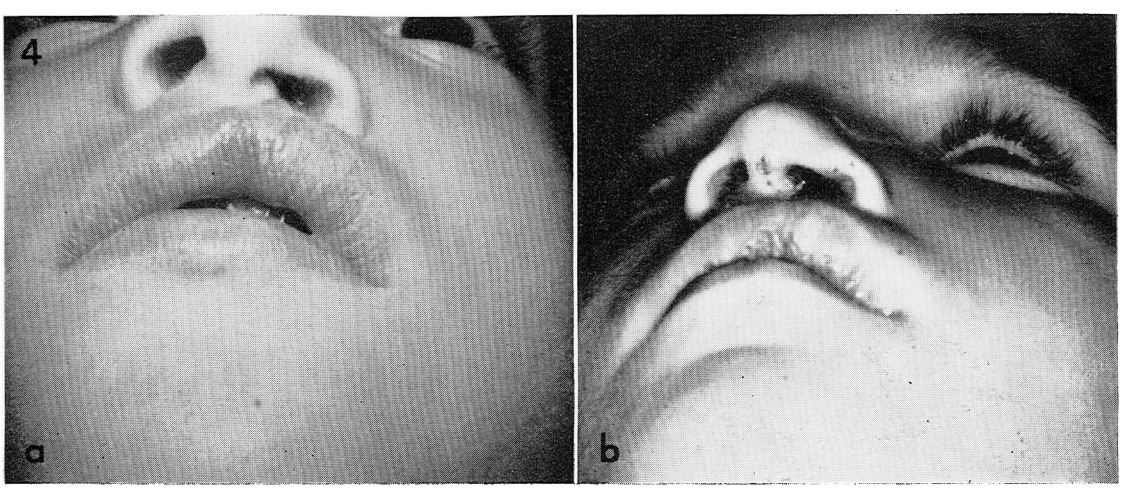



FIGURE 3 (above) A 28 year old man with complete cleft of the primary and secondary palate, which were repaired at the usual age and the lip revised at age three. (a) Appearance before operation and (b) six months later.

FIGURE 4 (below) An eight year old Eurasian girl with complete clefts of lip and palate. After repair at usual ages, no further treatment. (a) Appearance before and (b) five weeks after operation.



this repair are shown in the accompanying photographs. (Figure 2, 3, and 4)

## Discussion

Several methods for correction of deformities of the lower third of the nose after the repair of unilateral cleft lip have been described. These may be categorized generally as repair by external soft tissue excision (*4, 11*); repair by repositioning the alar cartilages (*5, 7, 20, 21, 24*); repair by repositioning the alar cartilages and cartilaginous grafting (*7, 17, 18*); repair by repositioning the alar cartilages and labial repair (*3*); repair by repositioning the alar cartilages and columellar elongation (*2, 8, 9, 14, 26*); repair by alar excision and cartilage graft to the columella (*16*); elevation of the ala by maxillary graft (*13*); reposition of the alar cartilages and maxillary graft (*6*); and radical rhinoplasty with reposition of the alar cartilages (*19, 23*). While the results of these methods are often superior, the plethora of repairs is testimony that we are still short of finding an ideal operation.

The advantages of this operation are that it simultaneously attacks the major deficiencies of the nasal deformity and allows for labial revision with a resultant favorable scar.

In our experience, results are not good in two groups of patients. It is extremely difficult to elevate the involved alar cartilage in previously operated patients with excessive scars in the columella and enveloping the medial crus of the alar cartilage. Once elevated, it tends to return to its original position. Secondly, patients with scarring of the vestibular lining on the lateral alar aspect do not achieve a good appearance because this lining buckles inward when the ala is rotated medially. A pleat-like effect is produced just lateral to the dome instead of a gentle curve. In the remainder of the cases the results are satisfactory.

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