

42. Columella Lengthening by Nasal Floor and Alar Base Advancement; Methods of Alar Base Advancement

IF the mucosa and/or muscles of the lateral lip elements have been joined to each other behind the prolabium, the lip result in scarring and function will probably be quite good and will not show a later stretching, thinning and flattening. This approach, of course, suffers the same short columella-depressed nasal tip "monkey on its back," but here there is no spare lip tissue available to appease it.

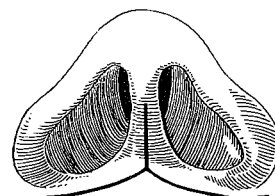
In such cases, where the upper lip itself does not have skin to spare, tissue for columella lengthening must be taken from elsewhere.

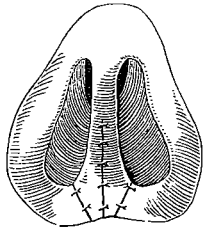
SHIFTING FLAPS FROM THE NASAL FLOOR

William Wesley Carter, in 1914 in the *New York State Journal of Medicine* and in 1917 in *Annals of Surgery*, described a columella lengthening procedure which, in principle, advanced the nasal floors and alar bases in a medial semicircular direction. With an inverted Y-shaped incision, the columella cartilages were divided. The incisions were continued under the floor of the nostrils to form two flaps, which were advanced into the columella and united in the midline. The incisions in the nasal floor were extended under the alae, liberating them for medial advancement,



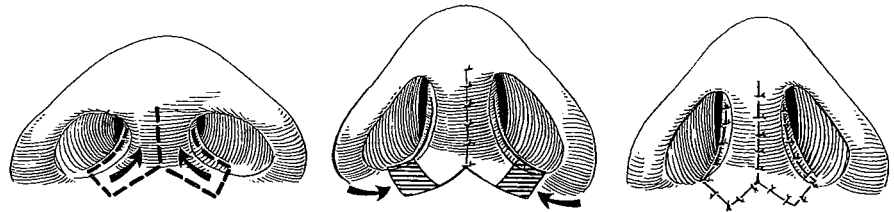
William Carter





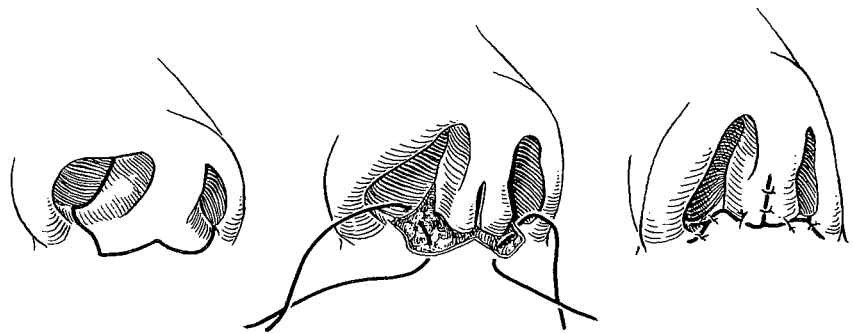
narrowing the nose. The Carter procedure was presented again by J. S. Davis in his 1919 book, *Plastic Surgery*.

In 1938 Arthur Barsky diagramed the lengthening of the columella by the medial advancement of similar flaps from the side and floor of the nostril after a transfixing incision. The defects in the nasal floors were closed by undermining and advancing the alar base.



In 1956 Duarte Cardosa, boat builder of São Paulo and innovator in cleft surgery, designed a similar V-Y for columella elongation which he presented at a Congress in Havana, Cuba. The point of his V was directed toward the nasal tip, and the side arms extended along the alar bases. Without entering the lip, he shifted the alae medially and fixed them with steel wire so that the V became a Y as the columella advanced distally.

In 1957 John M. Converse of New York University diagramed a similar columella lengthening with V-Y closure of the donor areas without medial advancement of the alar bases. Here, again, the amount of lengthening is somewhat limited.



CRONIN

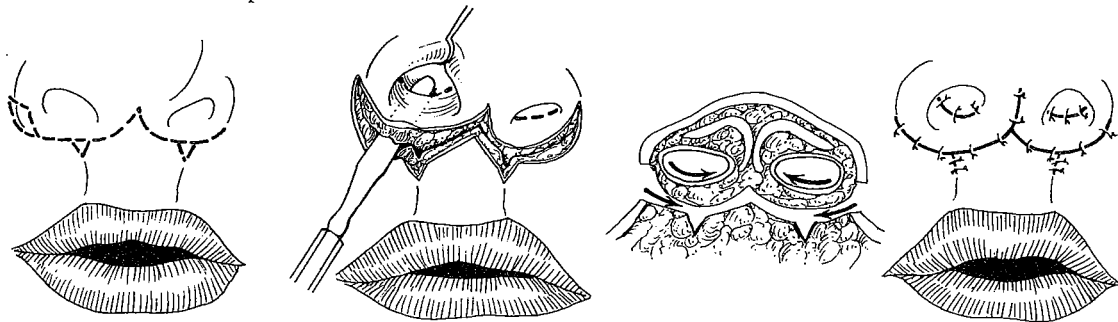
Forty-four years after Carter's work, Cronin refined and popularized the ingenious principle of secondary shifting of the nasal

floor into the columella. In 1958 he first voiced his objections to the Gensoul-type operations:

Very satisfactory lengthening of the columella may be obtained but this is at the expense of the horizontal length of the lip . . . and results in a very tight short lip from side to side and a long lip vertically; both undesirable.

He reasoned in 1958:

Observing the wide floor of the nostrils and the frequent occurrence of excessive length of the alae in the case of double cleft lip, it seemed that if the excess tissue could be shifted into the short columella, all three abnormalities would be improved.



The examples shown revealed a definite improvement in the alar flare and the columella length with the secondary scars in acceptable positions. In all cases, however, the columella seemed to be just a little short of ideal and the nasal tip never quite up enough except possibly in one case in which the procedure was carried out twice.

Here is the best of the four examples of bilateral complete cleft of the lip and palate presented by Cronin for the Kazanjian honorary lecture and published in the *Cleft Palate Journal* in 1971. Elastic traction from a headcap had positioned the projecting premaxilla so that at five months both sides of the cleft could be closed in a straight-line Veau III-type procedure, preserving a narrow cuff of prolabium vermillion. At nine months the anterior palate was closed and bone grafted. Then at four years Cronin lengthened the columella with his bilateral nasal floor and alar



base advancements. At six years the nasal tip and columella seemed to be in good position.



SPINA

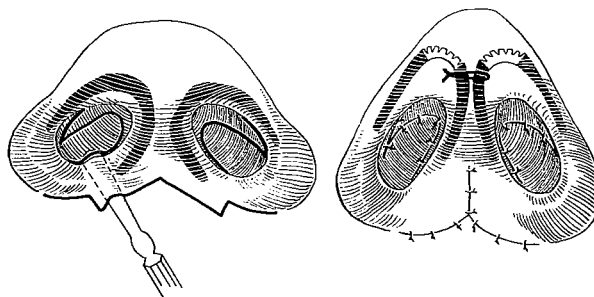
In 1968 Victor Spina and Vincente Zaputovich advocated Cronin's modification of Cardoso's alar and nasal floor advancement into the columella aided, in all cases, by a

costal cartilage graft in the sub-septum in order to raise the nose tip.

Spina said Cronin and Brown considered this cartilage graft optional but he considered it mandatory.

NEUNER

Otto Neuner of Berne University has modified the Carter-Cronin V-Y medial advancement of nasal floors and alar bases toward the columella by the addition of Potter's intranasal V-Y advancements along with scoring of the alar cartilage domes and suturing their medial crura. He estimates an elongation of the nasal passages by this means up to about 9 mm.



This general principle is a good one, achieving simultaneous alar base and nasal floor narrowing along with columella lengthening without reentry into the lip. Although it is limited in its capacity to lengthen the columella, when extra tissue is added in the form of a banked forked flap that capacity is adequately increased, as has been and will be shown repeatedly.

ALAR BASE CORRECTION

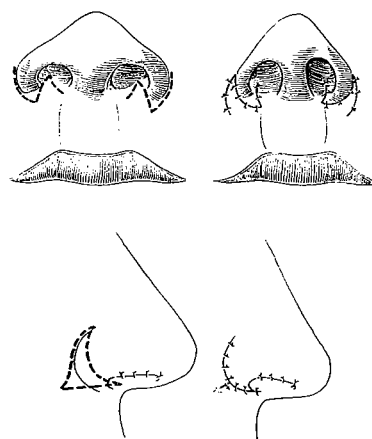
In bilateral clefts, not only do the nasal tip and columella show secondary deformities, but the alar bases begin in flared position and, unless effectively corrected primarily, will remain flared. Indeed, in some circumstances the columella has been lengthened sufficiently but the flaring of the alar bases persists, requiring further surgery.

There is a standard procedure that appears in every textbook but has limited value. When the alar bases turn out severely and the nasal floor is wide, a Z-type double transposition is effective, but the trapdoor flaps ending up in the lip will be responsible for noticeable scarring and should be avoided whenever possible.

There are various V-Y procedures, such as the one championed by Spina of Brazil, which involves a Weir half-moon excision of the alar base followed by an external V-Y medial advancement of the alar base.

The other standard Y-V nasal floor medial advancement of the alar base is a better procedure, and some modification of this is the method of choice.

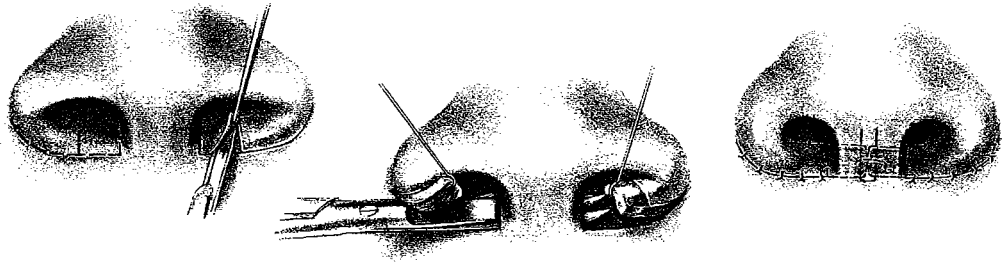
If the present primary procedure for bilateral cleft lip has been studied carefully and is followed, there will be minimal secondary alar base flaring. If not, then a modification of the tethering that is advocated primarily will serve well secondarily.



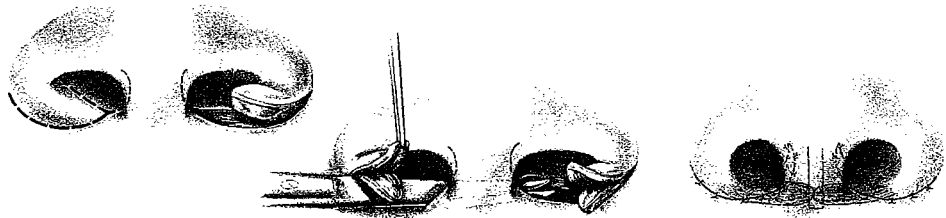
SECONDARY TETHERING OF THE ALAR BASES

If the nostrils are wide, the ends of the alar base flaps, extending into the nostril floors, can be denuded of epithelium and their raw tips introduced into a through-and-through tunnel behind

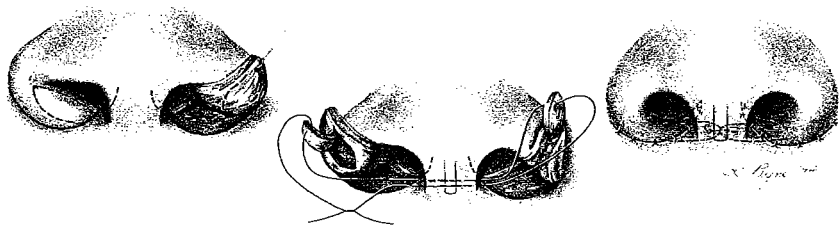
the columella base and sutured to each other across the midline. This tethering should, once and for all, stop lateral alar drifting.



If there does not seem to be enough tissue for denuded tips of the alar bases, the alar bases must be cut as rather thick flaps and each split into a skin flap and a deeper subcutaneous flap. The subcutaneous flap can be advanced to its mate under the columella base, much as in the previous procedure, and the skin flaps can advance without tension in a Y-V across the nasal floor.



If the alar bases are abnormally thick, they can be elevated by the usual circumalar incisions and the subcutaneous "heart" cut out of their thickness but left attached to each tip of each alar base. A suture can narrow each reduced alar base, and the subcutaneous flaps can then be advanced again under the columella base and sutured to each other.



LATERAL V-Y OF THE ALAR BASES

When the alar bases have been advanced medially too enthusiastically, encroaching upon the opening of the nostrils with reduction of the airways, a reverse lateral advancement of the alar bases in V-Y fashion can be effective. Richard Farris of Tampa, who trained with Huffman and Lierle in Iowa, has promoted this method of shifting the alar bases and opening the nostrils.

