Aesth. Plast. Surg. 19:519–526, 1995

Aesthetic Plastic Surgery



# Aging of the Upper Lip: A New Treatment Technique

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**Abstract.** The signs of aging of the upper lip, the pathogeny, and different treatments proposed up to now are discussed. A personal technique used since 1992 is presented. It is based on an earlier personal technique, described in 1970, which consisted of dissecting the skin from the orbicularis muscle and inserting a temporary (three weeks) silicone sheet. The present technique consists of a skin excision at the nasolabial junction, based on that described by Cardoso and Sperli in 1971. However, I dissect the skin of the vermilion border and insert a trapezoidal graft of the pretemporal areolar tissue, taken during rhytidectomy. The graft is fixed with Vicryl sutures at the level of the nasolabial folds. In a few patients this has been combined with a peel. The technique corrects both the superficial and the deep wrinkles caused by the retraction of the fibers that join dermis and orbicularis muscle. It achieves an eversion of the vermilion, enhancing its convexity and producing a fuller look, and shortens the lip, which adopts a concave, youthful appearance because of the improvement of the philtrum and of Cupid's arch. Our technique has been used in 15 patients who were satisfied with the results.

**Key words:** Aging—Upper lip—Pretemporal areolar tissue grafts

Aging shows first on the periocular region, the most important site of expression of human emotions, followed by the perioral region, important for communication and which has a certain erotic symbolism. However, patients in their late 30s frequently focus their attention more on the early signs of drooping and bands on the neck, followed by the drooping of the cheek and jowls and deepening of the nasolabial folds.

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Patients are most worried about deep wrinkles on the upper lip, which are difficult to hide with makeup and lipstick, similar to the difficulty encountered with the application of eyeshadow on the upper lid to disguise drooping eyebrows.

## Signs of Aging of the Upper Lip

The aging upper lip is characterized mainly by (1) the appearance of superficial and progressively deep vertical wrinkles; (2) elongation and flattening of the lip with loss of the characteristic concavity of the young lip, as well as flattening of the philtrum and Cupid's bow (the longer lip covers the upper dental arch in the moderately opened mouth); (3) decrease of the convexity and thinning of the vermilion; and (4) the angles of the mouth may descend, giving the impression of sadness, bitterness, or anger. There is also a progressive deepening of the nasolabial sulcus.

## Pathogeny

Several factors contribute to the pathogeny:

1. Decrease of the thickness and elasticity of the skin with progressive atrophy of the adnexa.
2. The constant accordion-like transverse contraction caused by the activity of the orbicularis muscle, which is necessary for mimic expression, and also habits such as smoking produce vertical wrinkles.
3. Decrease of the hypodermic fat, which is already very scarce on the lips.
4. Decrease of elasticity of the orbicularis oris muscle fibers, which are partly replaced by connective tissue and become thinner [4].

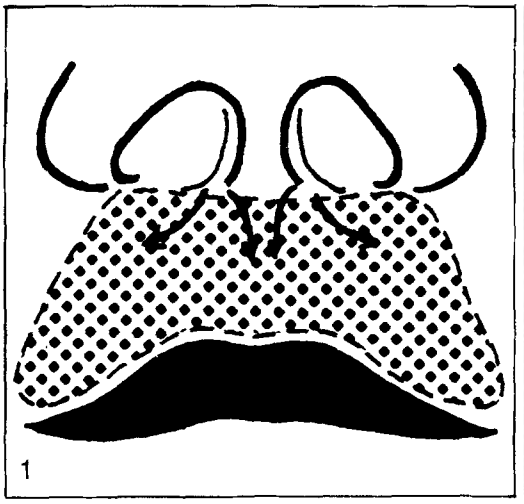


**Fig. 1.** Original drawing of the technique published in 1970 of temporary insertion (for three weeks) of a thin silicone sheet in the upper lip. Insertion was through a bilateral incision in the membranous septum, between orbicularis muscle and skin, to definitely interrupt the retracted retinacula cutis fibers by interposition of a connective tissue membrane (from [16]).

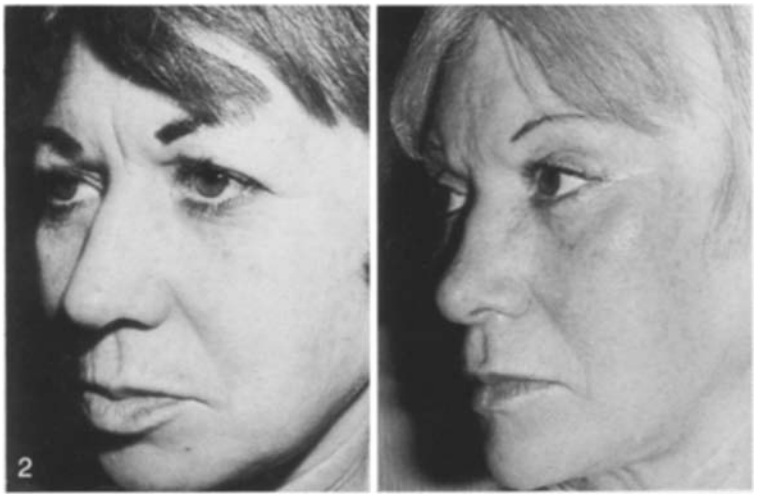


**Fig. 2.** Result one year after forehead temporal lift, silicone injection for treatment of glabellar frowns, blepharoplasty, rhinoplasty, and insertion of a silicone sheet into the upper lip performed in 1967 (from [16]).

5. Fibrosis and retraction of the fibers connecting the orbicularis muscle with the dermis and which cause deep wrinkles.
6. As also stated by Mir y Mir [27], the elasticity of the fibers of Klein's rectus labii muscle decreases. The fibers of this muscle are responsible for suction after birth and for protrusion of the vermilion. They run almost perpendicular to the fibers of the orbicularis muscle connecting the dermis in a downward and backward direction with the mucosa.
7. A deterioration of the dentition and bony atrophy may be added.

## Historical Review of Treatment

The following techniques have been used treating the different alterations that occur to the lips from aging:

1. Dermabrasion and peeling for correcting superficial wrinkles.
2. Intradermal injection of collagen, or "Artecoll™" (Arte Pharma) [24] (microspheres of polymethylmethacrylate with collagen), for correcting both superficial and deep wrinkles. The disadvantage of collagen is that it lasts for only a few months so that repeat injections are necessary. Collagen may also produce an antibody reaction, which may also be true of "Artecoll." This product may produce irregularities if injected too close to the skin surface.

My experience with injected silicone [18, 21] in over 700 patients since 1958 has been rewarding as it lasts longer than collagen. There were no complications except for a few patients in whom I injected the silicone lateral to the wrinkle. However, only minimal quantities, injected exclusively in the dermal layer, have been used. Nevertheless, I do not recommend using silicone since in most countries its use is prohibited. Specifically, it should not be injected in larger quantities into the subcutaneous tissue.

3. For treatment of deep wrinkles, Mir y Mir recommended in 1969, and published in 1970 [26, 27], transecting the retracted fibers that connect the orbicularis oris muscle to the dermis by making an incision at the columellar base toward the vermilion border. The minimal hematoma is supposed to act as an interposition layer at the site of the wrinkles. The technique is combined with dermabrasion or peeling. The disadvantage of this technique is a prolonged edema for up to two months.

With the same goal of dividing the connecting fibers, I independently published in 1970 [16] the technique of undermining the lip's skin by making a bilateral incision at the membranous septum toward the nostrils and inserting a thin silicone sheet with curved forceps, which is kept in place with transcutaneous needles while removing the forceps. Three weeks later, after formation of a fine interposition connective tissue membrane, the silicone sheet is removed. I also stated that there is a prolonged edema of the upper lip (Figs. 1, 2).

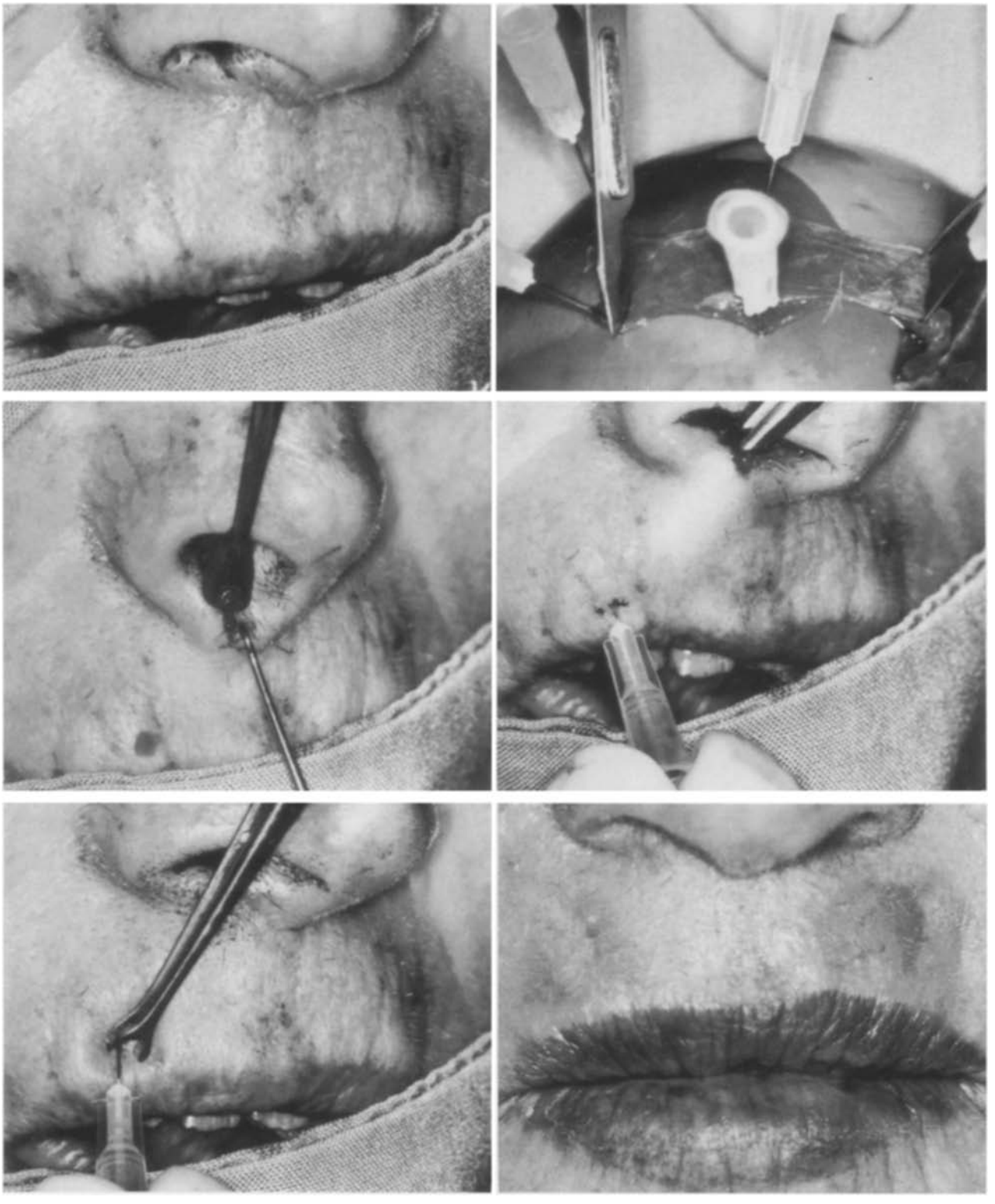

**Fig. 3.** Insertion of small areolar tissue grafts for treatment of minor depressions and deep wrinkles in patients who rejected the technique for decreasing the height of the lip by increasing the vermilion and who did not want the scar at the nasolabial junction. **(Top, left)** Marking of the depressions and deep wrinkles to be improved. **(Top, right)** The pretemporal areolar tissue graft is cut into small pieces. **(Center)** The pieces are inserted through small incisions at the base of the nostrils and are kept in place with a needle while removing the forceps. **(Bottom, left)** The forceps used for insertion, shown on the skin surface, are opened distantly to permit removal after fixation of the graft. **(Bottom, right)** Result one year later.

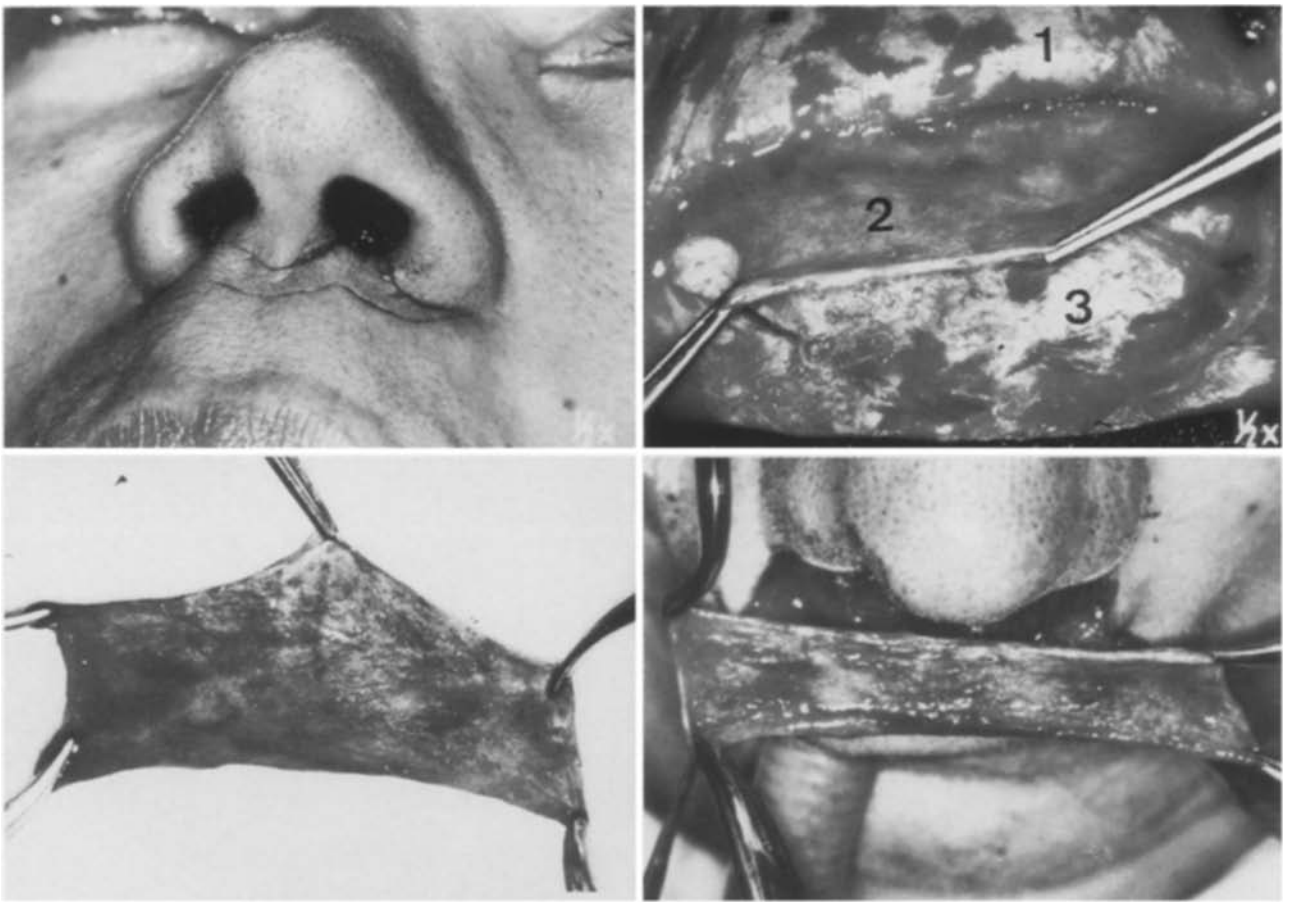


**Fig. 4.** Present technique of cutaneous upper-lip lifting with interposition of a graft of pretemporal areolar tissue to interrupt the retracted retinacula cutis fibers causing deep upper-lip wrinkles. **(Top, left)** Marking of the Cardoso and Sperli-type skin excision. **(Top, right)** Dissection of the pretemporal areolar tissue graft, seen from above: (1) skin–SMAS flap, (2) pretemporal areolar tissue layer, (3) superficial temporal fascia. **(Bottom)** The trapezoidal graft.

García–Padrón [12] published in 1992 the technique of inserting a strip of peritenon of the triceps brachialis instead of a silicone sheet. It is placed through vertical incisions in the lower end of both nasolabial folds; its borders are fixed with the skin closure. The technique was combined with dermabrasion.

4. Lip augmentation of the vermilion border and the vermilion itself was recommended in 1976 by Meyer and Kesselring [25]. It includes insertion of a dermal graft through small incisions into a subcutaneous pocket, a technique also used by Fournier [10]. Faivre [7] advocated the intraorbicular insertion at different levels of strips of dermal fat grafts, taken from the suprapubic area, with the purpose of increasing the protrusion and thickness of the vermilion border or of the vermilion itself.

In 1990, I published [21] the injection of dermal miniautografts for treatment of deep wrinkles and also augmentation of the vermilion. The dermis is cut into small pieces and inserted in a syringe with a Ringer solution. These pieces are injected with a trochar. However, some loss of volume occurs.

For filling material, small strips of Gore-tex™ (W.L. Gore and Associates) have been advocated.

5. To increase the volume of the vermilion, lipofilling has been recommended by several authors. Guerrerosantos [15] proposed making the injection into the orbicularis oris muscle to reduce the postoperative loss of volume that always occurs. The increase of survival, estimated to be one-third the injected volume, could be due to the greater vascularity of the orbicularis muscle. Hypercorrection is advised.
6. The injection of Bioplastique™ (Bioplasty, Inc.) was advocated by Ersek [6]. Unlike the satisfactory results achieved when using Bioplastique deep on cartilage or bone for treating minor irregularities after rhinoplasty, in three of the four patients in whom I used the material, in addition to an unnatural hardening of the lip,

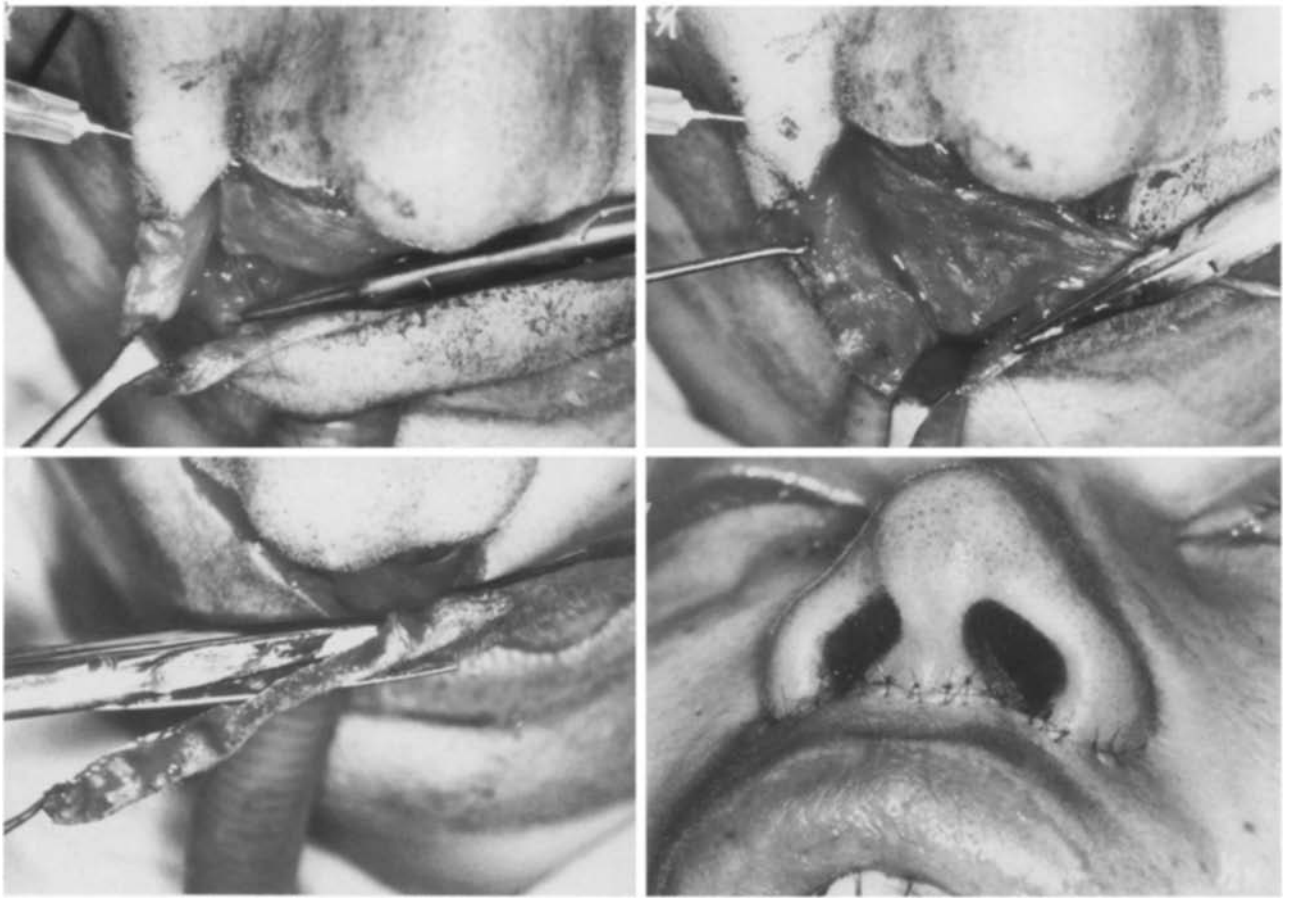

**Fig. 5.** (Same patient as in Figure 4.) **(Top)** Suturing of the pretemporal areolar tissue graft with 6-0 Vicryl at the level of both nasolabial folds. **(Bottom)** Excision of the excess skin along the lower marking. Two-layer closure is performed with 6-0 Vicryl and 6-0 Mirafil.

the Bioplastique concentrated in nodules that had to be removed. It was abandoned for lip augmentation.

Recently I have used Artecoll for lip augmentation in five patients with satisfactory results and without complications up to now.

7. In 1957, Gillies and Millard [13] proposed the augmentation of the vermilion in secondary cleft surgeries by means of a cutaneous resection above the mucocutaneous junction. In 1976, Meyer and Kesselring [25] suggested, as did Felman [8], not to resect the skin but only to remove the epidermis to achieve more fullness of the vermilion border. Felman combines the technique with autologous collagen augmentation. In 1990, I suggested dividing the area in two, leaving a central bridge undisturbed. This prevents the formation of a transverse retraction as a band, visible for several months with certain mimic expressions such as laughing [22].

To lift the angle of the mouth, Austin [1] advocates a "corner lift" above the commissure by making a 12–16-mm incision along the skin–vermilion junction and another line going in an oblique upward direction (toward the top of the ear), stopping short of the nasolabial fold, and connecting the ends of the two lines with an arc to form a skin triangle. The height depends on the amount of corner lip desired (3–5–9 mm).

8. In 1971, Cardoso and Sperli [2] first presented the cuneiform resection of a strip of skin at the nasolabial junction, somewhat narrower at the columellar base, in order not to reduce the height of the philtrum and to preserve a normal Cupid's bow. Skin dissection at the lip was limited in order to reduce edema and hematoma. Rozner and Isaacs [28], as well as Fonseca [9], also recommend the skin excision with downward undermining.

In 1971, Gonzalez–Ulloa [14] proposed a double L-shaped resection with vertical components at the limits of the philtrum, also with dissection of skin,

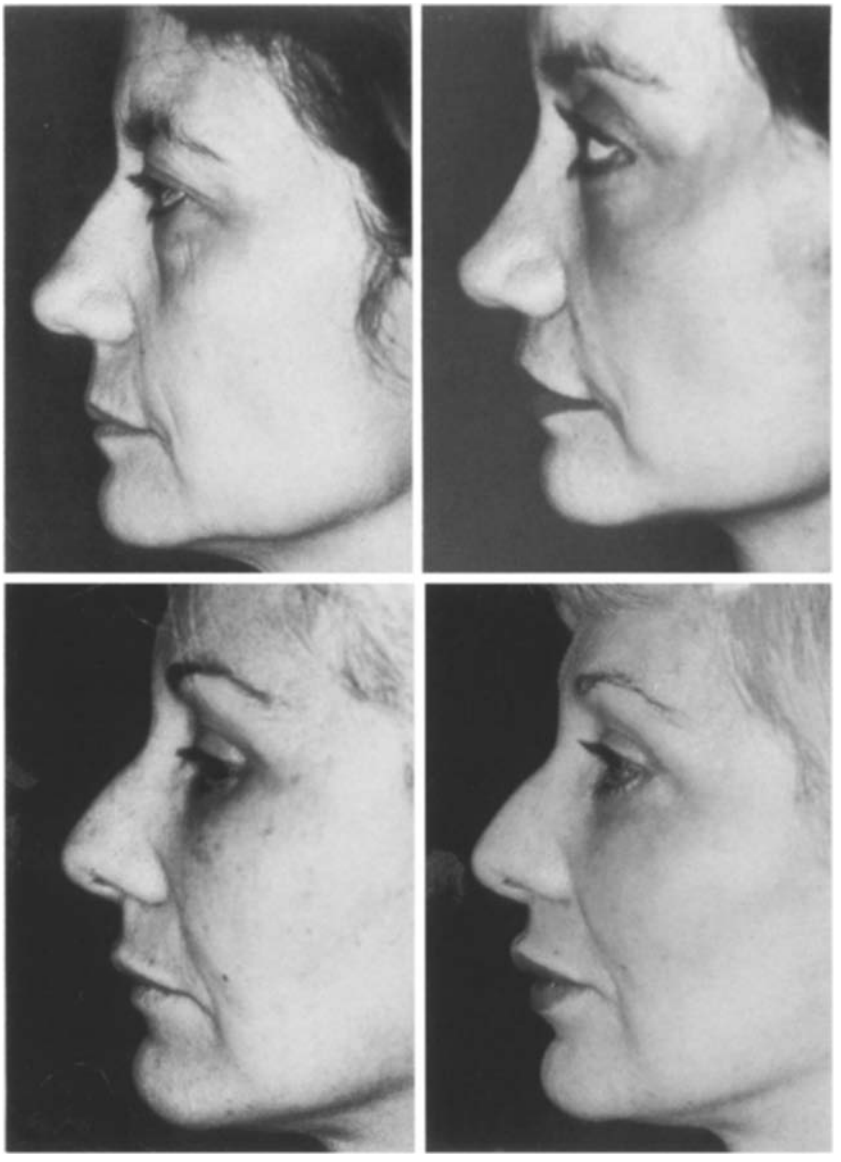

**Fig. 6. (Top)** Personal technique of forehead lift with pretemporal and preperiosteal rhytidectomy of the middle third of the face, blepharoplasty, rhinoplasty, and upper-lip correction in a 51-year-old patient. **(Bottom)** The same facelift procedure, blepharoplasty with ostectomy of the lateral supraorbital rim, malar augmentation with the personal technique and implants, and upper-lip correction. This 48-year-old patient rejected a rhinoplasty. Notice the decrease of the height of the upper lip which becomes more concave, the increase of the vermilion which becomes more convex, and the improvement of the columellar–lip angle.

adding a horizontal or vertical plication of the orbicularis muscle to reduce the length or width of the lip.

9. Auricular grafts were advocated by Schmid [29] to improve the concavity of the philtrum. They were also used by Meyer and Kesselring as well as myself, while Gonzalez–Ulloa used silicone pieces placed beneath the philtrum.
10. Delerm and Elbaz [5] published the technique of cheiloplasty, which increases the vermilion and improves the juvenile curvature of the lips. It consists of V–Y plasties of the mucosa with dissection of the nasolabial fascicle of the orbicularis from its nasal insertions. The dissection then proceeds downward beneath the skin toward the vermilion for about 3 cm. The upper muscular segment is plicated and a medial suture is performed. Mir y Mir [27], who uses this technique for the lower lip, maintains the downward displaced upper muscular fibers by means of external traction sutures toward the vermilion; they are kept in place for a few days. The technique increases the thickness of the vermilion and the protrusion of the lip. The inconvenience of this technique is a prolonged postop edema.

Ho [23] recommended combining a triple V–Y plasty of the mucosa up to 2 mm from the mucocutaneous junction and lipofilling.

## Present Personal Technique

The purpose of this article is to describe my current technique of choice: interposition of a layer of pretem-

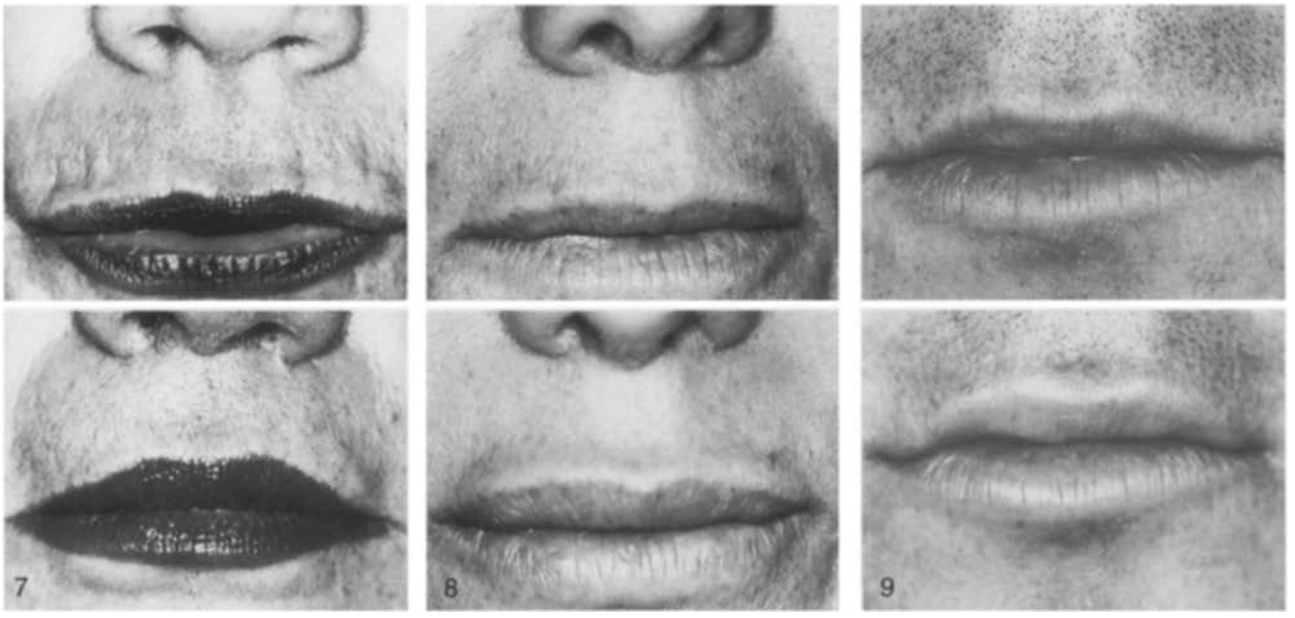


**Fig. 7.** Pre- **(top)** and one-year postoperative **(bottom)** closeups of the lips of patient in Fig. 6. Notice the eradication of the deep wrinkles, the decrease of height of the upper lip, and the increase of the vermilion. The scar is not noticeable (from Hinderer UT: Principles of the multilayer approach to facial rejuvenation. In: Psillakis J (ed): Deep Face Lifting Techniques. New York: Thieme Medical Publishers, 1994).

**Fig. 8.** Pre- **(top)** and 8-month postoperative **(bottom)** closeups of the lips of patient in Fig. 6. Notice the decrease of the height of the upper lip which becomes more concave, and the increase of the vermilion and of its concavity. Also, the asymmetry of the vermilion border has been corrected. The scar is inconspicuous.

**Fig. 9.** Decrease of the height and improvement of the concavity of the upper lip, and increase of the vermilion and of its convexity in a male patient. Only a skin excision and undermining to the vermilion border was needed without interposition of an areolar tissue graft.

poral areolar tissue between skin and orbicularis muscle, instead of using a silicone sheet. This is a modification of my technique published in 1970. The areolar tissue is easily obtained when performing the pre-subperiosteal forehead lift along with a pretemporal and pre-periosteal rhytidectomy of the middle third of the face. I first published this in 1985 [17, 19]; thereafter, the areolar tissue is obtained when doing a forehead lift exclusively at a pre-periosteal level, as published by De la Plaza [3] and myself [20]. The possibility of using the areolar tissue layer for interposition came about from discussing the most adequate material for this purpose with García–Padrón [11] in 1992.

The technique improves the deep wrinkles of the upper lip and is sometimes combined with peeling to improve the superficial wrinkles. The increase in the vermilion's height, which becomes more convex, and a youthful-looking concavity that results from the decrease in the lip's height are achieved by skin excision at the nasolabial junction. Also, the nasolabial angle can be improved, becoming more obtuse.

For patients who wanted to correct only some depressions and deep wrinkles, without decreasing the height of the upper lip and increasing the vermilion or being afraid of the scar, small pieces of pretemporal areolar tissue can be inserted for interposition through minimal incisions at the base of the nostrils (Fig. 3). Although the two patients in whom this was done were satisfied, the interposition of a complete sheet, in this case without skin excision, is preferred and recommended.

## Technique

The extent of skin excision at the nasolabial junction is marked according to individual needs, taking into account an overcorrection of approximately one third. With the patient sitting in front of a mirror, the lip is elevated to the desired height and the excision is marked. The upper incision surrounds the base of the alae, turns into the base of the nostrils, and surrounds the base of the columella. The labial skin is dissected from the orbicularis oris muscle from the upper incision toward the vermilion border. A meticulous coagulation is performed. A trapezoidal fragment of the pretemporal areolar tissue, between SMAS and superficial temporal fascia, is dissected and removed (Fig. 4).

The layer is laterally fixed with three 6-0 Vicryl™ (Johnson and Johnson) sutures at the level of both nasolabial folds. The skin is readapted after excision above the lower marking. Closure is performed in two layers with 6-0 Vicryl™ and 6-0 Mirafil™ (B. Braun Dexon) sutures (Fig. 5). A moderate compressive

dressing of Melolin™ (absorbent dressing with a non-adherent microperforated cellophane sheet) is used for cover, and ice is used for cooling during the first two days. The same dressing is also used when a chemical peel with glycolic acid and TCA is performed. The sutures are removed on the fourth day and replaced by steri-strips.

## Results

The results with this technique have been rewarding for the 15 patients. A moderate edema may last up to two months. The scar at the incision line is inconspicuous after a few months. All patients were satisfied with the result. Figures 6–9 show results for two patients who underwent this technique and another who did not need a graft inserted.

## Discussion

At present, I believe this technique superior to those used up to now. The advantages over my technique of 1970 are that there is no need of a second stage for removal of the silicone sheet, although this was done as an office procedure under local anaesthesia. Removal of a skin strip at the nasolabial junction greatly improves the lengthening and flattening of the upper lip, providing an increase of the vermilion, which appears more full and convex. In patients with a ptotic corner of the mouth, the technique devised by Austin can easily be added. The residual scar is inconspicuous after a few months and is considered to be better than that at the vermilion border, which may tend to slightly retract during a few months. If one wishes, a horizontal and/or vertical plication of the upper muscular layer may be added. The coverage by the areolar tissue layer helps to conceal any irregularity. There is no need to increase the volume of the vermilion by lipofilling or injection of foreign material, such as collagen or Artecoll.

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