Primary facial rejuvenation surgery has often neglected the perioral area, instead using injectable fillers and secondary minor surgeries to address lip fullness. The fillers are temporary, expensive, and require fluid or tissue in-growth for their effect. Autologous fat has been used as an injectable filler with reasonable but temporary results that are marred by noticeable imperfections. Ersek et al. showed good results in facial rejuvenation treatment (including lip augmentation) from layered fat injections with eight months of follow-up. Temporalis and superficial musculoaponeurotic system (SMAS) grafts have been used with some success, but these grafts do not produce long-term results. None of these treatments show a permanent benefit for the senescent lip.

Numerous minor advances in lip augmentation techniques have been made, but they fall short of full correction of the aging lip. Aiache described lip augmentation using a running W-plasty incision inside the mouth and vertical advancement of the flaps. The junction of the moist and dry vermilion is easily identified and avoided. His technique achieved a natural appearance without noticeable scars. The amount of augmentation, however, was limited and lip curl restoration was minimal. Lassus published a study on vermilion augmentation with a double V-Y mucosal plasty using temporalis fascia. His technique improved upper lip fullness and definition.
of the philtrum, especially in younger patients. Improvement of lip curl was limited, however, and his procedure was most effective in patients with elastic skin and strong mucosal tissue, qualities that are often absent in facelift patients.

Leaf and Firouz later described a procedure in which the SMAS was used for lip augmentation in patients undergoing a facelift. He pointed out the ease of obtaining the graft during a facelift and used an intramuscular tunnel in the lip. Seventy-eight percent of patients reported satisfactory results and the initial photographic documentation illustrated acceptable outcomes. The lips were smoother in contour and larger in appearance, while some improvement in lip curl was also shown.

This presentation is based on our approach to correction of an involuted lip, in which the natural curl of the upper lip is either diminished or lost. The lips appear atrophic, with a loss of vermilion pout and fullness.

Figure 2. A, C, Preoperative views of a 49-year-old woman. B, D, Three months after forehead lift, facelift with malar augmentation, and lip implantation performed in two stages. A 4 × 60-mm implant was used for the upper lip, and a 4 × 55-mm implant was used for the lower lip. Note the improved contour and effacement of the lips. No significant changes in the lips were observed after six months follow-up.
Numerous age lines appear and the commissures are low because of changes caused by aging. Herein we describe a lip implantation procedure that provides a permanent correction for all of these problems and we document our initial results.

**METHODS**

The Perma Facial Implants used in our study were manufactured by SurgiSil (Plano, TX). They are silicone implants designed for lip augmentation and are available in three diameters (3, 4, and 5 mm) and variable lengths (55, 60, and 65 mm) to fit any adult lip. The upper lip is longer in excursion, so longer implants are typically used. The lower lip should be twice as full as the upper lip and it can be altered accordingly. The ends are tapered to match the thinner vermilion. In a postaugmentation patient with a normal smile, the lower margin of the upper lip will touch the top of each dental unit.

We employed monitored anesthesia care (twilight sleep) using ketamine/valium and local anesthesia. Bilateral infraorbital and mental nerve blocks were given. After these blocks, additional local anesthesia was introduced into the lips below the submucosa, along the course of the junction of the moist and dry vermilion. Bleeding was reduced by using 1:200,000 epinephrine and avoiding entry into the muscle. Blunt scissor

![Figure 3. A, C, Preoperative views of a 55-year-old woman. B, D, Three months after facelift, upper and lower blepharoplasty, circumoral dermabrasion, and lip augmentation. A 3- × 60-mm implant was used in the upper lip and a 3- × 55-mm implant in the lower lip. Excellent results were obtained using the smaller implants. There were no changes in volume or position at six months follow-up.](image-url)
dissection was performed, followed by placement of a tendon passer along the course of the moist and dry vermilion junction in each lip. The implants were then easily threaded in the correct position. Bimanual palpation was performed to confirm proper position and avoid revisions.

RESULTS
We have inserted nearly 100 implants to date and present two examples of our initial results, with a follow-up of six months. Both patients expressed satisfaction with the treatment. Neither experienced any distortion or migration.

DISCUSSION
Our implantation technique followed the one described by other authors, with some exceptions. Placement location in the upper lip was critical. The key position is between the submucosa and the muscle, rather than intramuscular, where the implant might migrate into a deep position. The incision was made in the commissure to prevent medial displacement. The junction of the moist and dry vermilion also guided the placement, for best effacement of the lips and Cupid’s bow. The thickest part of the implant lies beneath the philtrum tubercle. Implants placed too high in the upper lip have an unnatural ridge, while those placed too low appear retracted.

We have found the 4-mm implants to be appropriate for most patients, while 3-mm implants were more useful for correction of thin, senescent lips. The 5-mm implants were used only for maximum augmentation. The lower lips were easier to augment, because they required only additional size and effacement.

CONCLUSIONS
The authors present a new lip augmentation procedure that can be performed in conjunction with routine facial aesthetic surgery. The augmentation can be performed quickly and without significant morbidity. The implants are easily inserted and can be revised in a few minutes if needed, with only local anesthesia. The initial results of this study suggest that lip augmentation with Perma Facial Implants provides satisfactory results without complications. A formal two-year study is pending.

DISCLOSURES
The authors have no financial interest in and receive no compensation from manufacturers of products mentioned in this article.

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