Facial Surgery

Further Experience With Permafacial Implants for Lip Augmentation: A Review of 100 Implants

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Abstract

Background: Although fillers and surgical lip lifts are effective ways of treating the perioral area, both have inherent downsides. Fillers lack permanence, and lip lifts do not address the issue of fullness.

Objectives: The authors present the results of a long-term follow-up study of Permafacial implants (SurgiSil LLC, Plano, Texas) for lip augmentation. This report is a follow-up from their first publication. The original publication demonstrated the benefit of the procedure at the time of a facelift. The present study reports a long-term follow-up on all of the authors’ first 50 patients.

Methods: The authors’ original publication demonstrated the benefits of inserting Permafacial implants concurrent with a facelift procedure. In this long-term follow-up study, the results of the first 100 implants (50 patients) are presented; this initial group of patients was followed up for one to two years. Implant migration, lip function, implant position, sensation, and patient satisfaction are reviewed.

Results: Very few complications were reported; they included migration with revision, along with patient-requested size adjustments or removal. No extrusions were reported. The degree of patient satisfaction with these implants was high.

Complications: Although the authors initially experienced a significant migration rate, a modification in technique reduced this rate over the long term. Permafacial implants are an effective method of increasing fullness in the lip area, and they are associated with few complications and high patient satisfaction.

Keywords

lip augmentation, implant, lip lift, facelift

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As we age, the lips lose their youthful pout and effacement. They begin to droop in a downward direction, as the vermilion border flattens and the upper lip lengthens. Aesthetically, a youthful smile will always have upper dental show, which also begins to disappear with aging. The lip commissures point downward (instead of in an upward vector), atrophy sets in, and lip fullness disappears. Prominent lip creases appear as the collagen weakens. Successful rejuvenation of the lip area should address all of these problems, have minimal complications, and offer long-term benefits.

Numerous fillers have been effective for lip rejuvenation, including both hyaluronic acid derivatives and collagen fillers. Although they are safe for human use, these products are temporary and expensive. These fillers offer patients an important nonsurgical option because they require minimal anesthesia and can provide a high degree of patient satisfaction when the injector has an understanding of facial balance and symmetry. However, they do not offer a long-term solution to patients’ rejuvenation needs and require frequent reinjection.

Surgically speaking, other studies have demonstrated the efficacy of a lip lift. These procedures can be easily tailored to each individual patient’s needs and can be highly successful as adjuncts to facelift surgery. Although they offer effective rejuvenation of the perioral area, loss of fullness is not addressed in any permanent way, and a senescent lip is often still visible due to volume loss.

Permafacial (SurgiSil LLC, Plano, Texas) implants, which we described in a preliminary report on our surgical technique, provide an alternative to these more traditional methods, with a longer-term duration of effect.

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We previously published a preliminary report describing our insertion technique for Permafacial implants. Beginning in March 2007, the senior author (TN) treated a series of 32 patients; 18 remaining patients were treated cooperatively by both physician authors (TN and RE), for a total of 50 patients (100 implants). The initial report emphasized surgical technique, implant selection, the benefit of permanent augmentation, and specific anesthetic considerations in facelift patients, but no long-term data were presented. This present study includes the results of a one- to two-year follow-up report on the first 100 implants inserted.

All patients were prescribed preoperative cephalexin (500 mg) for five days. They also received antiviral medication for the same amount of time. The surgical technique was similar in all cases. Infraorbital and mental nerve blocks were provided, and local anesthesia was introduced directly into the lips after the nerve blocks took effect. Bilateral commissure incisions were then made with scissors. A plane was dissected just below the submucosa, so that a tendon passer could be placed into the upper and lower lips. The implants were then pulled across the lips, into position. The 4-mm-wide model was standard and was inserted most frequently; the 3-mm size was selected only in very small lips. The largest 5-mm design was inserted only if the patient returned to request a larger size (Figure 1). Care was taken to ensure that the implants were not embedded deeply into the muscle or threaded just below the white line in a superficial plane. When in doubt, the implants were easily rethreaded. Incisions were closed with 4-0 chromic sutures.

The initial 32 patients were part of a study conducted in the senior author’s private practice to determine the efficacy and safety of the implants. They had extensive follow-up at six, 12, and 24 months to assess for migration, lip sensation and movement, and any evidence of lip distortion. Those patients have now been followed up for two years; the remaining 18 included in this study have been followed up for one year. All data were collected by designated office staff and computerized, including assessments by both the surgeon and the patient.

RESULTS

The long-term complication rate from this series of patients was low (Table 1). There were no extrusions or infections. Bruising was minimal, without a single hematoma requiring evacuation. Only two patients were dissatisfied and requested removal of their implants. Seven had reoperation for moderate migration (n = five) or patient-requested size adjustments (n = two), but many of these revisionary cases were from the initial series of patients. Of the first 32 patients, only five had sufficient migration to warrant a revision of the implant placement. Most of these were posterior displacements due to the action of the orbicularis muscle, and most of these patients had smaller lips. The implants were removed and rethreaded into a new position with the same technique. Once this adjustment was made, only one of the remaining 25 patients (4%) underwent revision for implant migration. Therefore, we believe that this was a valuable modification in surgical technique.

Throughout the series, all patients showed evidence of normal lip motion, as determined by kissing (Figure 2A), pouting (Figure 2B), and open mouth positioning (Figure 2C). A select group (n = 28) of the first 32 patients with two years of follow-up underwent specific tests to determine lip sensibility. With the patient’s eyes closed, the study coordinator tested sharp versus dull sensation in three areas of the upper and lower lip. Each patient was also asked to identify three letters traced on their lips, with

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Figure 1. Permafacial implants are available in three widths (3 mm, 4 mm, and 5 mm) and three lengths (55 mm, 60 mm, and 65 mm), so they can be tailored to each patient’s individual anatomy. They are made of silastic and taper at the ends.
their eyes closed. All 28 patients answered the questions correctly. We speculate that the high degree of sensibility is due to the deeper location of the implants, since a more superficial location would cause pressure on the mucosa.

On the basis of the low complication rate and the relatively low number of patient-requested revisions, we consider both patient and surgeon satisfaction to be high. Representative photographs were taken at each follow-up visit, and these results can be seen in Figures 3 to 5.

**DISCUSSION**

The ultimate goal of aesthetic surgery is a procedure that yields long-term results and a high degree of patient satisfaction with a minimal complication rate. In this study, we describe one such procedure for lip augmentation, in which a permanent prosthesis is inserted that does not require tissue ingrowth. The low complication rate in our study subjects included infections, hematomas, or extrusions. Only two patients (4%) were completely dissatisfied with their

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**Figure 2.** Full lip motion and senescence was maintained for all patients throughout this study. This particular woman, pictured six months after bilateral insertion of 4-mm implants, demonstrates the evaluation protocol, wherein patients were asked to move their lips into “kissing” position (A), “pouting” position (B), and then to open their mouths as widely as possible (C).

**Figure 3.** (A) This 45-year-old woman presented for lip augmentation. (B) Five months after bilateral 4-mm lip augmentation. A short scar facelift was also performed. No significant change from these initial photos was present at one-year follow-up.
result and two patients (4%) opted for a larger implant, but the remainder were satisfied enough with the improvement to keep their new implants. None of the patients reported any sensory problems, and the examiner’s assistant reported completely normal sensation in 28 patients at the end of two years by objective exam. In addition, all patients maintained normal lip function throughout the study.

The rate of migration requiring revision (10%) is an acceptable statistic for a new prosthesis. Initially, the migration rate was higher when the dissection above the orbicularis muscle was wider. Once this channel was narrowed, the incidence of revision was much lower (4%). In terms of revision, upper lip migration was technically more difficult to correct. The upper lip must be contoured according to the cupid’s bow, whereas the lower only needs effacement of the lip. Therefore, a more careful replacement is required for the upper lip revision. Although the migration rate is higher than the rate seen with hyaluronic acid injections, we believe that the added permanence of these implants outweighs the migration risk. Furthermore, because this operation is permanent, patients no longer need to undergo costly semiannual injections of filler material.

Other materials such as Gore-Tex have been used as permanent fillers, but they have fallen into some disrepute because of extrusions and alterations in lip muscle function. Some studies have demonstrated efficacy with these implants and only minor reservations about their application. We still believe Permafacial implants to be superior; the patients in our series demonstrated no evidence of extrusion and they maintained normal lip movement after two years of follow-up.

Young et al presented a long-term study on the efficacy of breast augmentation with respect to satisfaction, complications, and psychological benefits. In this study, 112 women underwent breast augmentation over a 12-year period. The authors demonstrated that 88% of patients were either completely or mostly satisfied with their results. Eight-six percent of the interviewed patients felt that the surgery was a complete success. Only 21% reported complications, and only 4% felt they were mostly dissatisfied. These results are considered quite strong, and the study data by Young et al are comparable to ours, with a 96% satisfaction rate as determined by patients who elected to keep their lip implants. Therefore, we believe that these initial data on the efficacy, safety, and satisfaction associated with Permafacial implants are promising and support the placement of these devices in patients who present for lip rejuvenation and loss of volume.

**CONCLUSIONS**

Permafacial implants are a safe and effective permanent device to augment the senescent lip.
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Disclosures

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REFERENCES


Figure 5. (A, C) This 39-year-old woman presented for lip augmentation. (B, D) Six months after bilateral 4-mm lip augmentation. No significant change from these initial photos was present at one-year follow-up.