Surgical Lip Remodeling After Injection of Permanent Filler

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Abstract

Background: A major concern regarding permanent lip fillers is difficulty with revision should this be required. Currently, the only way to treat lip sequelae is by surgical remodeling.

Objectives: Based on the senior author's 6-year experience, the authors collectively suggest a surgical method to correct lip deformity in such situations.

Methods: The records of 38 patients with lip deformity who underwent surgery between 2011 and 2017 after receiving permanent filler injections were analyzed retrospectively. A total of 38 consecutive patients (69 lips) with an average age of 38.8 years (range, 28-52 years) were treated surgically.

Results: All patients experienced postoperative swelling (average duration, 15 days), and no infections were recorded. In 3 cases, a 1-cm dehiscence was documented, which healed by secondary intention. In 1 case, a hematoma noted several days after surgery resolved spontaneously within 3 weeks. In 2 upper lips, a minor touchup procedure (with the patient under local anesthesia) was performed 9 months after the initial surgery. Overall, patients noted that it took at least 6 to 9 months to achieve natural lip movement. The average time until softening of the lip tissue was 4 months.

Conclusions: This study emphasizes the importance of informing patients that complete removal of permanent filler is not always possible. However, most of the authors' patients were pleased with the results. This study also highlights the importance of paying strict attention when approaching the area adjacent to the oral commissures in order to avoid potential reductions in mouth opening that can occur from postoperative scarring.

Level of Evidence: 4

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Lips are a crucial feature of the face: they play an important role in communication and help us to express emotion.[1] During the last 20 years, lip enhancement has increased in popularity due to the introduction of nonsurgical techniques such as the use of fillers. Although hyaluronic acid–based fillers represent the safest option, this solution is not permanent, and patients need repeat injections.[2] Over the years, several techniques to obtain permanent lip enhancement have been introduced, such as the use of silicone lip implants or the off-label use of permanent fillers (eg, silicon oil, polyacrylamide hydrogel, polymethylmethacrylate microspheres).[3]

Although some reports indicate that permanent lip filler is safe, many others describe early- and late-onset complications.[3-6] Early-onset complications usually relate to overfilling or improper injection technique. Late-onset complications are generally caused by foreign body

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reactions or by dehydration of the filler itself, leading to unfavorable results. (For many such fillers, the permanent agent is 2.5% to 5% of the product, and the remaining portion is sterile water.)[7]

During the 1980s and 1990s, and early in the 21st century, a great number of lip augmentation procedures were performed with permanent fillers. Unfortunately, year after year, many patients experienced undesirable results. The main issue with permanent fillers is the lack of recourse to correct undesirable results.[6] In the past few years, several energy-based devices have been proposed to rectify complications resulting from previous injections; however, the results have been inconsistent. Although lip sequelae can be addressed surgically, some surgeons will not perform this type of procedure due to its complexity and the lack of guidelines.[8]

In this article, based on 6 years of experience by the senior author (R.R.), the authors suggest a surgical pathway and method to treat lip deformity that has resulted from injection of permanent filler.

METHODS

In this retrospective review, the authors examined records of patients treated consecutively by the senior author in private practice from January 2011 to December 2017. This study has been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Thirty-eight patients (69 lips) underwent surgery (1 male, 3 transgender, and 34 female); all patients provided written informed consent, at least 1 day prior to surgery. In 31 patients, both lips were treated. In 6 patients, only the upper lip was treated. In 1 patient, only the lower lip was treated.

Two patients had undergone surgery elsewhere on the upper lip only, with unfavorable results. Laser treatments had been performed on 2 additional patients, prior to referral for corrective surgery (1 patient underwent 2 treatments, and the other patient received 3), for attempted removal of the filler. However, in these patients (both involving the upper lip), the aesthetic result was unsatisfactory.

In all cases, the patients were asked what type of filler had been injected. Six patients received polyacrylamide hydrogel (Aquamid; Contura International A/S, Søborg, Denmark), 4 patients received polymethylmethacrylate microspheres (Artecol; Suneva Medical, San Diego, CA), and 12 patients received silicon oil. For the remaining 16 patients, the agent was not known.

Twelve patients (17 lips) underwent the surgery under local anesthesia and sedation, and 26 patients (52 lips) received general anesthesia. Local anesthesia and sedation were considered and utilized if only 1 lip was to be operated on (7 cases), and in 5 cases involving both the upper and lower lip. For 6 patients who received general anesthesia, the following surgical procedures were performed concomitantly: a septorhinoplasty (n = 1), removal of silicon oil that had been injected into the labia majora (n = 1), liposuction (n = 2), breast augmentation plus liposuction (n = 1), and upper blepharoplasty (n = 1). If breast augmentation was planned, surgical lip remodeling was performed first.

In all cases, except 2 treated with isolated incision, the surgeon created a curvilinear incision, and the upper side was interrupted with a V-shaped incision in the midline. The incision was always stopped at least 5 mm from the oral commissure, and was then extended medially for an additional 1 cm, to lessen the risk of reduced mouth opening caused by scar tightening (Figure 1). In the other 2 cases, the lower lip received 2 isolated incisions.

Surgical Procedure and Postoperative Care

Prior to surgery, all patients were asked to undergo a dental consultation to exclude tooth or gingival issues. In addition, patients received a hematologic evaluation, a chest X-ray, and an electrocardiogram.

When the surgery was performed with the patient under local anesthesia and sedation, an infraorbital nerve block was administered bilaterally with a 1-mL injection of local anesthesia (20 mL 2% lidocaine and 0.5 mL adrenaline). Next, an additional 3 mL of anesthetic solution was injected directly into the lip undergoing surgery.

The surgeon created the incision following the dry-wet mucosa margin: lip mucosa excess was marked preoperatively with calipers and with a V-shaped marking on the midline (Figure 2) along with perpendicular markings. The incision was created on the dry-wet mucosa margin with a No. 15 blade, and the surgeon performed a labial and vestibular mucosa undermining with Stevens Scissors. Hemostasis was maintained during dissection, and the mucosal flap was harvested over 3 mm on the vestibular side and approximately 7 mm on the labial side (Figures 3 and 4).

Once exposed, the orbicularis muscles were injected with the heterologous filler, and the surgeon removed as much excess filler and fibrotic tissue as possible with the Stevens Scissors. Intramuscular dissection was avoided in order to prevent postoperative muscular atony and paresthesia. After the foreign material was removed, the surgeon remodeled the mucosa above the new muscular architecture.

To minimize the likelihood of reducing the mouth opening by postoperative scarring, careful attention was paid to the incision created near the commissures (Figures 5 and 6). The surgeon created a 1-cm incision medially inside the oral cavity, 0.5 cm from the commissure on both sides (Figure 1). The incision along the upper lip was always interrupted with a V-shaped incision in the midline (Figure 2). In all cases, the surgeon used 4-0 and 5-0 Vicryl sutures (Coated VICRYL; Ethicon Inc., Somerville, NJ, 2007). First, the 4-0 sutures were placed in the midline and in the midline of each half, as planned preoperatively with perpendicular markings, and the 5-0 sutures were used to complete the repair (Figure 7).

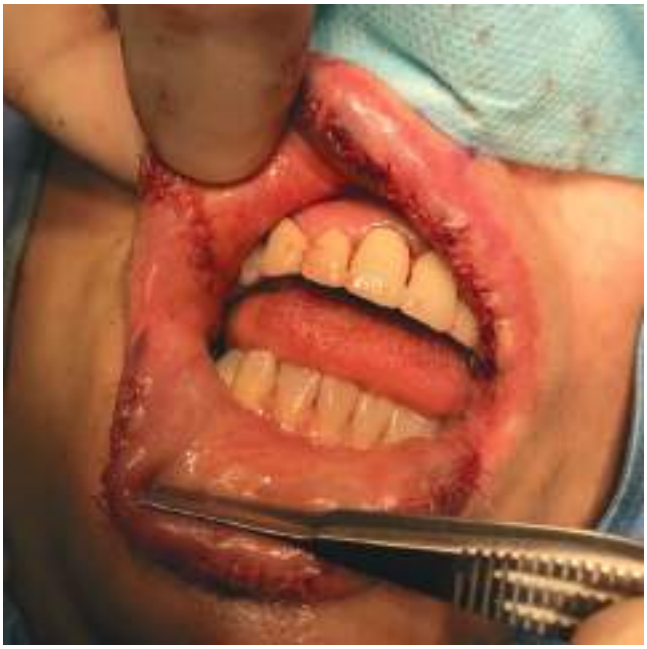

Figure 1. Intraoperative view of the incision created next to the oral commissure in a 43-year-old Caucasian male patient. Approximately 5 mm from the oral commissure, the incision is extended medially for 1 cm to avoid a reduction in mouth opening due to postsurgical scarring.

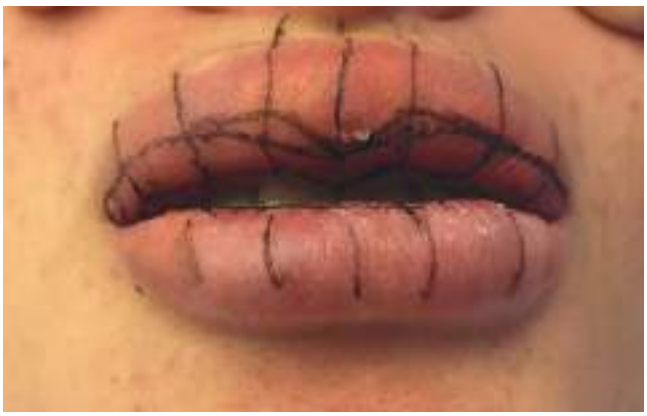

Figure 2. Preoperative marking of the upper lip in a 28-year-old Caucasian female patient. The marking is carried out starting from the midline. The labial philtrum is then marked, extending up to the wet mucosa. Two more lines are drawn laterally, as reference points, from the skin to the oral mucosa. The lip mucosa excess is marked, and a V-shape is made at the midline to interrupt the extension of the horizontal incision.

For patients who received general anesthesia, an infraorbital nerve block was administered at the end the procedure. The surgeon injected 1 mL of local anesthesia with adrenaline above the planned incision site to avoid interference with the nearby anatomy. To avoid excess bleeding during surgery, a second surgeon compressed the labial artery bilaterally with the thumb and forefinger while creating the incision; careful attention was paid to ensuring hemostasis throughout the procedure.

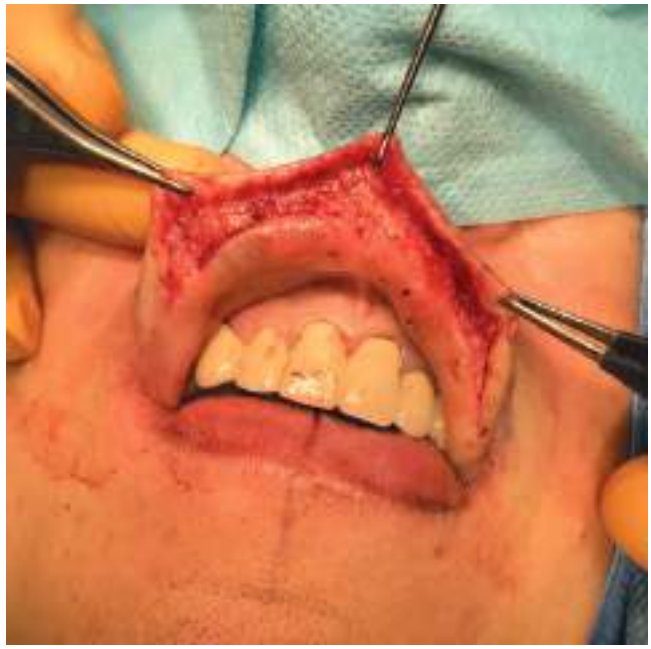

Figure 3. This intraoperative view of a 38-year-old Caucasian female patient shows the undermining of the dry mucosal lip flap.

Sutures were not removed in any patient. On average, the sutures dissolved in 18 days. Patients were instructed to apply cream containing hyaluronate and amino acids (Aminogam; Professional Dietetics, Milan, Italy) to the affected area twice daily, for 21 days. Except when lip surgery was performed in conjunction with septorhinoplasty, patients were admitted as outpatients and started antibiotic therapy the night before the procedure with amoxicillin (875 mg) and clavulanic acid (125 mg) (Augmentin; GlaxoSmithKline SpA, Verona, Italy), which was continued every 12 hours for 5 days. Betamethasone (4 mg) (Bentelan; SIGMA-TAU Industrie Farmaceutiche Riunite SpA, Rome, Italy) was administered at the time of surgery and was continued (1 mg orally) for 3 days following surgery. In addition, patients were prescribed pain relief, which could be taken for 5 days (1 g paracetamol every 8 hours). Patients were advised to avoid hot food and beverages for at least 10 days and to refrain from excessive mouth opening for 40 days postoperatively, after which they were to start performing mouth exercises. For the exercises, patients were instructed to open their mouth as wide as possible for 30 to 40 seconds each day, from the 40th postoperative day until 3 months postoperatively, with the goal of reducing the tightening and retraction that can occur as a consequence of scar formation.

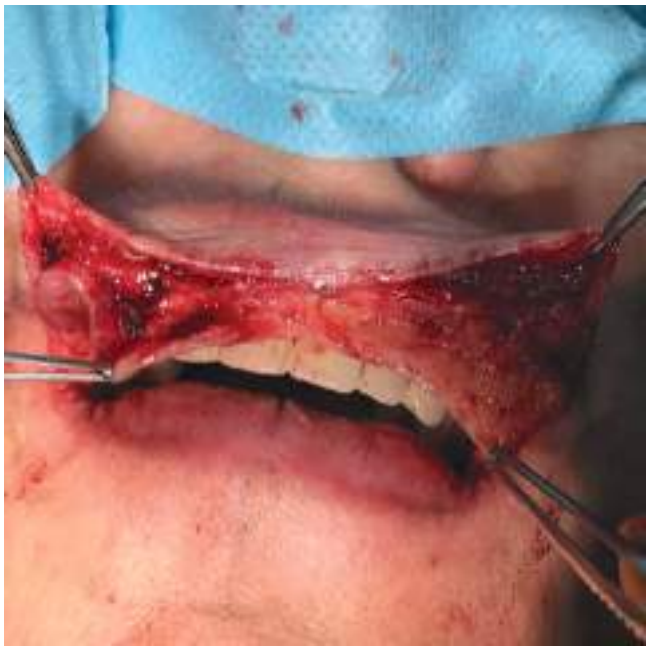

Figure 4. This intraoperative view of a 46-year-old Caucasian female patient shows complete undermining of both wet and dry lip mucosa.

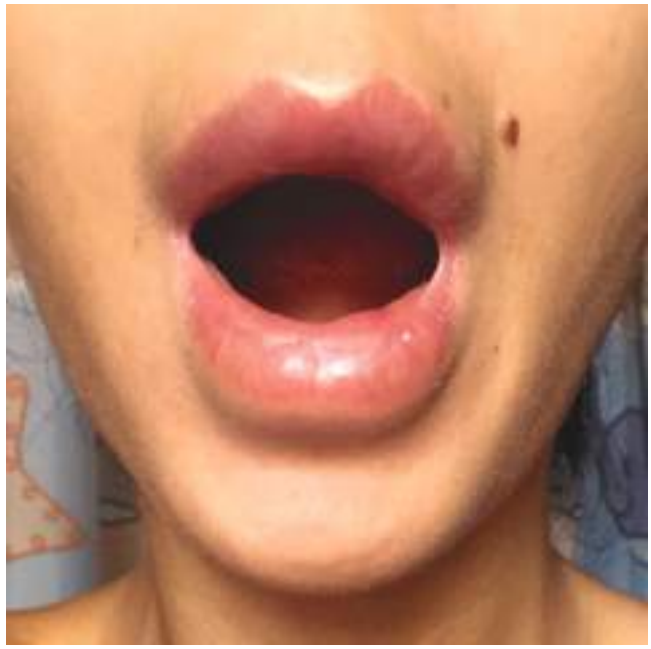

Figure 5. A 32-year-old female patient 4 months after surgery, with reduction of mouth opening due to scarring next to the oral commissure.

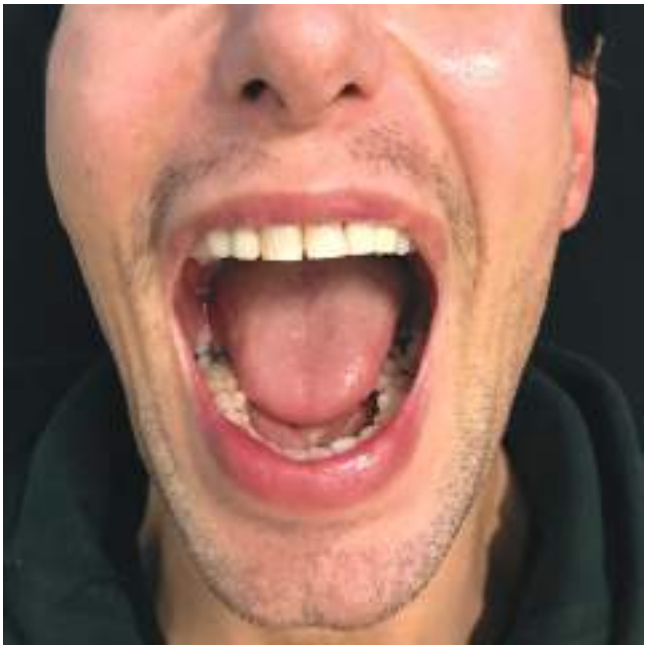

Figure 6. A 43-year-old male patient (the same patient shown in Figure 1) 8 months after surgery, with no reduction of mouth opening. Next to the oral commissure, the incision was placed medially (as described in the text).

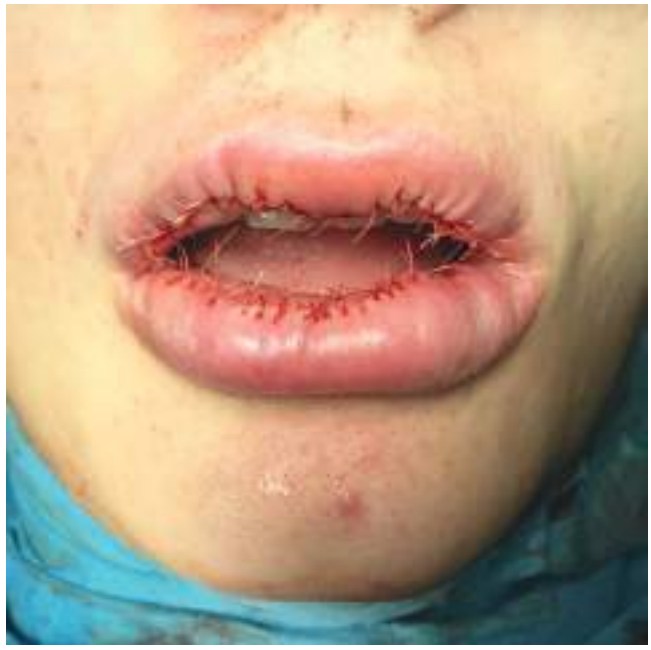

Figure 7. Intraoperative view at the conclusion of surgery of a 28-year-old Caucasian female patient (the same patient shown in Figure 2). In the midline of the suture, a small V-shaped incision can be seen.

RESULTS

Thirty-eight patients, representing 69 lips (37 upper, 32 lower), underwent surgery. The average age at the time of surgery was 38.8 years (range, 28-52 years). The mean operating time was 135 minutes for both lips (range, 105-160 minutes) and 80 minutes for upper lips (range, 60-100 minutes). All patients experienced swelling (average

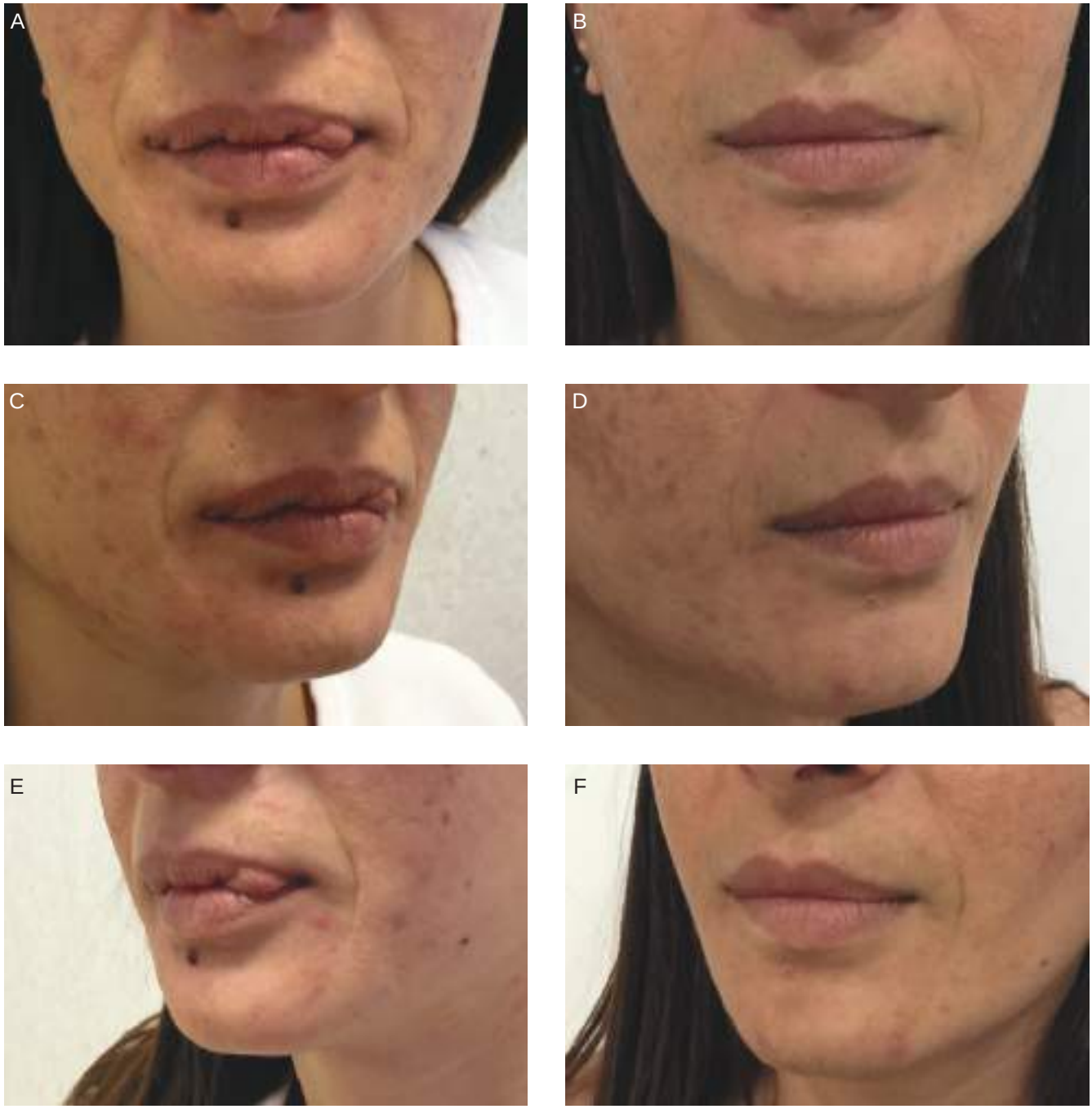

Figure 8. Frontal, left, and right three-quarter (A, C, E) preoperative and (B, D, F) 14-month postoperative views of a 34-year-old female patient who had received silicon injections to the upper lip 10 years earlier. In addition, she underwent 2 surgeries (from other surgeons), 3 and 4 years earlier, respectively.

duration, 15 days), and no infections were recorded. In 3 cases (1 upper lip, 2 lower lips), a 1-cm dehiscence was recorded, but the wound healed by secondary intention 1 month postoperatively, on average, by application of Aminogam (the same gel prescribed postoperatively). In 1 case, a hematoma was noted several days after surgery, but this resolved spontaneously within 3 weeks. In 2 cases (upper lip only), a minor touch-up was performed 9 months postoperatively, with the patient under local anesthesia. On average, lip tissue softened approximately 4 months postoperatively. However, patients did not report natural movement until 6 to 9 months postoperatively (Figures 8 and 9; Supplementary Figures 1 and 2). The average follow-up time was 20 months (range, 6 months-3 years). At 12 months postsurgery, of the 38 patients, 25 evaluated the result as satisfactory, 6 as very satisfactory, 1 as

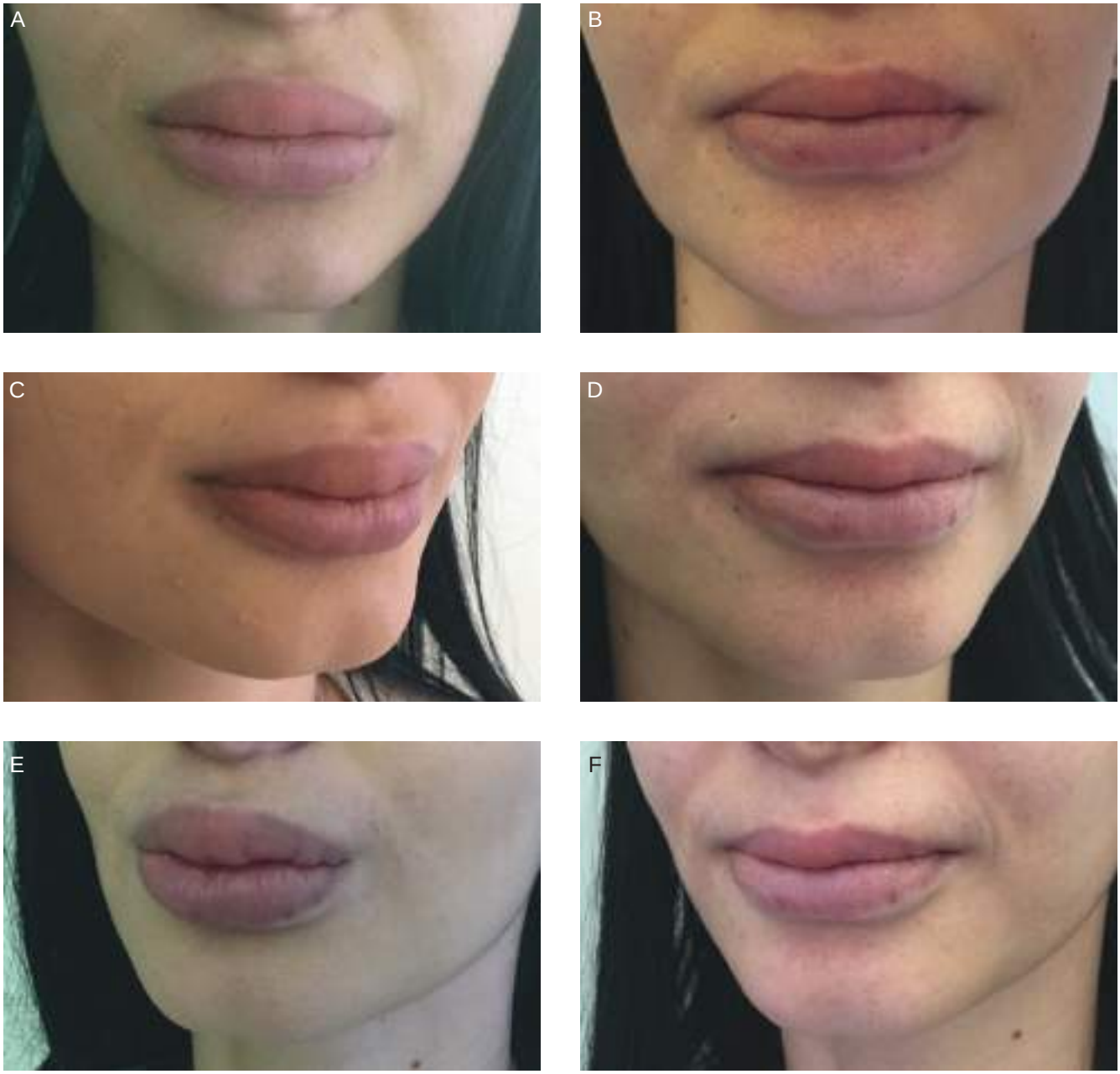

Figure 9. Frontal, left, and right three-quarter (A, C, E) preoperative and (B, D, F) 26-month postoperative views of a 28-year-old female patient (the same patient shown in Figures 2 and 7) who had received injections of polyacrylamide hydrogel into the upper and lower lip 8 years earlier.

unsatisfactory due to asymmetry, and 6 patients were lost to follow-up 6 months after surgery.

DISCUSSION

Lip remodeling after injection of permanent filler is extremely challenging; only 3 related articles have appeared in the medical literature and no nonsurgical alternatives have been described.[8-10] Wolter and Pallua[10] suggest that the filler Aquamid can be easily removed by aspiration, even years later, but this advice contradicts the more recent study by Kästner et al,[8] published in 2018, in which 11 patients (11 upper lips, 6 lower lips) were treated surgically. Intraoperatively, none of their patients demonstrated a well-defined fibrous capsule separating the implant from the surrounding scar tissue, but rather general fibrosis and a diffuse distribution of the product within all 3 layers of the lips.[8]

The role of imaging (nuclear magnetic resonance or ultrasound) has been shown to be helpful when permanent fillers have been injected in the perioral area, as it can identify infections, fibrosis, granulomatous inflammation,

and product migration. However, in the lip region, in our experience, clinical examination is essential:[11] if the filler has been injected in the lip mucosa, surgery can ameliorate the aesthetic aspect of the lip itself; when the filler has been injected in the skin of the lip we believe surgery does not help to avoid scarring, and prefer injective medical treatment (5-fluorouracil, steroids, etc).

Botti et al[9] described, for a series of 24 patients, the absence of a well-defined fibrous capsule around the injected fillers; they reported results not only for Aquamid injections but also for silicon and nonspecified permeant fillers. Botti et al[9] and Kästner et al[8] concluded that patients should be informed that complete removal of the product is unlikely to be possible because of the development of fibrosis around the injected filler and autologous tissue.

Similar issues arose in the present study. It is crucial to underscore the importance of precise placement of the incision next to the oral commissure to avoid reducing the mouth opening by postoperative scarring. Botti et al[9] advocate running the incision from one side of the mouth to the other, a few millimeters away from the oral fissure, starting and ending no less than 0.5 cm from the 2 labial commissures. Kästner et al[8] advocate the bikini lip reduction technique as described by Fanous,[12] but this procedure involves placing incisions far away from the oral commissure. We believe that it is not possible to address all cases in the same manner, especially if the filler has been injected into the most lateral aspect of the lip.[8] Our technique is in several respects similar to previously described techniques; however, the main difference consists in a "back cut" performed medially in the oral mucosa to minimize the likelihood of reducing the mouth opening via postoperative scarring. We acknowledge that a limitation of our study is the lack of a validated method to measure physician or patient satisfaction. It would be prudent to enlist an independent panel of physicians in future investigations. Further studies are required to gain more complete understanding of the effectiveness and reproducibility of this surgical technique; moreover, another limitation outlined during the reviewing process of the present article is the lack of preoperative pictures of patients with their mouths open.

CONCLUSIONS

We performed a retrospective review of surgical lip remodeling to correct unfavorable results with permanent filler injections. To our knowledge, this study represents the greatest number of lips treated surgically after such injections. Emphasis was placed on the technique used when approaching the area next to the oral commissure to avoid reducing the mouth opening, which can occur due to scarring. Significant issues arose, similar to those found in other studies; therefore, patients should be informed that complete removal of the injected product is not always possible.[8-10] However, for the majority of cases in the present study, patient satisfaction was high.

Supplementary Material

This article contains supplementary material located online at www.aestheticsurgeryjournal.com.

Disclosures

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