Combination Volume Rejuvenation Therapy of the Face: Fat, Fillers, and Botox

The author uses combination volume rejuvenation therapy (CVRT) in patients who desire facial rejuvenation with minimal downtime. He describes how the combined use of relatively large doses of multiple injectables—including fat, pharmaceutical soft tissue fillers, and Botox—permits simultaneous volume rejuvenation of most facial areas with or without excisional surgery. (Aesthetic Surg J 2006;26:460–464.)

Early techniques of surgical skin tightening for facial rejuvenation have been largely replaced by more modern ones focused on contouring the superficial musculoaponeurotic system (SMAS) and subcutaneous tissues. The goal of achieving the same degree of rejuvenation through the use of shorter incisions, endoscopes, and implants—all with less morbidity—consumes significant research and clinical effort. Public interest in and acceptance of cosmetic surgery remains robust, but public interest in a shorter “downtime” continues to drive new developments. Within the last decade, in addition to tightening, smoothing, and lifting, the search for ways to enhance volume of the aging face has become a major focus.

To reduce downtime and increase cost effectiveness, nonsurgical procedures, especially Botox and soft tissue fillers, have skyrocketed in popularity. At the same time, the collective experience and wisdom of aesthetic surgeons has led to more effective use of available volume-enhancing agents. As a younger surgeon and an early adopter of new products and techniques, I would like to share some observations regarding the use of various injectables for short downtime combination volume rejuvenation therapy (CVRT) of the face. In my practice, I have found that achieving the best aesthetic results requires not only using a variety of products, but also administering larger volumes or doses than I might have considered previously.

Botox

Botox (Allergan Inc., Irvine, CA), by far, remains my favorite adjunctive treatment to use in combination with surgery or with injectable soft tissue fillers. In addition to having a safety record that spans more than 20 years, Botox is extremely effective for naturally shaping the brows and correcting glabellar, lateral canthal, and frontalis rhytids.1 Patients are almost uniformly enthusiastic about the “chemical browlift” and antiwrinkle effects that can be achieved with regular Botox injections. From a cost–benefit standpoint, few treatments are as effective as Botox for delivering significant rejuvenation of the eyes, forehead, and upper face.

Although not an original indication for Botox injections, the careful use of Botox with tissue fillers in the lower face has been very rewarding. In fact, in my practice, most growth in Botox use has been in its adjunctive applications in the lower face and neck. Botox enhances results of filler treatments to the nasolabial folds, labiomandibular folds, vertical lip lines, and platysmal bands and also assists in the “rolling out” of the lips.

Autologous Fat Transfer

Dr. Sydney Coleman2 has been instrumental in developing autologous fat transfer as a viable treatment for restoring facial volume. His meticulous work has not only expanded our armamentarium of fillers, but has also appropriately challenged the supremacy of excisional procedures. Today, I uniformly use autologous fat transfer in the upper and lower face in association with excisional facial rejuvenation to enhance results and longevity.

Fat transfer alone, without excision, can be effective in rejuvenating the face (Figure 1). Judicious fat use in the upper face is effective for correcting loss of temporal volume and brow ptosis. In the periorbital region, added fat can soften nasojugal grooves and the junction between the eyelid and cheek. Fat transfer in the midface, buccal, and perioral areas also effectively camouflages volume
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loss, skin laxity, and bony changes associated with aging. Even though autologous fat transfer requires a surgical intervention, few fillers can match its long-term results and cost effectiveness.

The only limitation to widespread adoption of fat transfer for facial volume rejuvenation is the significant morbidity associated with its use. Prolonged edema and ecchymosis associated with fat transfer to the face limit the use of this treatment. The use of fat transfer in my practice is relegated to patients who can cancel work and social activities for about a month or have already committed to a similar recovery period by undergoing a simultaneous excisional facial procedure.

Injectable Fillers

The quest for a truly permanent filler may be a misguided effort. Historically, clinical experience with permanent fillers shows that complications can take decades to become apparent. Furthermore, the use of permanent fillers in the face can cause significant deformities and surgical dilemmas should complications become serious enough to require surgical intervention. It is difficult to justify subjecting patients to the potential long-term risks associated with permanent fillers for the dubious gains of an elective cosmetic procedure that is unlikely to yield a permanently favorable cosmetic effect. Given the intractable nature of aging, safer and more temporary solutions to address this process seem more reasonable.

Prior to the introduction of hyaluronic acid (HA) fillers in the U.S., bovine collagen was the market leader and clinical “gold standard” for fillers. However, the need for allergy testing was frustrating, and patients were often disappointed by the lack of longevity and the palpable lumpiness associated with collagen injections. Further, although not severe, hypersensitivity reactions were not rare. As new fillers reached the market, the use of collagen fell by 72% between 2004 and 2005, whereas the use of HA fillers increased by 35% and Sculptra use (Dermik Aesthetics, Berwyn, PA) increased by 319%.

With the introduction of Restylane (Medicis, Scottsdale, AZ), improved longevity of results, ease of injection, and proven safety and efficacy demonstrated by widespread European experience led US surgeons to quickly adopt its use. Based on my experience,

Figure 1. This 64-year-old woman underwent massive weight loss, losing facial volume and demonstrating the skin laxity associated with aging. Because she wanted definitive correction and had no time constraints, I treated her with Coleman’s lipostructure technique, performing autologous fat transfer with 99 mL of fat. The fat was injected with 1 mL syringes in 0.1-mL increments in multiple planes from the periosteum up to the superficial subcutaneous tissue. Fat was transferred to the temporal and brow areas, nasojugal grooves, cheek fat pads, buccal regions, nasolabial folds, and prejowl areas. A, The patient at age 26 years shows significant facial volume and convexity. B, Preoperative view (at age 64 years) illustrates the combined effect of weight loss and aging on facial volume. C, Postoperative view 1.5 years following restoration of facial volume with autologous fat transfer alone (no excisional procedures) demonstrates the dramatic impact that volume rejuvenation can have more than 1 year after fat transfer. Although the patient did not receive Botox injections, today I would administer Botox to the upper and lower face and neck to further enhance the postprocedure result.
Restylane has become my preferred filler for nonsurgical facial volume rejuvenation as well as for addressing postsurgical issues such as rhinoplasty deformities and the extension of results after excisional facial rejuvenation procedures.

Hyaluronic acid fillers are effective when injected into all facial areas for many different indications. They can treat static rhytids in the glabella, improve mild lateral brow ptosis (in conjunction with Botox), correct tear trough deformity, soften the lid–cheek junction by augmenting the cheek, camouflage loss of adipose volume in the cheek fat pad area, and add volume in the nasolabial folds, labiomandibular folds, vertical lip lines, and the lips (where they may be used in conjunction with Botox). Restylane can also be used to camouflage mild jowls by compensating for the absence or loss of bony volume in the chin and prejowl area.

Volume rejuvenation of the face, using HA and Botox, typically takes from 3 to 8 injections of 1 mL syringes of HA in conjunction with 50 to 100 units of Botox in a single session. This can be costly, but the immediate improvement with little to no downtime is very appealing to patients. I typically use nerve-block anesthesia and warn patients not to plan any social functions for that day and to ice the face overnight. By the following day, most patients can return to regular activities. Injection of this much product represents a significant increase in the use of Restylane over my previous 1- or 2-mL injections to the lips and nasolabial folds.

The off-label cosmetic use of Sculptra is a recent addition to my practice in the last year. My initial trepidation about the risk of granulomas has yielded to cautious optimism about the place of poly-L-lactic acid fillers in CVRT. Sculptra has proven remarkably easy to use with good patient acceptance and low morbidity.6,7 To reduce the risk of complications, injection within the dermis in the periocular area and within the lips should be avoided. In addition, I strictly adhere to the recommended dilution of 3 to 5 mL. Because local anesthesia improves patient acceptance, I add 1 mL of 1% lidocaine with epinephrine to sterile water to reach the final dilution volume.

Contrary to marketing claims, achieving significant correction of an aging, volume-deficient face typically requires 4 to 6 Sculptra treatments, scheduled 1 month apart, using 2 vials of Sculptra each session, for an average of 8 to 10 mL of product (at 4 to 5 mL dilution). This amount of product represents a significant cost for patients, but the results are impressive. From a cost–benefit standpoint, the long-term viability and acceptance of Sculptra will likely require a price reduction concession from the manufacturer, and early signs of movement in this direction are being seen in the marketplace.

Radiesse was initially greeted with enthusiasm as an off-label cosmetic facial filler. However, the promise of safe, long-lasting effects has been replaced by concerns about significant granuloma formation and palpability when used in the lips, periocular region, and superficial dermis. The product should, therefore, not be used in these areas. Early data on facial applications suggest that the results of Radiesse treatment last about 1 year in most patients, and the treatment is cost effective and well tolerated without significant complications other than erythema and ecchymosis.8 However, the product is significantly hemolytic, which may explain the increased bruising associated with Radiesse. Its most likely future application may be for deeper injections designed to significantly augment bony or subcutaneous deficiencies. To date, there are no convincing clinical data on the long-term fate of calcium hydroxylapatite when used in the face. For this reason, its off-label use should be approached cautiously.9

Combination Volume Rejuvenation Therapy

Combination volume rejuvenation therapy is an approach that holds great promise for significant, natural-looking, short “downtime” volume addition to facial areas. Autologous fat transfer in combination with Botox injections and with or without minimally invasive excisional procedures such as the minimal access cranial suspension (MACS) lift and the lateral SMASectomy lift remain my first choices if patients can commit to the recovery period. If more immediate rejuvenation is desired, Botox in combination with absorbable fillers such as Restylane or Radiesse is the treatment of choice. Restylane is especially useful when immediate correction is desired or when more superficial treatments are performed, such as in periocular, lip, or nasal applications (Figure 2). Sculptra is an excellent option for patients who desire slightly more longevity of benefit and are willing to accept the delayed results and multiple visits associated with this product (Figure 3).

When more long-term clinical data on facial applications become available, Radiesse may play a more prominent role in immediate correction of bony resorption of the facial skeleton as well as in correction of deep soft tissue deficits such as the nasolabial folds, cheeks, and glabella. I currently use Radiesse in the deep subcutaneous tissues over the peristeum of the maxilla and mandible in combination with more superficial HA or...
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Figure 2. This 74-year-old woman had undergone rhytidectomy and maxillary and mandibular dental reconstruction with bone grafts and dental implants. She requested facial rejuvenation 4 weeks before her daughter’s wedding, so a quick solution was needed. I treated her with a combination of Botox, Restylane, and Radiesse in a single session. A total of 90 units of Botox was injected (25 units in the corrugator supercili and procerus, 25 units in the lateral canthal orbitooculi, 5 units in the upper lip orbicularis oris, 5 units in each depressor anguli oris and 25 units in the platysmal bands). A total of 7 mL of Restylane was injected (0.4 mL in the glabella, 0.4 mL in the lateral tails of the brows, 0.4 mL in the nasojugal grooves, 2 mL superficially in the cheek fat pads, 2 mL in the nasolabial folds, 0.4 mL in the labiomandibular folds, 1 mL in the upper and lower lips, and 0.4 mL in the pre- and post-jowl areas). A total of 2.6 mL of Radiesse was injected (1.8 mL injected deeply in each cheek over the malar eminences and 0.8 mL over the mentum and anterior mandible). A, The patient as she appeared in her twenties. B, Preoperative view at age 74. C, Postoperative photo after 2 weeks demonstrates the efficacy of combination therapy for volume rejuvenation.

Figure 3. This 76-year-old woman has undergone rhytidectomy and currently wears partial dentures. She was planning implant placement in the near future but, for now, requested nonsurgical facial rejuvenation. Although she did not have any time constraints, she wanted a minimal downtime, long-lasting therapy. I treated her with combination volume rejuvenation therapy consisting of multiple sessions of injections with Botox, Sculptra, and Radiesse in the following amounts. A total of 65 units of Botox was injected (25 units in the corrugator supercili and procerus, 25 units in the lateral canthal orbitooculi, 5 units in the upper lip orbicularis oris, and 10 units in the depressor anguli oris). A total of 2.6 mL of Radiesse was injected (2 mL in the deep subcutaneous tissue over the malar eminence and 0.6 mL over the mandible and mentum in the pre-jowl areas). A total of 4 vials (5 mL dilution) of Sculptra was injected (3 mL in the superficial subcutaneous tissue of the cheek fat pads, 0.5 mL in the buccal areas, 0.5 mL in the nasolabial folds, 0.5 mL in the labiomandibular folds, and 0.5 mL in the pre- and post-jowl areas). A, The patient as she appeared in her twenties. B, Preoperative view at age 76. C, Postoperative view after 2 and one half weeks illustrates how combination therapy can effectively restore facial volume.
Sculptra treatments. The advent of Food and Drug Administration approval of larger molecular weight HA fillers, such as Perlane and Restylane SubQ (QMed, Uppsala, Sweden), may add further options for CVRT of the face.

One filler or injectable obviously does not fit all situations, but their combination can often produce better results than using one product alone. The combined use of multiple injectables—ranging from fat to pharmaceutical soft tissue fillers to Botox—permits volume rejuvenation treatment of most facial areas at the same time without excisional surgery. Achieving the best aesthetic results requires not only more types of products, but also using them in larger volumes or doses than previously considered. To date, no complications, adverse events, or side effects (other than those expected with each product) have occurred with this treatment approach. Consequently, the thoughtful and selective combined use of available injectables seems to hold great promise.

References

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