

Soft-Tissue Reconstruction of the Brow with Restylane

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Facial aging is primarily an atrophy of the hard and soft tissues of the face leading to a loss of three-dimensional structure and anti-gravity support of the overlying skin—in this case, the brow/upper-lid interface.^{1,2} Because of this, an integral component of my approach to periorbital rejuvenation is volume restoration. In the operating room, autologous fat grafting is used to reconstitute the deficient areas in question. Autologous fat grafting, in combination with blepharoplasty, more completely rejuvenates the periorbital area. Typically, a skin-only upper blepharoplasty, with or without medial fat-pad contouring, and/or transconjunctival or conservative skin-only transcutaneous, lower blepharoplasty, is performed to maintain periorbital fullness. However, optimal lower-lid rejuvenation is not achieved until the tear trough and malar regions are treated to blend and restore the lid-cheek junction. A similar approach is required for the brow, sometimes requiring a browlift or botulinum toxin type A (Botox; Allergan, Inc., Irvine, Calif.), to blend the transition between the brow and the upper lid.

Fat has the advantage of being philosophically correct, replacing “like with like.” It results in a long-term restoration of the bony and soft-tissue atrophy that occurs with advancing age. However, downtime can be unpredictable, with occasional incidences of prolonged swelling, bruising, or hemosiderin staining of the lower lid orbicularis oculi. Despite this, the aforementioned techniques have been used in my practice since approximately 1996 with high patient satisfaction and longevity. Patients

enjoy the synergy of lifting, tightening, and recontouring, yet more and more patients are seeking “limited downtime” procedures to supplant or delay more costly or time-intensive ones. Restylane (Medicis Aesthetics, Inc., Scottsdale, Ariz.) has provided that option. If surgery is not an option, or if time constraints exist, I have found that the combination of Restylane and Botox can be used effectively to temporarily reconstitute brow shape and form, while enhancing upper-lid aesthetics. The combination of Restylane and Botox also serves as excellent nonoperative, limited-downtime adjunct to enhance or extend a previously performed browlift or upper blepharoplasty. Because the tissues have been repositioned and tightened, ongoing atrophy and deflation can be slowed through soft-tissue restoration using Restylane.

The brow provides the frame for the upper lid. There are a number of factors that lead to the loss of the brow contour and, thus, the upper-lid frame. First, atrophy of the retro orbicularis oculi fat pad and bony orbit allows for brow descent and deflation.³ This leads to an apparent increase in lateral upper-lid skin excess and loss of medial upper-lid contour. Second, there is an imbalance between the brow elevators and depressors leading to brow ptosis.⁴ Lateral to the temporal crest, there is no brow elevator muscle. Botox weakens the brow depressors, allowing the frontalis muscle to elevate the medial two-thirds of the brow. Restylane can be used to recontour the brow, replacing the missing hard- and soft-tissue elements, and to remedy the deflation that occurs

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with advanced age. By providing missing brow contour, especially laterally, upper-lid aesthetics are enhanced, including supratarsal crease definition, while providing antigravity support. It may be viewed as a nonoperative browpexy, accomplishing many of the same goals as lateral-third resuspension. The upper-lid frame can thus be restored with a combination of repositioning and soft-tissue replenishment.

PROCEDURE

Restylane brow restoration can be accomplished easily under local anesthesia using a supraorbital nerve block. This should be done after marking the brow and with a small volume to minimize distortion of the area. The brow is marked using digital palpation and visual inspection with a curvilinear three-dimensional contour in mind. The lateral and/or medial caudal edge of the eyebrow is marked as the superior border and the bony rim (by palpation) is marked as the lower border. Care must be taken to feather laterally at the transition to the lateral orbit.

As a right-handed surgeon, I typically start my injections on the right brow from the central aspect of the brow and work laterally. Conversely, I start the left brow from the central position and finish at the most lateral aspect of the lateral aspect of the brow. The needle is advanced while injecting, as I believe the Restylane will flow ahead of the needle tip, minimizing disruption of vessels. The flow of the material can be palpated between the thumb

and index finger as it is injected. As Restylane flows, one can sense, and envision, the brow expanding and lifting. It is injected deeply but subtle contouring is accomplished superficially, in the subdermal layer.

Symmetry is judged from the head of the table and with the patient sitting up. Final adjustments can be made in a face-to-face position with the patient's input, using small aliquots of Restylane. The challenge is tapering and blending the lateral and superolateral brow into the surrounding deficient areas, such as the temple and forehead.

In general, approximately 0.4 cc are used for each lateral brow. The entire brow requires 0.6 to 0.8 cc each (Figs. 1 through 3). The patient is instructed to ice postoperatively and there have been no complications reported with the first 24 patients. In general, edema is minimal (12 to 48 hours) and bruising is rare. Longevity has been excellent, from 6 months up to 1 year. Touch-ups or additional augmentation is easily accomplished at the next office visit; however, I generally wait 3 to 4 weeks for final contour and for the patient to acclimate to the new look.

CONCLUSION

This procedure has been a wonderful adjunct to upper-lid blepharoplasty and to reduce recurrence of brow ptosis following brow lifts, in addition to its use as a primary nonsurgical procedure. The rate of acceptance has been high.

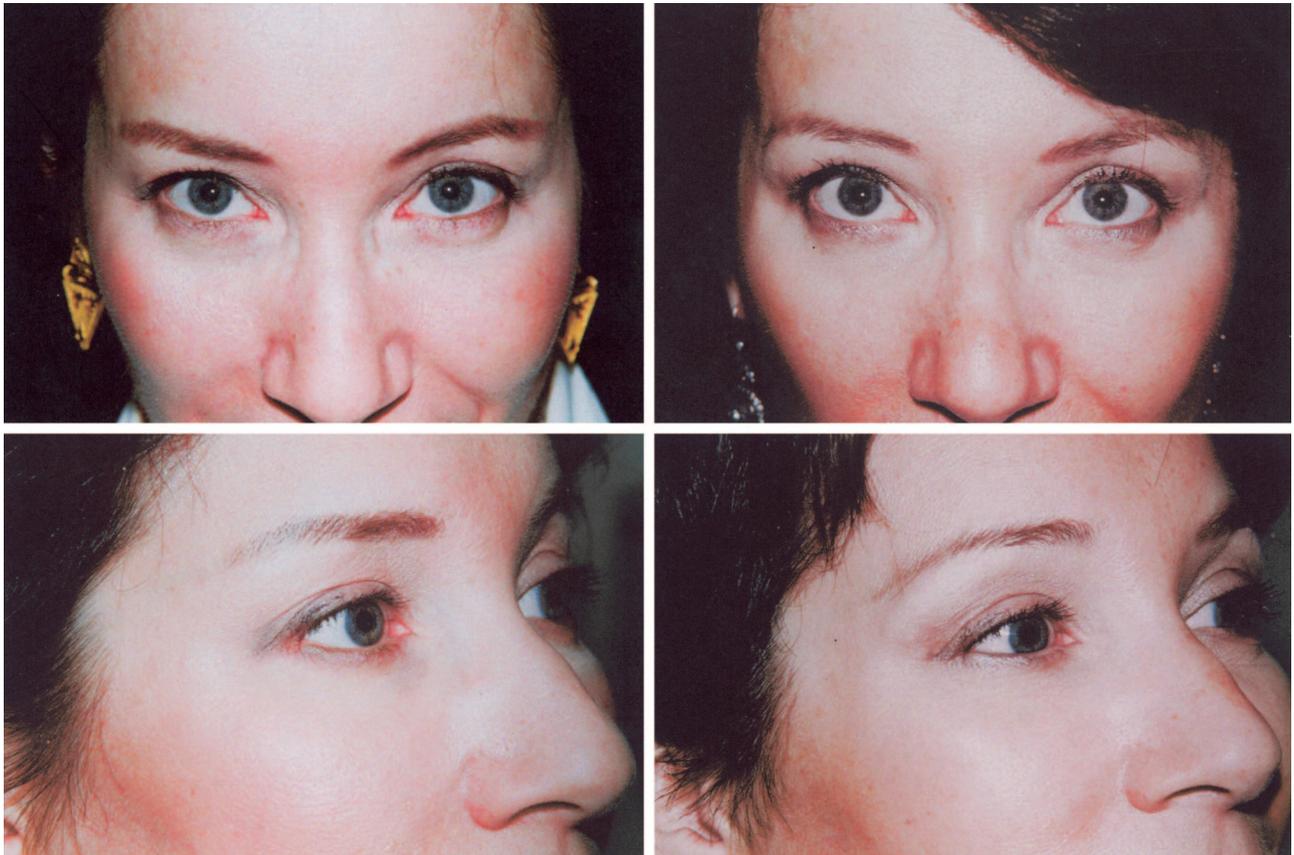


FIG. 1. Preoperative views of 51-year-old woman with endoscopic browlift and upper lids. Restylane 0.6 cc right brow and 0.7 cc left brow shown before, with Botox used as described to weaken depressors, and 3 months postprocedure. (Above) Frontal view and (below) oblique.

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REFERENCES

1. Pessa, J. E., and Chen, Y. Curve analysis of the aging orbital aperture. *Plast. Reconstr. Surg.* 109: 751, 2002.
2. Ferrario, V. F., Sforza, C., Columbo, A. Schmitz, J. H., and Serrao, G. Morphometry of the orbital region: A soft-tissue study from adolescence to mid-adulthood. *Plast. Reconstr. Surg.* 108: 285, 2001.
3. Zarem, H. A., Resnick, J. I., Carr, R. M., and Wootton, G. D. Browpexy: Lateral orbicularis muscle fixation as an adjunct to upper blepharoplasty. *Plast. Reconstr. Surg.* 100: 1258, 1997.
4. Fagien, S. Botox for the treatment of dynamic and hyperkinetic facial lines and furrows: Adjunctive use in facial aesthetic surgery. *Plast. Reconstr. Surg.* 103: 701, 1999.



FIG. 2. Preoperative views of 48-year-old woman with upper and lower blepharoplasty, as well as face lift. Restylane 0.6 cc per brow shown before, with Botox used as described to weaken depressors, and 3 months postprocedure. (*Above*) Frontal view and (*below*) oblique.



FIG. 3. Preoperative views of 40-year-old woman after upper lid blepharoplasty. Restylane 0.6 cc placed in the right brow and 0.7 cc placed in the left brow shown before, with Botox used as described to weaken depressors, and 3 months postprocedure. (*Above*) Frontal view and (*below*) oblique.