

# BOTULINUM TOXINS AND DERMAL FILLERS TO SHAPE THE PERIOCCULAR REGION

Pearls for best results.

BY WENDY W. LEE, MD



Neurotoxins, such as Botox (onabotulinumtoxinA; Allergan), Dysport (abobotulinumtoxinA; Galderma), and Xeomin (incobotulinumtoxinA; Merz Aesthetics), can be used effectively to shape the periocular region. Herein I discuss pearls for achieving best results while rejuvenating this delicate area.

## POPULAR NONSURGICAL OPTION

Over the past several years, botulinum toxins have become the most popular form of nonsurgical aesthetic enhancement. The glabella is the most common area around the eyes for which neurotoxins are used. Injections given between the brows improve dynamic wrinkles and provide a subtle medial brow lift when the patient's face is at rest by weakening the procerus and corrugators—the depressor muscles in this region.

Potential complications from an injection into the glabella include blepharoptosis, which some theorize is due to the toxin diffusing down the neurovascular bundles (supraorbital and supratrochlear) toward the levator aponeurosis. Surgeons can prevent this problem by using the nondominant thumb and forefinger to pinch up the muscle and protect the orbital rim. While providing protection, the nondominant hand also acts as a structure to balance the injecting hand. After the injection, I massage the toxin into the muscles and have the patient remain upright for a few hours.

## CROW'S FEET

Lateral canthal lines, or crow's feet, are another very popular area to inject, and injections can be tailored depending on how wide the lines extend. Weakening the orbicularis oculi in this region can dramatically rejuvenate the eye area. This is a superficial injection because the muscle is directly beneath the thin skin. By staying just



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underneath the skin, the surgeon avoids puncturing vessels (leading to bruising) and untargeted muscles, such as the zygomaticus, which will cause a crooked smile if weakened on one side. In general, it is best to stay at least 1 cm lateral to the lateral canthus to avoid the lateral rectus and not to go past the midpupillary line to avoid punctal ectropion and worsening dry eye disease.

Injection of the frontalis muscle can dramatically alter the shape of the periocular region. This is probably one of the most challenging areas to inject, as the frontalis is a bilobed, large muscle that is different in everyone. The physician must take caution when injecting this area because too much toxin can cause the brows to flatten and droop, with a resulting secondary dermatochalasis. There are many situations in which this muscle should be avoided all together, such as in Asian patients who depend on this muscle to lift their lids, or in people with preexisting dermatochalasis, brow ptosis, or blepharoptosis.

To avoid problems, use conservative amounts of toxin, stay at or above the horizontal midline of the forehead, and combine treatment with glabellar injections to counteract the net depression from weakening the frontalis. If, because of conservative treatment, the patient has portions of the



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frontalis that are still contracting, resulting in a “peaked” or “Spocked” brow, have him or her return in 1 to 2 weeks for a small touch up.

### CHEMICAL BROW LIFT

Injection into the lateral brow area, targeting the depressive action of the lateral orbicularis oculi, can create a “chemical brow lift” by lifting the brow 1 to 2 mm. This injection can often be combined with a dermal filler for extra lift.

A prominent pretarsal orbicularis can be flattened with small doses of botulinum toxin. As well, an injection in this area can subtly widen the palpebral fissure. Caution should be taken in those with preexisting dry eye disease.

### DERMAL FILLERS

Dermal fillers can be used effectively to shape the periocular area as a standalone treatment and in combination with botulinum toxins. The rest of this article will discuss how to optimize the use of dermal fillers and achieve a natural, nonsurgical rejuvenation of the eye area.

FDA-approved dermal fillers currently on the market differ in their makeup, concentration, cross-linking, and rheological properties. Available are a variety of hyaluronic acid fillers as well as calcium hydroxyapatite, poly-L-lactic acid, and acrylic microspheres.

The most popular area to treat around the eyes is the tear trough. This is also the most challenging and unforgiving area to inject, given the thinness of the skin and the likelihood of causing a Tyndall effect or showing lumps and bumps beneath the skin. For these reasons, hyaluronic acid fillers are useful because they can be erased with hyaluronidase if needed.

My recommended technique for the tear trough is to bevel the needle down and advance it until the inferior orbital rim is reached. I lay a very conservative amount of hyaluronic acid filler down just on top of the periosteum and massage it into place with the pad of my forefinger.

It is always best to be conservative in this area and have the patient return for touch ups, rather than to overinject. There are many blood vessels in this area, so setting a patient’s expectations that there bruising will be likely will help avoid disappointment after the procedure.

A few periorbital areas benefit from a combination of dermal fillers and botulinum toxins. Ideally, I treat these areas with the neurotoxin first to weaken the targeted muscle and then enhance the results with filler.

As previously mentioned, nonsurgical brow lifting can be achieved via the combination mentioned. Additionally, injecting a filler deep beneath the tail of the brow can elevate the brow even more, helping to open up the periorbital area. This dermal filler, much like in the tear trough, should be injected just on top of the periosteum, and the tail of the brow should be massaged upward and outward.

Other periocular areas where a combination of toxins and fillers is beneficial include the glabella and lateral canthal lines. Occasionally, botulinum toxins do not completely erase lines when the face is at rest. In this situation, a superficial injection of dermal filler can help fill in the residual lines. Caution is needed, however, especially in the glabellar region, and one should stay superficial to avoid intravascular injection of the filler into the supraorbital or supratrochlear arteries. Large boluses can either compress the neurovascular bundles and lead to necrosis or, worse, enter the vascular system and cause emboli. These emboli, given enough force, can retrograde flow into the central retinal artery and cause permanent blindness. The supratrochlear and supraorbital neurovascular bundles are in close proximity to the ophthalmic and central retinal arteries, so extreme care must be taken while injecting into the glabella. Small amounts, slow injections, and superficial locations are measures that can be taken to minimize the risk of a central retinal artery occlusion.

### CONCLUSION

Both dermal fillers and botulinum toxins can be used to open up the periocular area and provide a more youthful, rejuvenated appearance in both men and women. Knowledge of the anatomy in the given regions, properties of the different dermal fillers, and how to avoid and treat complications are paramount before performing these injections. ■

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