
Periocular Injectables with Hyaluronic Acid and Polymethyl Methacrylate Using Microcannulas

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Periocular rejuvenation with injectable soft tissue fillers is increasingly more popular over the past decade. The availability of new fillers provides physicians and surgeons greater flexibility in rejuvenating the periocular region while appealing to the minimal downtime, nonsurgical mindset of many patients. Volumetric enhancement around the eyes is a major new aesthetic perspective that has contributed to the implementation of injectable fillers. Periocular fat grafting in which volume is added, as opposed to conventional blepharoplasty in which volume is generally subtracted, has provided the principal impetus toward the revolution in understanding the importance of volume in periocular rejuvenation. The greatest advent since the publication of the first edition of this book is the use of disposable microcannulas. Using microcannulas instead of needles, especially around the eyes, has been revolutionary in terms of the degree of precision and also in minimizing the risk of significant ecchymosis. This chapter focuses on two injectable soft tissue fillers—hyaluronic acid (HA) and polymethyl methacrylate (PMMA)—that can be successfully used in the periocular region. The pearls and pitfalls of each filler are enumerated.

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General Principles

The concerns in periocular enhancement with soft tissue fillers involve various complications that range from prolonged ecchymosis to blindness. Although there is no guarantee that a complication can be entirely avoided, adhering to certain principles minimizes the likelihood of these complications. The use of microcannulas has truly minimized the risk of ecchymosis and virtually eliminated the risk of blindness. Any use of nonsteroidal anti-inflammatory medications, herbal medications (*Ginkgo biloba*, St. John's wort, fish oil caps, melatonin, etc.), and alcohol consumption during the week prior to treatment predispose toward ecchymosis. In the richly vascular periorbital region, the use of these products is strictly prohibited, or the procedure is deferred until the patient is compliant. Liberal application of ice immediately prior to injection can also reduce the extent of periorbital ecchymosis.

General Principles of Microcannula Use

As mentioned, injecting with microcannulas has revolutionized the practice of facial injections, particularly in the sensitive periorbital region. Unlike fat grafting in which larger cannulas are used to inject the orbital rim from a perpendicular orientation, microcannulas are used to inject



Fig. 150.1 This photograph shows the proposed, standard skin entry site (made by a needle and marked by the Number 1) for the microcannula and the superomedial approach to fill the medial tear trough along a parallel orientation to the inferior orbital rim

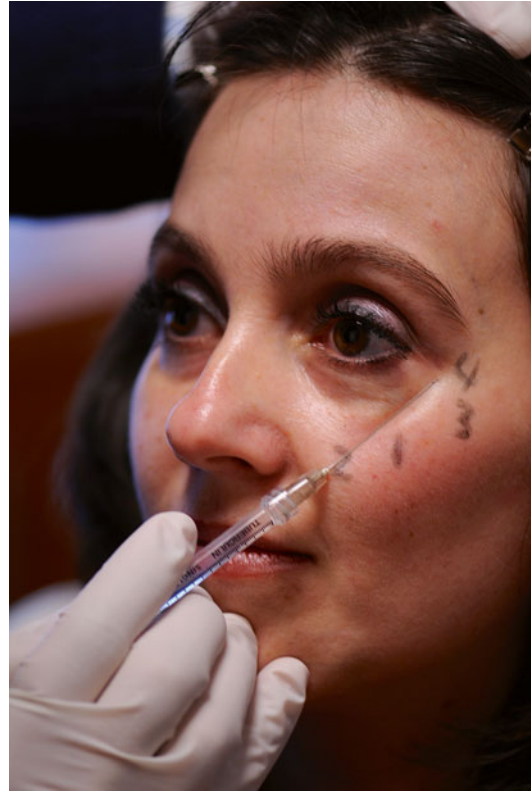


Fig. 150.2 This photograph shows the proposed, standard skin entry site (made by a needle and marked by the Number 2) for the microcannula and the superolateral approach to fill the lateral orbital rim along a parallel orientation to it

the orbital rim from a relatively parallel orientation. The cannula is positioned to start about 45° aiming superomedially from a relatively lateral position (Fig. 150.1). This approach should permit easy placement of the filler into the medial tear trough, where most of the aesthetic defect typically exists. The entry site is made with a 26-gauge needle, and the cannula that I prefer is a 27 gauge that minimizes patient discomfort. The plane of placement is in the immediate subcutaneous tissue. A microcannula allows the physician to place the filler into the tear trough

with absolute precision watching as the filler rises to correct the visible depression. I typically perform the filler treatment along both medial tear troughs first to ensure that I have enough product to complete the task before venturing onward to the outer orbital rim. In the majority of cases, the patient will also require additional filling in the lateral orbital rim. I typically attempt to use the same initial entry point to attack the lateral orbital rim aiming superolaterally (Fig. 150.2). However, at times, I will need two more entry points to accomplish this task.

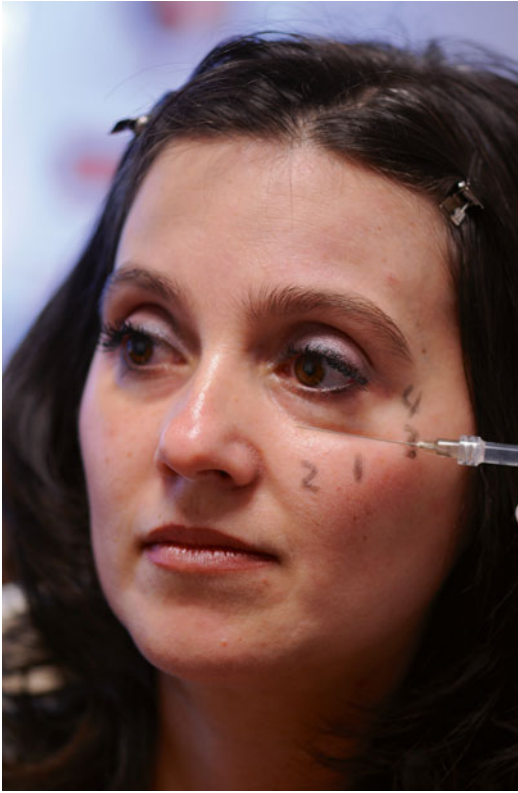


Fig. 150.3 This photograph shows the proposed, standard skin entry site (made by a needle and marked by the Number 3) for the microcannula and the horizontal approach (from lateral to medial) to fill the middle portion of the inferior orbital rim in a parallel direction along it

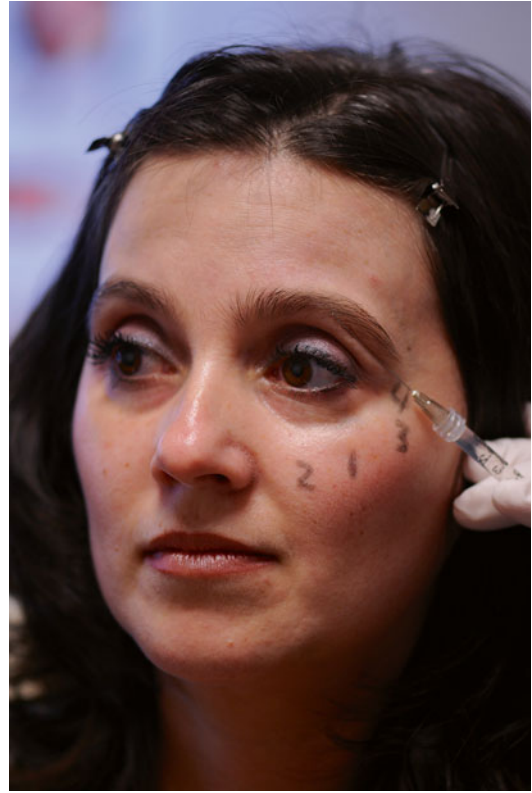


Fig. 150.4 This photograph shows the proposed, standard skin entry site (made by a needle and marked by the Number 4) for the microcannula and the horizontal approach to fill the brow and upper eyelid of the superior orbital rim in a parallel direction along it

Sometimes, I require a more medially based entry point to truly approach the lateral rim from a parallel position. Furthermore, sometimes I require a lateral-based entry point to approach the middle portion of the inferior orbital rim from a parallel orientation aiming medially (Fig. 150.3).

For the superior orbital rim, I also believe that volume can be quite beneficial to create a rejuvenated brow contour to simulate a fat-transfer result. A lateral-based entry to approach the brow and upper eyelid should be undertaken to recreate

youthful fullness in this area (Fig. 150.4). It is important not to overfill the brow area because it can make the area appear too full or create a dependent appearance of the upper eyelid. Always start conservatively when filling the upper eyelid and brow region, for instance, 0.2–0.5 cc of filler into this anatomic region. Unlike the lower eyelid, immediately after injecting the upper eyelid/brow area, I vigorously massage the filler against the brow bone to help soften irregularities and to improve the smoothness of the contour.

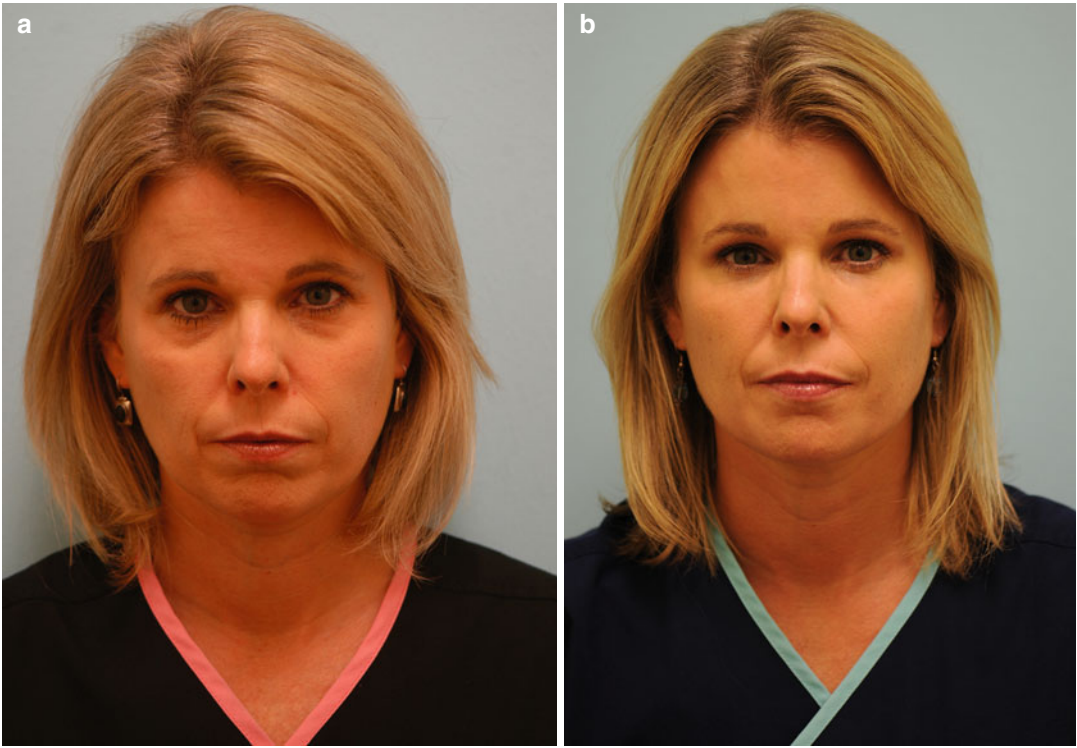


Fig. 150.5 Pre- (a) and posttreatment (b) photographs following hyaluronic acid (HA) injections with Restylane of a total of 1 cc to the nasojugal groove and inferior

orbital rim depression along with multiple syringes of HA throughout the face for total facial rejuvenation

Hyaluronic Acid (HA)

HA has become one of the most popular choices as a soft tissue filler for facial enhancement. HA can be used effectively in the entire periorcular region, including the glabellar rhytids, superior orbital rim depression, inferior orbital rim hollow, and the nasojugal trough. However, the main risk that I have encountered with HA around the eyes is clumping during smiling, i.e., a noticeable bulge in that area during facial animation, and the dreaded Tyndall effect, that is, the grayish-blue hue under the skin following HA injections in the periorbital region. Fortunately, if these complications arise, a conservative amount of hyaluronidase (Vitrase) of 0.1–0.2 cc can be injected (also with a microcannula) to dissolve any excess in a stepwise, incremental fashion. I try to convince most patients to consider the use of PMMA when possible because I consider it a far superior treat-

ment for the inferior orbital rim. For the inferior orbital rim, I do not exceed a total of 1 cc of HA per treatment session, i.e., 0.5 cc per side, as I have seen problems with contour irregularity and Tyndall effect at volumes in excess of 1 cc. For the inferior orbital rim, I prefer the use of Restylane since it typically does not create the same level of boggy edema and displacement as Juvéderm does. Conversely, I prefer Juvéderm for the upper eyelid/brow region because I can more easily blend and contour the product into that area (Fig. 150.5).

Polymethyl Methacrylate (PMMA)

The greatest fear of PMMA (Artefill) is its permanence. I can say that fortunately having done hundreds of tear troughs with it, I have yet to encounter a substantive complication that



Fig. 150.6 Pre- (a) and posttreatment (b) photographs following polymethyl methacrylate (PMMA) injections with Artefill of a total of 2 cc (performed over two ses-

sions) to the nasojugal groove and inferior orbital rim depression along with multiple syringes of PMMA and HA throughout the face for total facial rejuvenation

I could not correct. Without the use of microcannulas, I would never consider using a permanent filler in this area owing to the risk of not being able to fix the problem. However, with microcannulas, using PMMA in the inferior orbital rim is quite easy to perform with a relatively low risk of morbidity. I typically use 1 cc to fill the inferior orbital rim with PMMA, and in cases with very hollow inferior orbital rims, I may approach 2 cc in total. Also, I counsel the patients that they can lose 20–30 % of the result over the ensuing 4–6 weeks since not all of the

bovine collagen (the vehicle of delivery in the product) is replaced with one's own collagen. Therefore, I ask the patient to wait at least 6 weeks before considering a touch-up treatment, and I always suggest that one may need a touch-up to avoid the claim that the patient was not properly informed of this possibility. The technique outlined in the “General Principles of Microcannula Use” should be adhered to when performing PMMA treatments in the periorbital region without other special consideration (Fig. 150.6).