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CLINICAL UPDATE

FACULTY

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Best Practices in Injecting Evolence®: A Physician's Perspective

Aging of the skin is a combination of chronologic and environmental processes and results in loss of structural integrity due to degradation of components and reduced capacity to regenerate them.[1-3] Youthful appearance, characterized by smooth, wrinkle-free skin, is usually equated with health and an active lifestyle.[4,5] It is no wonder that so many people seek out aesthetic procedures to recapture the appearance of youth. Based on the latest available data, the American Society of Plastic Surgeons (ASPS) reported a 4% increase in all cosmetic procedures from 2006 to 2007. Notably, almost all this increase occurred in nonsurgical, minimally-invasive procedures that includes, among others, use of dermal fillers.[6]

Youthful appearance, characterized by smooth, wrinkle-free skin, is usually equated with health and an active lifestyle.

The two most popular components for dermal fillers are collagen and hyaluronic acid.[7] For the purposes of this publication, I will focus my comments on my experience with Evolence® (Ortho Dermatologics, Skillman, NJ), a porcine collagen-based filler that is cross-linked with ribose using patented GLYMATRIX™ technology.[8] Evolence® has been used successfully to treat nasolabial folds[9] and does not require a skin test prior to use.[10]

With the increase in popularity of nonsurgical, minimally-invasive aesthetic rejuvenation procedures, it is imperative that the selected product is effective and technically easy to use. The clinical data from Evolence® demonstrate that the use of this product has resulted in a high degree of patient satisfaction and minimal adverse events.[9,11,12] Nevertheless, undesired side effects (eg, formation of nodules, lumps, and bumps at the injection site) have been reported.[13] Although relatively rare, the occurrences of these undesirable side effects indicate a possible need for a frank exchange of ideas and experience among experts so that the medical community can learn about the best practices for using Evolence® and provide our patients with the best care possible.

Technique

In my clinic, I adhere to the following procedures diligently and would recommend them to my fellow physicians. In my experience, following this protocol practically has eliminated the risk

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of undesirable side effects, and our patients, consequently, have experienced a high degree of satisfaction with Evolence®.

Patient consent: Our patients are provided with extensive information on the risks of the procedure, from the common (eg, redness and mild pain) to the occasional (eg, bruising, prolonged pain, and swelling) to the rare (eg, nodules, prominences, and even skin necrosis). It is also stressed that as this is a collagen-based implant, the material can only degrade naturally over time, ie, there is no specific collagenase available to directly dissolve the product as is the case with hyaluronic acid-based implants and hyaluronidase.[14] Finally, of course, our patients are thoroughly informed about the risks associated with anesthesia. As with all cosmetic procedures, it is imperative that the patient understands these risks thoroughly and has ample time to ask questions before the procedure.

Patient preparation: Prior to the procedure, we take frontal and oblique view photographs of the patient and use them as an important frame of reference for subsequent visits. We request that our patients refrain from wearing make-up prior to the procedure. At a minimum, we cleanse their faces of all products in the procedure room. I do not make pre-procedure markings on our patients with a pen, as injection through the ink, although rare, may lead to tattooing of the skin.

Anesthesia: Anesthesia is critical. I strongly advocate against injecting Evolence® without anesthesia since it almost always results in poor patient and physician experience. In addition, the physician is unlikely to be able to properly mold the product post-implantation without significant patient discomfort. Consequently, the end results are usually poor and the patient is not apt to try the product and procedure again.

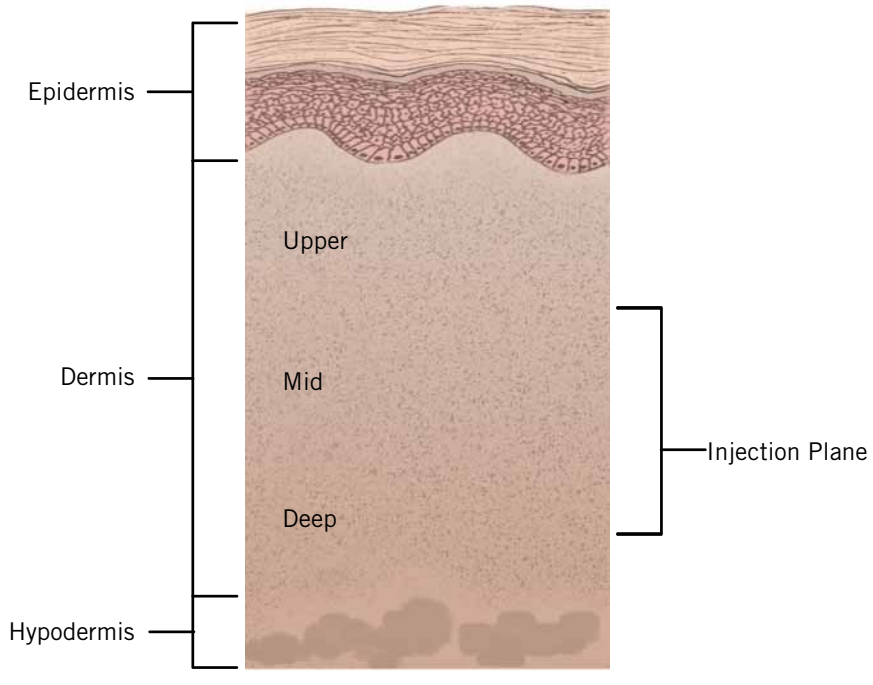
Prior to injection, I will rarely use topical anesthesia (usually 4% lidocaine–4% tetracaine in an occlusive petrolatum base) by itself. As a general habit, however, I block my patients with injectable lidocaine prior to the procedure.

I find that simple, easy-to-learn trigeminal nerve blocks are rapid, durable, effective, and widely tolerated by almost all patients. The length of time a patient needs to wait in my office is decreased significantly by using nerve blocks. Furthermore, I find that the pain experienced by my patients is reduced substantially. Naturally, it is important not to place the advancing needle directly into an anatomical foramen and to aspirate the syringe while injecting to avoid injecting a bolus of anesthetic solution into the vasculature.

Injection technique: It is important to plan out the course and scope of the procedure with patients prior to injection. I always provide a hand mirror to my patients so that they can indicate their "problem areas" as this helps me conceptualize a global approach to the treatment, customize the treatment to the needs of the patient, target individual sites for injection, and increase patient satisfaction. Since a single syringe is rarely sufficient for optimal correction, I usually have 2 or 3 syringes ready, depending on the patient. Evolence® is an ideal product for commonly addressed problem areas such as nasolabial folds and marionette lines. In my opinion, Evolence® is a better product for less severe lines and "stray" wrinkles than any of the hyaluronic acid-based fillers.

I deposit the filler in the mid- to deep-dermal plane (**Figure 1**), which is more superficial than the depth commonly used with most other fillers. There should be some resistance as the needle traverses the reticular dermis, and I encourage repositioning the needle to reach the correct plane. Subcutaneous deposition, as evidenced by a lack of resistance and the product flowing too easily, wastes product and leads to suboptimal correction. Epidermal injection results in visible white bumps. It is critical to stop injecting immediately and address this outcome with pressure and molding to redistribute the product optimally.

FIGURE 1. Plane of Injection for Deposition of Evolence®



It is best to stretch the overlying skin with the nondominant hand while injecting. This helps me ascertain that I am in the correct injection plane. In my experience, these 3 injection techniques work the best: (1) linear threading in a retrograde or anterograde fashion, (2) serial puncture with vigorous molding, and (3) fanning. I rarely employ the cross-hatching technique with Evolence®.

During injection, the physician should see a slight convexity of the overlying skin without seeing the needle tip itself (**Figure 2**). In most areas of the face, the physician also should be able to visualize the even flow of the product into the dermis as gentle ripples under the tissue. For a physician new to this product, I recommend pausing injection after approximately every 0.25 mL and palpating the injected area with the index finger and thumb, exploring for any product aggregates or bumps. Experienced physicians usually initiate this process after injection of each syringe of Evolence®. Using ultrasound gel assists in the tactile feel of this process and helps prevent erythema and bruising.

Evolence® has a surface tension that needs to be overcome for it to be moved. If I feel an aggregate during palpation, I mold the product vigorously using my index finger and thumb. My assistant applies ultrasound gel or petrolatum to the site to decrease the friction of my fingers on the skin. I start out applying light pressure between my fingers and increase this pressure until I sense the product "budge." In the simplest, and somewhat comical, of terms, I have likened this process to molding product aggregates from "biscuits" to "pancakes." Importantly, this technique is not a random tissue massage of the region; instead, it is a focused, purposeful tissue palpation and product molding that enables me to disseminate the product evenly throughout the dermis. Lax areas, eg, marionette lines, are more likely to have lumps and should be molded immediately after implantation to ensure the best outcome.

FIGURE 2. Injection Technique for Implanting Evolence®

Post-procedure care: I believe it is important to obtain photographs *immediately* after injection. Since Evolence® is not hygroscopic, the patient will experience the final outcome immediately upon completion of the procedure. For optimal outcome and appropriate placement of the filler, I recommend that the patient remain calm for at least 4-6 hours after injection of Evolence®. If injected properly, there should be no lumps, no edema, no purpura, and only transient erythema from tissue palpation and product molding. Rarely, papules occur during the post-procedure period. When they do occur, they are usually felt and almost never visible. I counsel the patient that these papules will most likely fully integrate with native tissue over a few months. Evolence® sets in the tissue faster than hyaluronic acid. As such, I do not advocate product massage or molding by either the patient or the physician if more than a few hours have passed since injection. In extremely rare cases of visible product nodules in the skin, subcision and/or saline injections under pressure may be attempted.

Results

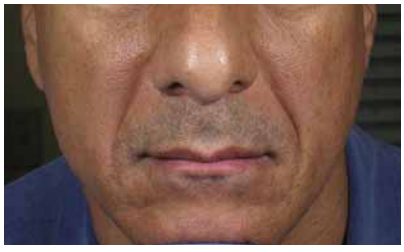
If the procedure as described above is followed diligently, there should be very few, if any, cases of undesirable side effects such as lumps, bumps, and nodules. Typical results from my clinic are shown in **Figures 3** and 4 (on page 4) immediately before and immediately after the procedure.

Discussion

The technical description provided above is based on my success in treating patients with Evolence® and is intended to help physicians consider options that they may not have considered before. It is further intended to suggest a method to prevent the occurrence of undesirable

FIGURE 3. Pre- and Post-Procedure Photographs of Typical Patient 1 Treated for Correction of Nasolabial Folds With Evolence®

A. Pre-procedure (front)



B. Post-procedure (front)

C. Pre-procedure (oblique)

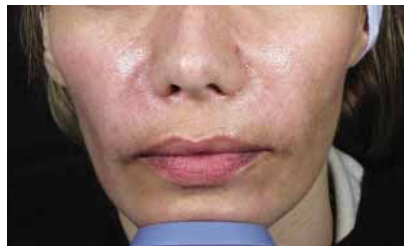
D. Post-procedure (oblique)

side effects such as nodules, lumps, and bumps. The rare occasion on which these occur could be due to injection error, eg, placement and/or the post-procedure molding of product, or simply bad luck. Not all dermal fillers behave the same. This detailed description of our technique is provided to inform readers about the special characteristics and handling requirements of Evolence® so that they provide the patient the best care possible. Furthermore, I hope that this publication elicits an active discussion among my peers on how best to use this and other dermal fillers.

FIGURE 4. Pre- and Post-Procedure Photographs of Typical Patient 2 Treated for Correction of Nasolabial Folds With Evolence®

A. Pre-procedure (front)

B. Post-procedure (front)



C. Pre-procedure (oblique)

D. Post-procedure (oblique)

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