Correction of Tear Trough Deformity With Novel Porcine Collagen Dermal Filler (Dermicol-P35)

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Deformity of the tear trough region, which can occur during the aging process, can result in dark shadows under the eyes and a fatigued appearance. Augmentation of the tear trough is challenging because of the thin skin and lack of fat in the region. Adding volume to the tear trough region with a dermal filler is a nonsurgical procedure with minimal discomfort to the patient. Dermicol-P35 (Evolence; Ortho Dermatologics, Skillman, NJ) is a new, ribose crosslinked, highly purified, porcine-based collagen filler that does not require prior skin testing and has shown improved persistence compared with bovine collagen-based dermal fillers. In this article, we present the clinical outcomes of patients who have received treatment with a novel ribose crosslinked porcine collagen dermal filler for the correction of tear trough deformity. (Aesthetic Surg J 2009;29:S9–S11.)

The loss of volume in the face and the anterior displacement of the infraorbital fat, primarily caused by the aging process, can lead to an unsightly depression in the suborbital region known as the tear trough.[1,2] The tear trough has been defined as the hollow of the medial lower eyelid, bordered by the anterior lacrimal crest and the inferior orbital rim.[3,4] Tear trough deformity can result in dark shadows under the eyes and a fatigued appearance.[5]

The correction of tear trough deformity can be challenging because the skin in this region lacks fat and thins with age. The proximity of the tear troughs to the eyes is also a concern.[5] Swelling and, rarely, blindness from intraarterial injections are concerns when treating the tear trough.[5,6] Options for tear trough augmentation have included both surgical (blepharoplasty) and nonsurgical methods, such as injection of either autologous fat or one of the currently available dermal fillers. While surgery can be successful, it is also very invasive, has a long recovery time, and is subject to a higher risk of complications than dermal fillers.[7] The injection of autologous fat, while less prone to immune responses, requires harvesting this tissue from the patient, often requires a long time for recovery, and may produce results that are lumpy.[5,6]

The use of a dermal filler to correct tear trough deformity is minimally invasive and causes much less discomfort to the patient than a surgical procedure. While dermal fillers do not address the underlying causes of the tear trough deformity, they can restore volume and provide a smoother and more even appearance to the region. Permanent dermal fillers that are not biodegradable (eg, silicone and polymethylmethacrylate) are not recommended for use in the tear trough region because they are microsphere-based and may cause clumping.[2]

Several biodegradable dermal fillers, which can be classified as semipermanent or temporary, are available for use in tear trough augmentation.[7] Semipermanent options, which can last for 1 to 2 years, include calcium hydroxylapatite (Radiesse/Radiance FN; BioForm Medical, San Mateo, CA) and poly-L-lactic acid (Sculptra; Dermik Laboratories, Bridgewater, NJ). Temporary dermal fillers can be either hyaluronic acid (HA)-based (Restylane [Medicis Aesthetics, Scottsdale, AZ] and Juvéderm [Allergan, Santa Barbara, CA]) or collagen-based (Zyderm and Zyplast [Allergan, Santa Barbara, CA], and Dermicol-P35 [Ortho Dermatologics, Skillman, NJ]).

Favorable results have been reported with the use of HA-based dermal fillers in tear trough correction.[5] One potential disadvantage that has been reported with HA-based dermal fillers is the Tyndall effect, characterized by a bluish-gray discoloration that can result from excessively superficial placement of the filler.[8,9] Bovine collagen-based dermal fillers such as Zyderm and Zyplast have also been used in this region, but these dermal fillers generally have a shorter duration of effect compared with HA-based fillers.[7] Localized hypersensitivity has been associated with bovine collagen-based dermal fillers,[10] requiring a skin test 4 weeks before the procedure.[11]

Dermicol-P35 is a new, highly purified, porcine-based collagen dermal filler that produced by a novel crosslinking of collagen molecules using a natural sugar, D-ribose.[12] Clinical studies have found that Dermicol-P35 demonstrated comparable efficacy for treating nasolabral folds to bovine collagen-based and HA-based products.[12,13] Dermicol-P35 has also demonstrated persistence for up to 12 months and low immunogenicity.[12] A skin test is therefore not required before the procedure. In this article, we
A 30-gauge needle allowed for more careful placement of dermal filler with less trauma to the thin-skinned tear trough region. Dermal filler material was injected in a retrograde fashion, wherein the needle is slowly withdrawn as the material is injected. This allowed the majority of the filler material to be injected at the periosteum, with small amounts being injected in the subcutaneous and dermal level. Such an approach provided for a blending and softening of the clinical appearance. Magnifier/polarizing lenses were worn by the injecting physician in an attempt to avoid vessels and thereby lessen the likelihood of injection-induced ecchymosis. The area was gently massaged after injection and cold compresses were applied to the area for 5 minutes after the procedure. All subjects were followed for 3 months after treatment and evaluated for both clinical effect and complications.

RESULTS
A total of 10 female patients were treated for tear trough deformities with Dermicol-P35. Patients ranged in age from 30 to 60 years. No patients had received any previous tear trough treatments. Average total injected volumes of dermal filler ranged from 0.3 to 0.6 mL.

All patients were noted to have excellent clinical results. No swelling or lumpiness was observed after treatment. Few adverse events were reported; only 1 subject was noted to have any posttreatment ecchymoses. Additionally, no Tyndall effect was noted. All patients were able to resume normal work and social activities immediately after treatment. At the 3-month follow-up visit, treatment results were persistent and patient satisfaction was high. In addition, no complications were reported at this visit.

Patients
Patient 1. A 31-year-old female patient presented with mild tear trough deformities and lower eyelid hyperpigmentation (Figure 1,A). No swelling or lumpiness was observed after treatment (Figure 1,B). After 3 months, the appearance of the tear troughs was greatly improved and the appearance of undereye shadows was diminished (Figure 1,C).

Patient 2. A 55-year-old female patient showed tear trough deformity, with a thinned appearance to the lower eyelid skin and small angiomata on the lower eyelid skin as well (Figure 2,A). After 3 months, the quality of the lower eyelid skin was greatly improved and partial hiding of the vascular lesion was also achieved (Figure 2,B).

DISCUSSION
Treatment with Dermicol-P35 (Evolence) injection improved the appearance of tear trough deformity and reduced hyperpigmentation in all 10 treated patients. Unlike the results reported with both autologous fat injections and permanent dermal fillers,6 porcine collagen filler produced smooth and even results. Adverse events and recovery periods were minimal and all patients were able to resume normal activities immediately after treatment. These results are consistent with previous studies.13 Lastly, treatment effects

MATERIALS AND METHODS
Female patients presenting with tear trough deformities were injected with porcine collagen dermal filler. Subjects were excluded if they had previous eyelid surgery or a history of atopic dermatitis because patients with this condition are highly susceptible to inflammatory responses (eg. inflammation of the lower eyelid).

After photographic documentation and informed consent, topical anesthetic was applied for 30 minutes before treatment. Dermicol-P35 (Evolence) was injected with a 30-gauge needle, predominantly at the level of the periosteum.

Present the clinical experience and outcomes of patients who have received treatment with Dermicol-P35 (Evolence) for the correction of tear trough deformity.
were found to persist for at least 3 months and all patients reported high satisfaction with their results.

Tear trough deformities caused by aging can result in unsightly dark shadows under the eyes and a tired appearance. Many patients elect to treat tear trough deformities to restore a youthful appearance. While surgical treatments are available, surgery is invasive, can require a lengthy recovery period, and has a higher risk of complications. Conversely, temporary dermal fillers offer a minimally invasive and nonsurgical method to improve the appearance of tear trough deformities with minimal discomfort and recovery time. They can restore volume to the region, improve the appearance of hyperpigmentation, and rejuvenate the facial appearance when combined with a good injection technique.

CONCLUSION

Dermicol-P35 (Evolence) is a new dermal filler that is available for use in nonsurgical soft tissue augmentation. The results from these 10 treated patients indicate that Dermicol-P35 injection provides a convenient, effective, and minimally invasive option for the correction of tear trough deformities. Patients experienced minimal adverse events and reported high levels of satisfaction with their results.

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REFERENCES


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