Treating Tear Troughs:
Soft Tissue Augmentation

New advancements are emerging in the field of soft tissue augmentation for the treatment of the tear troughs.

BY HASSAN I. GALADARI, MD, FAAD

From the age of 30, half of all women report concerns about under eye circles. That finding, from a study of 4,402 women aged 18 to 75, highlights a reality with which many dermatologists are familiar. Yet, treatments of the tear troughs rank only seventh in aesthetic treatments.1 This gap likely is caused by the difficulty of treating tear trough concerns.

**HISTORICAL CHALLENGES**

Treatment of the tear trough is associated with a number of limitations and can be a challenge. Due to the thin, translucent skin in this area of the face, anything injected may either lump up or produce blue discoloration, due to the Tyndall effect possible with most popular FDA-approved hyaluronic acid (HA) fillers. Tyndall effects occur because of three things: the amount of HA injected, the physical properties of the HA gel, and, to an extent, the depth at which the filler is injected.

A meta-analysis of filler usage shows that patients frequently report adverse effects. In a study of 100 patients, 75 percent reported bruising, 33 percent reported surface irregularity or lumpiness, and 26 percent reported mild edemas or swelling.2 Patients typically require repeated massages to address these side effects (except for bruising); usually adverse effects will disappear after several days. If massages are not sufficient, the use of hyaluronidase is reported in some cases. Five percent of patients in this study also reported the emergence of Tyndall effects or persistent discoloration.

Historically, injectors relied on autologous fat for filling the tear troughs, which is still popular with plastic surgeons. However, with time, even these fat injections can lump and look unnatural. Collagen also was used because both bovine and human collagen are opaque; but these have been off the market for some time. The current trend is to dilute any of the currently marketed HA fillers with lidocaine to decrease the probability of Tyndall effect. Products such as Juvederm (Allergan) and Restylane (Medicis) are mixed at a ratio of 1:1 or 2:1 for such an effect. This, theoretically, can cause problems. Because the filler molecular makeup is biochemically altered, it may result in a reduced duration of effect.

**RECENT INNOVATIONS**

One proposed treatment option that is useful is to mix HA (usually Restylane in my practice) with a small amount of Radiesse. This creates a filler that is as soft as an HA but opaque as Radiesse, so there is limited risk for Tyndall effect. Though an interesting and very bold idea of mixing two FDA-approved products, the safety of combining two different-class fillers together has been caused significant debate.

The new kid on the fillers block is Belotero (Merz Aesthetics), an injectable mono-phasic HA. It is said that it does not cause Tyndalling due to its ability to readily spread, but the material may be relatively short-acting, requiring multiple treatments to maintain results.

An adapted HA gel can assist in the reduction of eye circles; however this recent innovation is not yet FDA-approved. Made by Teoxane, Teosyal Redensity II is already approved in the EU and Canada. The product’s molecular structure is such that its physical properties are that of a soft HA, but it is composed of both crosslinked and non-crosslinked HA in addition to amino acids and minerals. This creates a product that lasts for an average of a year and, no

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matter the quantity injected, has not been shown to lead to any swelling or Tyndalling. Teosyal Redensity II has an appropriate viscoelastic profile and provides minimal pressure on tissues, which offers an easy injection into a confined, narrow area, optimal spreading, and controlled positioning.

CREATIVE APPROACHES AND EMERGING OPPORTUNITIES

I find Teosyal Redensity II to be the only product that seems tailor made for the tear troughs, and it could be a trend for the development of fillers in the future to target a certain area of the body or face (Figure 1). It is important to note that a product such as Teosyal Redensity II is correctly indicated outside the US for eye circles, tear trough deformity, palpebromalar groove, and minimal palpebral bags. It is not indicated for patients with exclusively pigmentary dark circles, large palpebral or malar bags, lymphatic stasis, or excessive ligamentary looseness inferior eyelid (ectropion or scleral show).

Until this product becomes available in the US, injectors who are adept at mixing or diluting fillers may continue to achieve acceptable results. The recent availability of a monophasic, double-crosslinked hyaluronic acid filler for correction of deep lines and wrinkles offers a treatment option with a low risk of causing discoloration but perhaps a brief duration of effect.

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