The Use of Blunt-Tipped Cannulas for Tear Trough Correction

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ABSTRACT

A patient presents with skin atrophy and negative vector. The patient’s tear troughs and midjugal grooves were injected with a middle cohesivity hyaluronic acid (HA) filler. Deep implantation of a middle cohesivity HA product minimizes the risk of contour irregularities, and the supraperiosteal plane of the tear trough and eyebrow is anatomically safe for filler implantation. A HA product is preferable for these anatomically unforgiving areas as it can be removed or adjusted if needed by injection of hyaluronidase.


CASE VIGNETTE

A 42-year-old patient presented complaining that her eyes looked tired and stating that she did not wish to have surgery (Figure 1). She had not had previous surgery or injectables and was in good general health. She was concerned about procedural pain and wanted to avoid a significant change to her face. During examination, the findings included skin atrophy and a negative vector when her face was viewed in profile (Figure 2).

The patient’s tear troughs and midjugal grooves were injected with a middle cohesivity hyaluronic acid (HA) filler. The medial portion of the eyebrow was also injected with the HA filler to correct the sunken eye effect due to volume loss in the upper eyelid. To minimize pain and bruising, a rigid 27G 42 mm blunt microcannula was selected for injection (Figure 3).

The injection process was as follows: After local anesthesia of the site selected for insertion of the microcannula, an entry hole was made with a sharp 26 G needle, to obtain the appropriate depth and direction for the microcannula during injection (Figure 4). The microcannula was then passed into the supraperiosteal plane, with the nondominant hand lifting the tissue to keep the cannula in this deep plane, and the microcannula was gently moved on the bone until it reached the inner point of the tear trough. The same process was repeated to move the microcannula along the bone to the head of the eyebrow (Figure 5). The HA filler was deposited with retrograde technique as the microcannula was being withdrawn. On each side, 0.7 mL of HA filler was injected into the tear trough and 0.3 mL into the medial eyebrow. Tissue massage was avoided to prevent displacement of filler from the desired location.

Deep implantation of a middle cohesivity HA product minimizes the risk of contour irregularities (Figure 6), and the supraperiosteal plane of the tear trough and eyebrow is anatomically safe for filler implantation (Figure 7). A HA product is preferable for these anatomically unforgiving areas as it can be removed or adjusted if needed by injection of hyaluronidase. U.S. FDA-approved products that are appropriate for this procedure include cohesive polydensified matrix HA (Belotero Balance), small particle HA (Restylane and “nonparticulate” HA (Juvéderm Ultra). Appropriate products that are currently approved in Europe but not in the U.S. include “single-phase” HA (Teosyal Global Action). The use of a blunt injection microcannula allows a single entry point for each area rather than the several entry points that would be required with a sharp needle. It also decreases patient discomfort and the risk of damage to blood vessels or nerves. It is recommended that periocular injection of fillers should be performed with the patient seated rather than reclining in order to achieve accurate filler placement and help avoid overcorrection.
It is safe to use a blunt-tipped cannula in the tear trough and eyebrow areas. Unlike needles, the blunt-tipped cannula does not usually injure blood vessels or nerves and thus minimizes bruising. It is also much less painful. An HA is best as it is "erasable" with hyaluronidase. It is not good to massage the area as you want the product to stay where you have injected it with a nice smooth injection technique, as you withdraw the cannula. Never overcorrect the area. It is better to treat over two visits and go slowly. Have the patient sitting up so you can see the full extent of the depression. This technique provides a wonderful rejuvenation of the face.
Hyaluronic Acid "Skinboosters" and Use of Blunt Injection Microcannulas

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ABSTRACT

Skin aging is attributed to a decrease and change in quality of elastic and collagen fibers, as well as ground substance of the skin. Hyaluronic acid "skinboosters" is a novel concept targeting improvement of skin viscoelasticity by placing small amounts of specifically designed HA based products over large areas of dermis or superficial subdermal plane. This serial procedure is performed either by short needle or blunt microcannulas.


CASE VIGNETTE

A 37-year-old healthy Caucasian woman was seen for cosmetic consultation. Her main complaint was dis-satisfaction with her facial skin quality, smile wrinkles, and acne scars on her cheeks. Her past medical history included acne flare ups in her twenties, successfully treated with oral minocycline, and topical tretinoin. On examination a few medium depth boxcar scars were noted on her cheeks, accompanied by skin "collapse" on smiling, creating cheek wrinkles in motion (Figure 1).

After thorough discussion of possible therapeutic approaches, a series of treatments using a small particle "skinbooster" hyaluronic acid (HA) filler designed to improve skin hydration and elasticity (Restylane® Vital) injected subcutaneously by blunt cannula was started. After three monthly injection sessions (2 ml of product per session), significant improvement in acne scars and skin quality were noted (Figure 2).

Changes in the viscoelastic properties of the skin are among the most striking changes in the aging face. At the molecular level, these changes are attributed to the decrease of elastic and collagen fibers as well as the ground substance content, responsible for hydration of deeper skin compartments in younger skin.1

Clinical studies have demonstrated that treatment of facial skin with non-animal stabilized hyaluronic acid (NASHA) small parti-
cle gel results in improvement in its elasticity along with clinical improvement in appearance of the skin.2,3 These results were the basis for the development of the “skinbooster” or revitalization concept.

The product used in this patient for the purpose of “skinboosting” comprises small particles suspended in a smooth and relatively thin non-animal stabilized hyaluronic acid (NASHA) gel (20 mg/ml).

The procedure is performed by either multiple microdroplet injections or more recently by blunt cannula subcutaneous delivery of the product. To place microdroplets repetitively at the same skin depth, we use 32 gauge short (4 mm) mesotherapy needles. During each treatment session, the patient receives about 25 regularly spaced 0.02 ml injections of the “skinboosting” HA filler on each side (Figure 3).

When using a flexible blunt cannula, the injection plan is drawn prior to the treatment. The plan is composed of lines in fan-like fashion placed perpendicular to the direction of the smile wrinkles (Figure 4a). The cannula in inserted through a skin opening parallel to the skin surface to deliver the product superficially (Figure 4b). Usually 2–3 skin openings are sufficient to deliver the product to the whole cheek and perioral area.
evenly distribute the product in the dermis or immediate subdermal plane without specifically targeting a wrinkle or scar.

The advantage of a blunt cannula over the sharp needle is that it is less traumatic and less painful. The risk of bruising from fifty needle insertions is significantly higher than from 2–3 cannula insertion holes. In addition, in the case of subdermal scarring, as usually is the case in acne scar patients, the cannula-assisted procedure releases retractions and subdermal fibrotic bands.

This author’s experience shows that placing small quantities of “skinbooster” HA over relatively large areas of the dermis and immediate subdermal plane results in improved skin elasticity (disappearance of smile lines) and smoother skin surface. The procedure is effective and well tolerated.
In her case vignette, “Hyaluronic Acid ‘Skinboosters’ and the Use of Blunt Injection Microcannulas,’ the author describes a novel approach of small particle hyaluronic acid (HA) injection injected subcutaneously by blunt microcannula, with a significant improvement in acne scar and skin quality. For more than two years, many publications have focused on the real improvement in filler techniques provided by the blunt microcannula, which significantly diminishes pain, swelling, bruising, and also recovery time, especially when used for the cheeks, tear troughs, marionette lines, temples and hands. However the blunt tip characteristic of these needles does not allow injection of the superficial dermis, but only the superficial plane of the hypodermis. So the improvement will come from the pharmacologic characteristics of the HA as well as the mechanical stimulation (or micro-needling) of this plane of injection. Moreover the HA needs to be quite thin (low in viscosity) to be adapted to the plane of deposition, and minimal crosslinking seems required.

In regards to the diameter of the microcannula, 27 gauge is preferable to 30 gauge as the thinner cannula is more flexible and could be more traumatic to tissue. The best choice may be a rigid microcannula with a length between 40 to 50 mm and a thin wall that provides a large inner diameter relative to its gauge size to facilitate filler flow and minimize tissue trauma.

To optimize the improvement in rhytides, a very small dose of botulinum neurotoxin (10% of the regular dosing used for treatment of the upper face musculature) can be injected as an adjunct to the HA. To optimize the improvement in rhytides, a very small dose of botulinum neurotoxin (10% of the regular dosing used for treatment of the upper face musculature) can be injected as an adjunct to the HA. To optimize the improvement in rhytides, a very small dose of botulinum neurotoxin (10% of the regular dosing used for treatment of the upper face musculature) can be injected as an adjunct to the HA.

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In summary, the author provides a carefully innovative and minimally invasive technique, demonstrating that the present and the future of the injection of fillers will not merely be a simple classic HA injection with a sharp needle.

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FURTHER READING

REFERENCES