

## ORIGINAL ARTICLE

# Injection techniques for midface volumization using soft tissue hyaluronic acid fillers designed for dynamic facial movement

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**Funding information**

This study was funded by Revance Therapeutics, Inc., Nashville, TN, USA. Writing and editorial assistance was provided to the authors by Jennifer Giel, PhD, on behalf of Proscribe (US) LLC, and was funded by Revance Therapeutics, Inc., Nashville, TN, USA. Neither honoraria nor payments were given for authorship

**Abstract**

Volume loss of the face occurs over time; thus, volume enhancement of the midface can counteract the effects of aging. Hyaluronic acid (HA) fillers are often used for facial revolumization for a more youthful appearance due to their favorable outcomes and safety profiles. A patient-centric approach, in which dynamic facial expressions are considered, is needed for optimal aesthetic results. In addition, injectors must be familiar with midface anatomy, how it is affected by the aging process, and must also consider the rheological and physical properties of fillers, including their stretch and dynamic strength.

In this article, optimal injection techniques are described for a new range of HA-based fillers for midface revolumization using a needle, cannula, or both. The layering technique involves product placement in both the deep and superficial fat compartments to achieve natural-looking outcomes at rest and during motion.

The Resilient Hyaluronic Acid (RHA<sup>®</sup>) line of fillers was designed to maintain their durability and integrity while adapting to the dynamic movements of the face. RHA 2 is applicable for superficial placement, whereas the balanced stretch and dynamic strength of RHA 3 render it more versatile. The novel rheological properties of RHA 4, with the highest dynamic strength and sufficient stretch, allow it to be injected superficially and into deep facial compartments.

Depending on patient characteristics, the appropriate RHA filler can be chosen to reach the goal of a natural, younger appearance and avoid overfilling.

**KEYWORDS**

cosmetic techniques, dermal fillers, facial volumization, soft tissue augmentation, subcutaneous injection

## 1 | INTRODUCTION

Rejuvenating the aging face is one of the great challenges in the field of aesthetic dermatology, and volume reflation is essential to improve aesthetic outcomes.<sup>1-3</sup> Volume reflation and volume

enhancement can alter facial contours and balance to counteract the effects of aging.<sup>2</sup> Midface volumization is of particular importance, as the midface has a considerable impact on how one looks, especially since people tend to look at other people just below the eyes.<sup>4</sup> Well-contoured and balanced fullness in the midface exemplifies a

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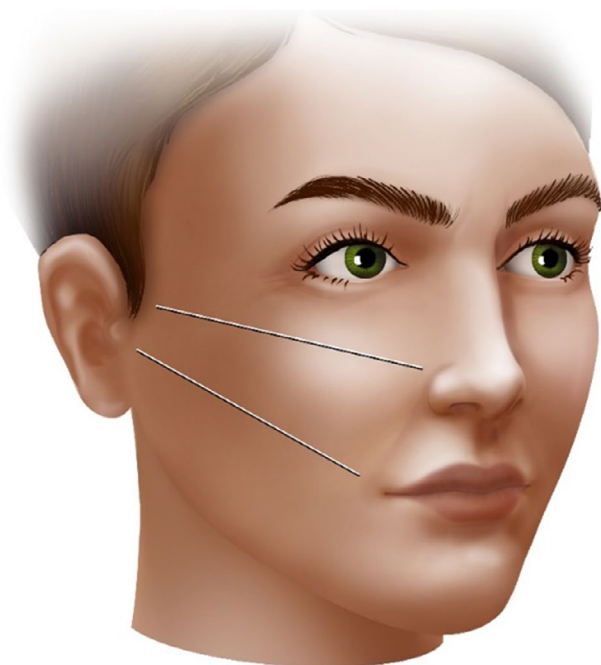
more natural, youthful, and attractive face. The midface is a highly dynamic area, and cosmetic rejuvenation requires consideration of the relationship between the aging process and dynamic facial movement. The aim is to achieve optimal and predictable aesthetic results from volume restoration procedures while avoiding an unnatural, overfilled appearance.

Hyaluronic acid (HA)-based soft tissue fillers can be implanted to restore a more youthful appearance to the midface. Over the years, the use of fillers for facial rejuvenation has progressed from filling lines and wrinkles to volume restoration.<sup>5</sup> HA-based fillers allow clinicians to obtain long-lasting results with favorable safety profiles and minimal downtime. These fillers are particularly useful in the midface, where volume deficits are initially seen with aging, and have been shown to increase self-perception of attractiveness.<sup>6</sup>

The objective of this paper is to describe optimal injection techniques for midface volumization using a new range of HA-based fillers designed to adapt and move with the face for natural-looking outcomes. The authors' techniques for injection using a needle, cannula, or both are described based on patient characteristics and dynamic gel properties.

### 1.1 | Midcheek anatomical regions

The midface refers to the central third of the face. It has a lateral and an anteromedial aspect (Figure 1). The superior boundary extends from the pyriform fossa to the superior origin of the ear. The inferior boundary extends from the oral commissures to the tragus. The



**FIGURE 1** Midcheek area showing the lateral and anteromedial aspects

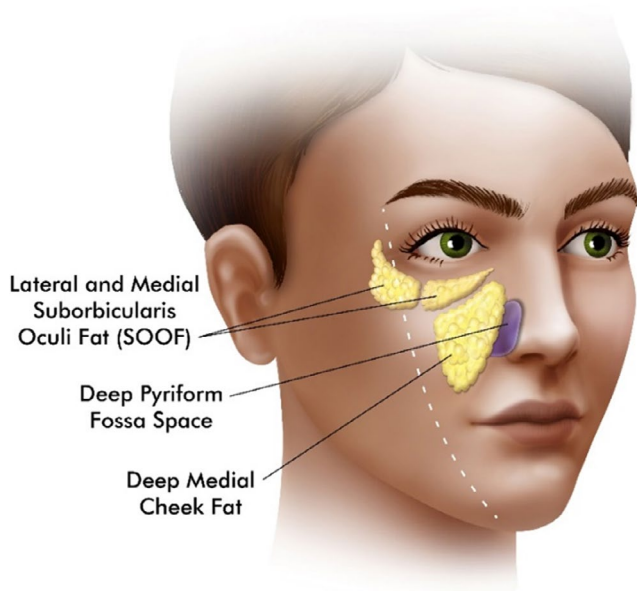
periorbital regions, including infraorbital hollows and tear troughs, are excluded from the treatment area for midface volumization for the purposes of this paper.

### 1.2 | Midface aging process

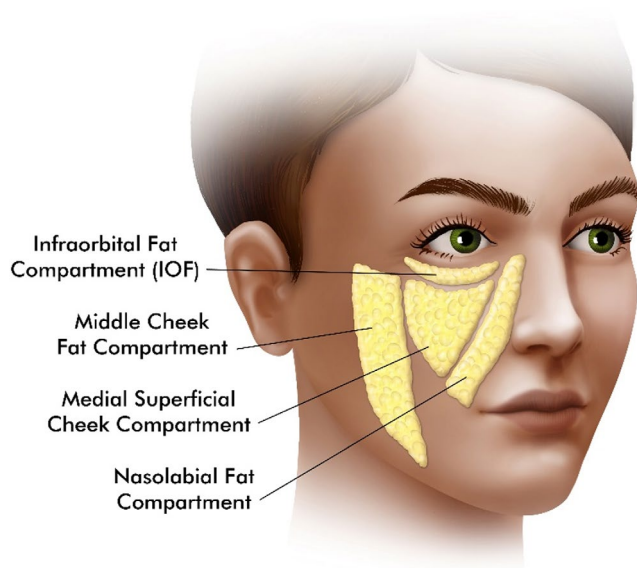
Optimal midface volumization with fillers requires a thorough understanding of midface anatomy and the changes that occur with aging<sup>7</sup> to place the appropriate filler at the ideal depth. Midface aging is complex, and the structural changes affected by the midface aging processes involve all of the tissues of the midface region, including the skin, fat, ligaments, muscles, and bones. Our understanding of the structural changes associated with midface aging and the approach to midface rejuvenation have evolved over recent years. The traditional gravitational theory of midfacial aging is based on ligamentous attenuation, whereas the more recent volumetric theory considers anatomical discoveries relating to the discrete fat compartments of the face.<sup>8</sup> While the theories are compatible with each other, there is increasing awareness that structural and volume deficit, as well as vertical descent and ptosis, are critical components of facial aging.<sup>8,9</sup> This has led to a shift in treatment away from simply reversing gravitational descent to adopting volumetric approaches to midface aging.<sup>8</sup>

Age-related volume loss in the midface occurs predictably, as the discrete deep and superficial facial fat compartments both change over time.<sup>10,11</sup> It is critical to understand the sequence of compartmental fat deflation with aging, as it is integral to volumetric rejuvenation. Deep fat compartments are generally static and adhere to bone, providing structural support. In contrast, superficial fat compartments are more mobile, following the movement of muscles. Deep fat compartments tend to deflate before superficial fat compartments, causing the descent of the overlying superficial fat compartments and other cutaneous structures. Over time, bone resorption and fat compartment deflation result in flattening and descent of the malar region. Deflation of deep fat compartments resulting in malar volume loss can begin as early as the fourth or fifth decade.<sup>10</sup> In the midface, the deep fat compartments most commonly exhibiting volume loss are the lateral and medial suborbicularis oculi fat (SOOF) and the deep medial cheek fat (DMCF) compartments (Figure 2).<sup>12</sup> Age-related volume loss is also observed in the superficial layers of the cheek, mostly in the lateral fat compartments (eg, lateral infraorbital fat [IOF] compartment) and, to a lesser extent, in the middle cheek fat compartment and medial superficial fat compartments (Figure 3).<sup>12</sup> The formation of a prominent nasolabial fold (NLF) with aging is multifactorial. Aging results in the loss of zygomatic maxillary bone, selective atrophy and hypertrophy of various deep and superficial fat compartments, and soft tissue descent. Such factors can lead to inferior and medial volume shifts in the NLF, resulting in a more prominent NLF.<sup>5,8,10</sup>

In addition to the reduction in volume and descent of deep and superficial fat compartments, facial aging is accompanied by



**FIGURE 2** The deep fat compartments of the midface. White dotted line indicates the alignment of ligaments



**FIGURE 3** The superficial fat compartments of the midface

weakened facial ligaments.<sup>7</sup> A line of ligaments tethering the skin to the underlying bone is located immediately lateral to the lateral orbital rim, extending from the temple and ending at the mandibular ligament (Figure 2).<sup>13</sup> With aging, the weakening of the ligaments allows for the gravitational descent of the tissues they support, and the atrophy of the adjacent fat reveals the ligaments. Therefore, volume deflation results in identifiable skin surface grooves and

associated shadowing (eg, tear trough, palpebromalar groove, and midcheek groove).<sup>12</sup>

### 1.3 | Pretreatment patient assessment

A multifaceted treatment approach that is patient-centric is required to obtain ideal results.<sup>10</sup> Clinicians should base their treatment strategies on the assessment of the soft tissue and bony structural changes occurring due to the aging process while considering their patients' goals. Static and dynamic facial assessments (eg, smiling) from multiple angles will aid clinical evaluations of natural outcomes in rejuvenation procedures (Videos S1 and S2). Volume deficits are usually most significant in the superolateral midface (ie, diminishing ogee curve), with the remaining volume shifting more medially and inferiorly.<sup>5</sup> Therefore, it is important to consider facial anatomy, degree of volume loss, skin thickness, injection depth, and product characteristics when volumizing the midface to achieve natural-looking outcomes at rest and upon animation.

## 2 | PRODUCT SELECTION

Patients want discreet and natural-looking outcomes.<sup>14</sup> In this pursuit of natural-looking results, facial dynamics and expressions must be appreciated. Natural-looking outcomes have expanded in scope beyond static facial expressions to consider the full range of dynamic facial movement (eg, smiling, frowning, and kissing). Outcomes depend on the filler's physicochemical and rheological properties, as well as the injection technique. Therefore, clinicians must select HA-based fillers that are designed to adapt and accommodate natural dynamic facial movements. Product durability and safety are also high priorities.

Hyaluronic acid (HA) fillers need to have sufficient strength to lift or support the tissue where they are injected and then maintain that lift to support the tissue during dynamic facial movement. The dynamic strength of a gel describes the ability of the gel to maintain its physical integrity ( $G'$ ) over a wide range of dynamic forces. The complex modulus ( $G^*$ ) of a gel in a dynamic environment better reflects the mechanical resistance of the gel.<sup>15</sup> A filler also needs to move and adapt to a dynamic face for a natural look. The stretch parameter reflects the ability of the gel to deform and adapt to stress (eg, tissue stretching when smiling).<sup>15</sup> Dynamic fillers require the rheological properties of both strength and stretch to optimally treat specific areas of the face.

A variety of HA-based filler products are commercially available in the United States and are formulated with different manufacturing technologies and vary in HA concentration, degree of chemical modification, and gel composition and consistency. HA fillers are considered ideal for volume restoration because they demonstrate good clinical outcomes and longevity, have favorable safety profiles,

are biodegradable, and remain resorbable to quickly reverse an adverse event.

The most recent line of HA-based fillers to enter the US market is the Resilient Hyaluronic Acid (RHA<sup>®</sup>) range of fillers (Teoxane Laboratories), which are made of sterile, biodegradable, viscoelastic HA with a concentration of 15–23 mg/ml.<sup>15</sup> RHA products are manufactured using proprietary Preserved Network Technology, which was intentionally designed to preserve HA chain length and minimize the degree of modification (MoD) in the final product compared with traditional HA manufacturing methods, allowing for less rigidity and more extensibility of the RHA gels. The RHA products are designed to move and adapt to the repeated stresses and strains of facial movement while maintaining clinical durability.<sup>15–17</sup> Similar to endogenous HA, the RHA fillers can maintain their integrity following stretching, compression, or bending.<sup>15</sup> These properties of the RHA range of fillers align with patients' desires for a natural appearance with facial expressions and movements.<sup>14</sup> Furthermore, the preservation of HA chain length during the manufacturing process of the RHA line of fillers is advantageous because short chain or low molecular weight HAs have been shown to induce proinflammatory properties.<sup>18,19</sup>

RHA 1, currently under US Food and Drug Administration (FDA) review for approval, has the lowest MoD (1.9%) and HA concentration (15 mg/ml) in the line of RHA fillers. Designed to treat dynamic fine lines and wrinkles,<sup>20</sup> RHA 1 has the highest stretch value in the RHA range, displaying more than 10 times higher stretch scores than other selected superficial fillers.<sup>15</sup> RHA 2, with 3.1% MoD and an HA concentration of 23 mg/ml, was also designed for superficial placement.<sup>15,17</sup> It has higher stretch and lower dynamic strength, which aids in adapting to the repetitive motion of the superficial facial planes. RHA 3 has 3.6% MoD and was designed for versatility, demonstrating balanced dynamic strength and stretch properties.<sup>15,17</sup> RHA 4 has 4.1% MoD<sup>15</sup> and is the most robust product in the RHA range of fillers. It has the highest dynamic strength value, which makes it well suited for injection in areas where mechanical resistance is important (eg,

the midface). In addition, RHA 4 has sufficient stretch properties that enable it to be injected into both deep (static) and superficial (dynamic) facial compartments.<sup>15</sup>

### 3 | INJECTION TECHNIQUE

As mentioned, facial anatomy, the aging process, and the degree of observed volume deficits in the individual must be considered when restoring midface volume and shape. Midface restoration may be achieved by several approaches, targeting subcutaneous and/or deep injections for the desired aesthetic outcome.<sup>21</sup> A younger patient with minimal subcutaneous volume loss may benefit from injections in the deep fat compartments only, whereas an older subject with significant volume loss may benefit from both superficial and deep fat compartment injections. The “dual plane/layering” technique involves product placement in the deep and superficial fat compartments (Figure 4) so that midfacial volume is restored by first injecting into the deep fat compartments (ie, lateral SOOF, medial SOOF, and DMCF) to support the midcheek structures and then injecting into the more mobile superficial fat compartments for additional volume replacement, correction, and surface contouring.<sup>12</sup>

The static deep fat compartments are separated from each other by a retaining system, which helps prevent the migration of injected filler. The more mobile superficial fat compartments are also separated by septae. However, the filler may migrate in these more superficial and dynamic facial fat compartments.<sup>22</sup> Only soft tissue fillers with more dynamic properties should be injected superficially. This allows for better tissue integration to achieve optimal outcomes and natural-looking results at rest and during animation.<sup>23</sup> Reflating deep fat pads with HA before treating the superficial fat layers may result in a need for less product volume injected overall. Once the deep fat compartments have been reflated, injecting the lateral superficial fat compartments next will help to achieve a vector directed upward and posteriorly, minimizing the product needed for the middle superficial fat compartments.<sup>12</sup>

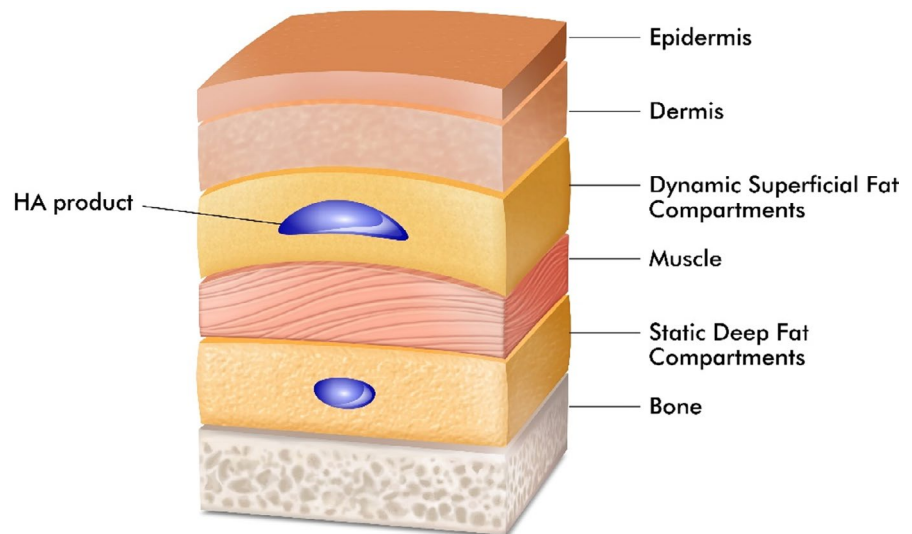


FIGURE 4 Dual-plane injection. HA, hyaluronic acid

The goal of midface volumization is to maintain a natural appearance while mitigating the risks of an overfilled appearance. Overfilling occurs from the excessive injection of filler into the dermis or subcutaneous layer. Some injectors may inject too much filler because they are assessing the volume only while the patient is at rest. However, in this case, upon smiling, the filler combined with the existing midfacial fat can lead to increased midfacial projection and the unnatural appearance of malar mounds or “apple cheeks.”<sup>24</sup> From an anatomical safety standpoint, caution needs to be taken with midcheek injections to avoid the angular, infraorbital, zygomaticofacial, and transverse facial arteries.<sup>7,25</sup>

Injection of HA-based fillers may be performed using needles, cannulas, or both. The following sections describe the optimal injection techniques for midface volumization using the dynamic RHA range of fillers.

### 3.1 | Deep fat compartment injection—small bolus needle technique

Injecting small boluses of product into the deep fat compartments with a needle creates “pillars” to support the superficial midcheek structures. RHA 4, due to its high dynamic strength, is ideal for deep fat injections to reflate observed volume deficits in the midface. The technique consists of one bolus in each deep fat compartment in the following order: lateral SOOF, medial SOOF, and DMCF if volume reflation is needed in the DMCF (Figure 5). Injections in the lateral and medial SOOF improve projection along the zygoma.

For the small bolus needle injection technique (Videos S1 and S3), the choice of needle impacts the numbers of injection points. Using a 1-inch (25-mm) needle has the benefit of allowing one injection point to deposit a single bolus each in the lateral SOOF and medial SOOF. If a 0.5-inch (~12.7-mm) needle is used, an additional injection point will be needed to deposit three product boluses, one bolus each into the lateral SOOF and medial SOOF and one into the DMCF, if volume reflation is needed. On average, each bolus consists of 0.2 ml per deep fat compartment. However, injection volumes are tailored to meet the needs and volume deficits of each patient. If more than 0.2 ml per site is required, it should be divided into smaller bolus injections. Generally, injection volumes may be higher in the lateral SOOF than in the medial SOOF.

For bolus injections using a 0.5-inch needle, the needle is inserted bevel down with a 90-degree angle to the skin surface until touching the periosteum. This ensures proper placement of the product in the respective deep fat compartment. Once the needle touches the bone, the needle is withdrawn slightly before depositing the product slowly in the deep fat compartments mentioned above. Care should be taken to not touch the bone too forcefully with the needle because that can be painful. If a punctate bleed occurs, pressure is applied to the skin after injection to help prevent bruising. Injections in the zygomatic arch area are considered less risky, as the only vessel in the area is the transverse facial artery, which is a terminal artery.

However, injectors should be vigilant to avoid the zygomatic facial vessels and nerves.<sup>25</sup> Caution should be taken to avoid the facial vein and infraorbital artery when injecting the DMCF.

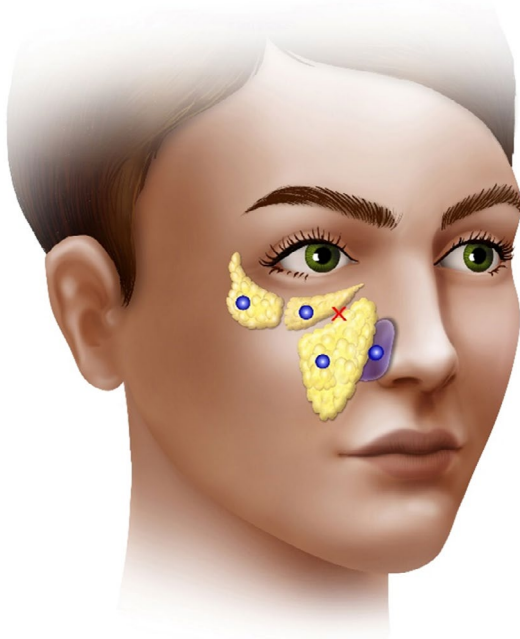
The final deep injection in the midface is performed in the pyriform fossa, or the soft triangle found lateral to the ala of the nose. Given that the angular artery is superficial in that area, the filler should be placed deeply, with the needle introduced perpendicular to the skin and the tip touching the bone before injection to ensure proper placement. A small bolus (0.2 ml) is deposited in the pyriform fossa.

Care should be taken not to overcorrect, as doing so may result in an unnatural-looking projection of the face. For deep injections, gentle massage or molding with fingers or cotton swabs is recommended after each injection to ensure the product blends into the face and to reduce visible irregularities. The same procedure is repeated contralaterally to ensure both sides are symmetrical.

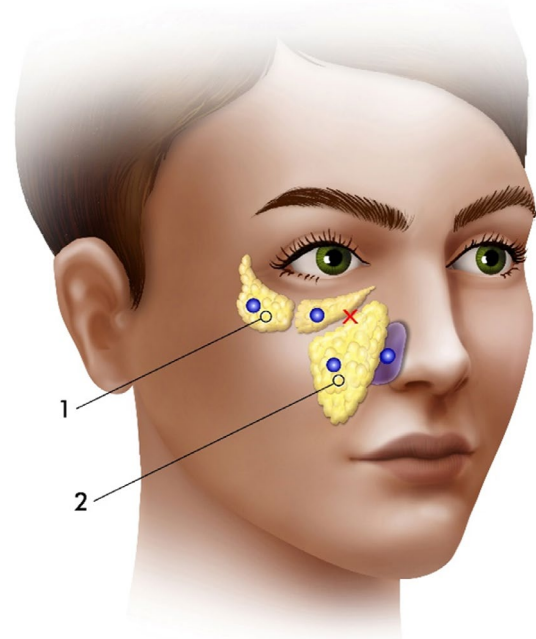
### 3.2 | Deep fat compartment injection—small bolus cannula technique

As in the needle approach, the deep fat compartments can be addressed with a cannula (Figure 6; Videos S2 and S3). For the initial midcheek treatment, the single cannula entrance point is called the Redka-Galadari (RG) entry point.<sup>26</sup> It is located 1–2 cm below the orbital rim on a line drawn vertically down from the lateral canthus (Figure 6). Although this area is considered an anatomic safe zone, knowledge of facial anatomy is crucial to avoid vascular complications.

The 23G introducer needle is inserted at a 90-degree angle until it hits the zygomatic bone to ensure proper placement of the cannula. Next, a 25G, 1.5-inch (~38-mm) cannula is inserted into the deep cheek fat. RHA 4 is optimal for deep fat injections with cannulas to address deep volume deficits in the midface. The soft tissue should be lifted with the nondominant hand to ensure the cannula passes through the deep layer (ie, the skin should not aid or direct the movement of the cannula). The tip of the cannula can be digitally controlled to ensure correct positioning so that it is lateral to the line of ligaments and corresponds to the lateral aspect of the SOOF. Here, a bolus of 0.2 ml of product is deposited in each deep fat compartment in the following order: lateral SOOF, medial SOOF, and DMCF if needed. Palmar placement of the end of the plunger allows for better control instead of placement of the thumb on the end of the syringe (Figure 7). Once a small bolus of product is placed in the lateral SOOF, the cannula is partially withdrawn and then advanced following the zygomatic arch anteriorly until it reaches the medial SOOF. For the DMCF, the cannula is partially withdrawn and reinserted in the desired direction. To treat the deep pyriform fossa, the cannula is redirected anteromedially in the deep plane, passing through the zygomatic ligament. A small bolus of the product (0.2 ml) is then deposited deep in the pyriform fossa. Gentle massage is performed after each injection to ensure the product blends into the face.



**FIGURE 5** Small bolus needle injection technique in deep fat compartments of the midface. Blue dots indicate the needle entry points and bolus of product. Red "X" indicates the infraorbital foramen



**FIGURE 6** Small bolus cannula injection technique in deep fat compartments. Open circles indicate the cannula entry points: (1) initial cannula entry point, known as Redka-Galadari (RG) entry point and (2) alternate cannula entry point. The RG point can be located 1–2 cm below the orbital rim on a line drawn vertically down from the lateral canthus. Blue dots indicate the bolus of product. Red "X" indicates the infraorbital foramen



**FIGURE 7** Palmar placement of syringe in a 72-year-old woman

An alternate entry point for the cannula is in the inferior aspect of the DMCF, just above the nasojugal groove (Figure 6). To determine the entrance point, the injector can hold the length of the cannula across the top of the skin to reach as far medially as needed. At this entrance point, the injector can address the lateral SOOF, medial SOOF, and DMCF, as well as the deep pyriform fossa, placing small boluses of the product (0.2 ml) in each respective deep fat compartment. As previously mentioned, palmar placement of the end of the plunger is recommended for better control (Figure 7). Once a bolus of product is placed in the appropriate fat compartment, the cannula is partially withdrawn,

redirected, and then reinserted in the desired direction. It is important to follow each injection with a gentle massage to ensure the product blends into the face.

### 3.3 | Deep fat compartment injection—fanning technique (needle or cannula)

Although small boluses of product in the deep fat compartments are preferred to support the midcheek structures, linear threading (retrograde or anterograde pattern), using a fanning technique with constant motion, can also be performed with a needle or cannula from the single RG entry point (Figure 6) using a 50- to 60-degree angle to the skin surface. The needle or cannula is withdrawn, although not completely, and then readvanced to address a different fat compartment. A small amount of product (0.2 ml) is evenly deposited in each deep fat compartment. The pyriform fossa may be treated with a cannula from this lateral point. The instrument is redirected anteromedially in the deep plane, passing through the zygomatic ligament. A small amount of product (0.2 ml) is then deposited in the deep pyriform fossa using a fanning (retrograde or anterograde) pattern. The fanning technique with a needle should not be used to place product in the deep pyriform fossa space. It is preferred that the procedure used for the treatment of the pyriform fossa with a needle follows what is

described above in the small bolus needle section. RHA 4 is optimal for deep fat injections with needles or cannulas to address deep volume deficits in the midcheek. Each injection should be followed by a gentle massage for product blending.

An alternate and more medial entry point with the needle or cannula to address the targeted deep fat compartments is in the inferior aspect of the DMCF, just above the nasojugal groove (Figure 6). The same fanning technique pattern can be used to place small amounts of product in the targeted deep fat compartments.

### 3.4 | Superficial fat compartment injection (needle or cannula)

Injectors should consider combining deep fat pad reflation with superficial injections in older patients or patients with significant volume loss. Placing the product in the superficial fat compartments creates a canopy over the structural support provided by the deep fat compartment injections. RHA 4, due to its inherent stretch characteristics, is an ideal product to place superficially in the lateral aspects of the midface (ie, lateral IOF) as well as the anteromedial aspects of the midface (ie, medial IOF and medial and middle fat compartments) in patients with regular to thick skin. This ability to be used for both deep and superficial injections highlights one of the unique features of RHA 4. However, RHA 2 and RHA 3 should also be considered when placing the product in the superficial fat compartments anteromedially for patients with thinner skin (Figure 8; Videos S1–S3).

In the superficial fat compartments, a fanning technique (retrograde or anterograde pattern) is recommended to be used, placing small amounts of product slowly as the needle is moved with constant motion (Figure 9). Using the same anatomical landmarks as the deep injections, the product is generally placed laterally (eg, lateral IOF and middle cheek fat) then medially (eg, medial cheek fat). If a needle is used to treat deep and superficial fat compartments, the

needle is partially withdrawn after one small bolus each is placed in the lateral and medial SOOF and then placed in the superficial fat compartments using a 30-degree angle to the skin surface. The skin should be stretched with the nondominant hand to help ensure the needle remains within the superficial fat compartments. Small volumes of the product (0.2 ml) should be evenly placed in the lateral and medial IOF, though care should be made not to overcorrect. The needle is partially withdrawn, and its direction is changed to address the targeted superficial fat compartment. The needle is inserted in the medial cheek fat compartment to address both medial and middle fat compartments, evenly placing a similar amount of product. As with deep fat compartment injections, using a 1-inch needle has the benefit of allowing fewer injection points to deposit product in the superficial fat compartments.

If a cannula is used, its entrance points can also be placed laterally or medially. The RG point (Figure 9) can serve as the lateral entrance point in the middle cheek fat compartment, using a 30-degree angle to the skin surface. Alternatively, a medial entrance point in the inferior aspect of the medial cheek fat may also be used. As with the needle, the nondominant hand is used to stretch the skin so that the cannula stays within the superficial fat layer. Product (0.2 ml) is evenly placed in the superficial fat layer to address the lateral and medial IOF. The cannula is partially withdrawn, and the direction is altered to address the medial and middle fat compartments, evenly placing 0.2 ml of product. To avoid vascular complications, superficial fat compartment injections should not target the superolateral aspect of the IOF.

As above, gentle massage or molding is performed after each injection with fingers or cotton swabs to ensure the product blends into the face. The same procedure is repeated contralaterally to ensure both sides are symmetrical.

## 4 | DISCUSSION

Midface volumization or reflation is only one aspect of a panfacial treatment approach. Injectors must have a deep understanding of facial anatomy and product characteristics to minimize the risk of complications and achieve desired outcomes. Although both needles and cannulas can be used to volumize the midface, cannulas may be safer and minimize the risk of intravascular complications.<sup>15,27,28</sup> To optimize the volume of product injected into the midface and ensure balanced treatment, clinicians must perform a full patient assessment, evaluating both deep and superficial fat compartments. Deeper fat volume deficits should be addressed before addressing superficial fat volume loss to avoid injecting too much product volume into the superficial plane. Importantly, based on patient assessment, not all patients may need to be treated for midface volumization using the multilayering technique.

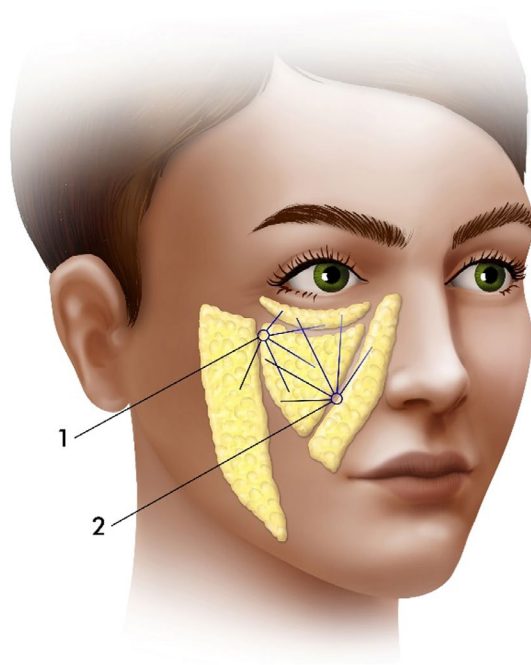
RHA products, with their optimized stretch and dynamic strength characteristics, are ideal for deep and superficial fat pad reflation. While the deep fat pads are relatively immobile due to their depth and attachment to bone, the superficial fat pads are dynamic

### RHA® Product Selection: Clinical Guidance Chart

		Midface Volumization					
		LATERAL Aspect of Mid-cheek		ANTEROMEDIAL Aspect of Mid-cheek			
SKIN THICKNESS		THIN	REGULAR/THICK	THIN	REGULAR/THICK		
DESIRED OUTCOME		SUBTLE	PRONOUNCED	SUBTLE	PRONOUNCED		
SUPERFICIAL FAT COMPARTMENTS		2	3	3	4	2	3/4
DEEP FAT COMPARTMENTS		4	4	4	4	3/4*	4*

RHA® 2   RHA® 3   RHA® 4  
\*deep pyriform fossa | RHA® Product Consideration

FIGURE 8 RHA® product selection: clinical guidance chart



**FIGURE 9** Injection technique for superficial fat compartments using a needle or cannula. Open circles indicate the cannula entry points: (1) initial cannula entry point, known as Redka-Galadari (RG) entry point and (2) alternate cannula entry point. The RG point can be located 1–2 cm below the orbital rim on a line drawn vertically down from the lateral canthus. Lines indicate fanning injection technique used by needle or cannula

and will move with facial animation, such as with smiling. Dynamic fillers, such as the RHA Collection, can be placed in both deep and superficial planes, resulting in more subtle, soft, and natural-looking contours. Within the context of the RHA line of dermal fillers, RHA 4, due to its high dynamic strength, performs well not only when placed in the deeper planes to address deep volume deficits but also when placed in superficial fat compartments, due to its stretch characteristics. Because RHA 4 has a stretch score twice that of several other FDA-approved and commercially available HA products,<sup>15</sup> it is more extensible and, therefore, can easily move and adapt with the face upon animation, resulting in natural-looking outcomes during expression. A dynamic filler is advantageous over a rigid or firm filler for midface reflation of superficial fat compartments to avoid an overfilled and/or “apple cheek” appearance. The potential to use one product, RHA 4, for both deep and superficial layering is novel. For patients with thinner skin, RHA 2 or RHA 3 should be considered for volume reflation in the superficial dynamic planes of the midface (Figure 8). For these reasons, based on the authors’ clinical experience, RHA fillers are well suited to achieve desired outcomes for a dynamic face.

#### CONFLICT OF INTEREST

HG has received honoraria from and served on advisory boards for Beiersdorf (Hamburg, Germany), FillMed Laboratories (Paris, France), Galderma (Lausanne, Switzerland), Matex Lab (Geneva,

Switzerland), Merz Aesthetics (Frankfurt, Germany), and Revance Therapeutics, Inc. (Nashville, TN, USA). He reports no conflict of interest pertaining to this article. SHW has received honoraria from Allergan Aesthetics, an AbbVie company (Dublin, Ireland), Almirall (Barcelona, Spain), Derm Avance Pharmaceuticals, Inc. (Malvern, PA, USA), Ethicon (Bridgewater, NJ, USA), Evolus (Newport Beach, CA, USA), Galderma Laboratories, L.P. (Fort Worth, TX, USA), Merz Aesthetics, Proctor & Gamble (Cincinnati, OH, USA), Revance Therapeutics, Inc., Sinclair (London, UK), and Teoxane Laboratories (Geneva, Switzerland).

#### ETHICS APPROVAL

The authors confirm that the ethical policies of the journal, as noted on the journal’s author guidelines page, have been adhered to. No ethical approval was required as this article does not report original research data. Informed consent was obtained.

#### DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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#### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

**How to cite this article:** Galadari H, Weinkle SH. Injection techniques for midface volumization using soft tissue hyaluronic acid fillers designed for dynamic facial movement. *J Cosmet Dermatol*. 2022;21:924–932. doi:[10.1111/jocd.14700](https://doi.org/10.1111/jocd.14700)