

CLINICAL ANATOMY/REGIONAL APPROACHES

Lower Face: Clinical Anatomy and Regional Approaches with Injectable Fillers

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F1

The mandible (or inferior maxilla) consists of an inferior portion that has a horseshoe-like appearance, denominated body of the mandible, and 2 perpendicular parts, which are the mandibular ramus. The external surface is marked in the median line by a faint ridge, indicating the symphysis or line of junction of the 2 pieces of which the bone is composed at an early period of life. We name mandibular line the area between the mentum and the angle of the mandible (Fig. 1).¹

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Different mechanisms explain the aging process of the mandible contour:^{2,3}

Atrophy of the superior and inferior mandibular fat compartments, specially the submandibular compartment;

Dehiscence of the mandibular septum causing the superior and inferior compartments to move downward to the neck;

Bone resorption;

Skin laxity.

Fat Compartments and Ligaments

Reece, Pessa, and Rohrich⁴ described 4 fat compartments in the mandibular region. Two of them over the inferior mandibular border, named superior and inferior mandibular fat compartments; a submandibular fat compartment; and another covering the parotid-masseteric fascia. (See Video, Supplemental Digital

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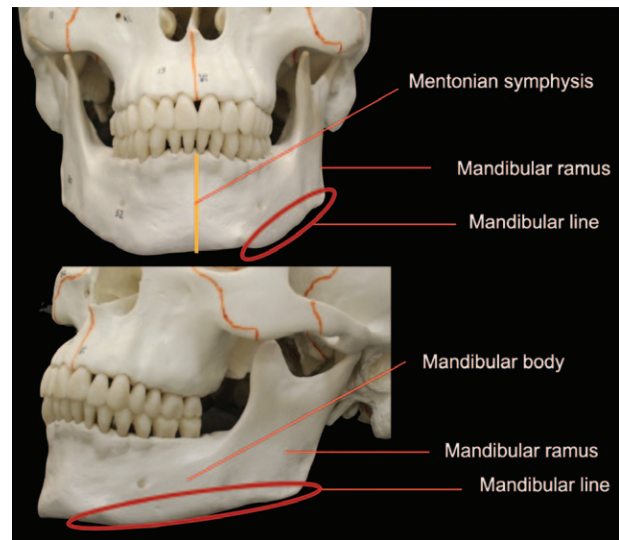


Fig. 1. Anatomical features of the mandible.

Content 1, which demonstrates lifting the fresh cadaver's skin to show the superficial fat compartments of the face, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSB468>.)

The lower face's fat compartments have 2 layers: the superficial fat compartment and the deep fat compartment (Figs. 2 and 3).⁵

Mandibular septum is a membranous septum that separates the 2 compartments located

Valeant (consultant), Galderma (consultant, advisory board), and Sunvea (advisory board). Dr. de Maio has no financial interest in any of the products, devices, or drugs mentioned in this article. Dr. de Maio is a consultant and speaker for Allergan. Dr. Sadick has associations with Allergan (grants/research funding, honoraria), Galderma Laboratories, L.P. (honoraria), and Valeant Pharmaceuticals International (grants/research funding, honoraria). Drs. Trevidic, Criollo-Lamilla, and Garcia have no financial interest in any of the products, devices, or drugs mentioned in this article.

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Video 1. Supplemental Digital Content 1, demonstrating lifting of the fresh cadaver's skin to show the superficial fat compartments of the face, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSB468>.

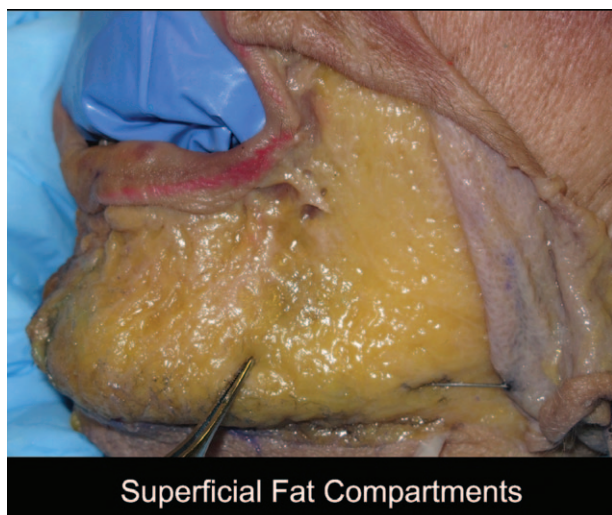


Fig. 2. The lower face of a cadaver shows the superficial layer of fat compartments.

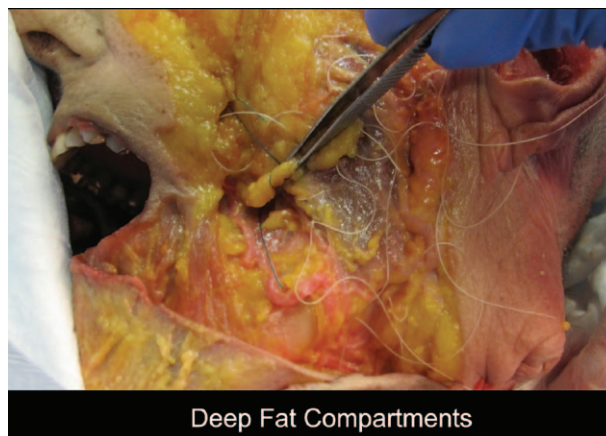


Fig. 3. The midface and lower face of a cadaver show the deep layer of fat compartments. The tip of the tool shows the deep portion the buccal fat pad.

over the mandibular edge from the submandibular fat compartment. Fibers from the platysma intermingle with the mandibular septum and are inserted at the anterior border of the mandible. Behind the depressor anguli oris (DAO) muscle, inserting the skin, is the mandibular ligament (Fig. 4).⁴

F4

MUSCLES

The mental area is composed of 3 muscles: DAO muscle, depressor labii inferioris (DLI) muscle, and mental muscle. These muscles merge inferiorly with the platysma.⁶ It is important to remember the relation of these muscles with the orbicularis oris muscle (Fig. 5).

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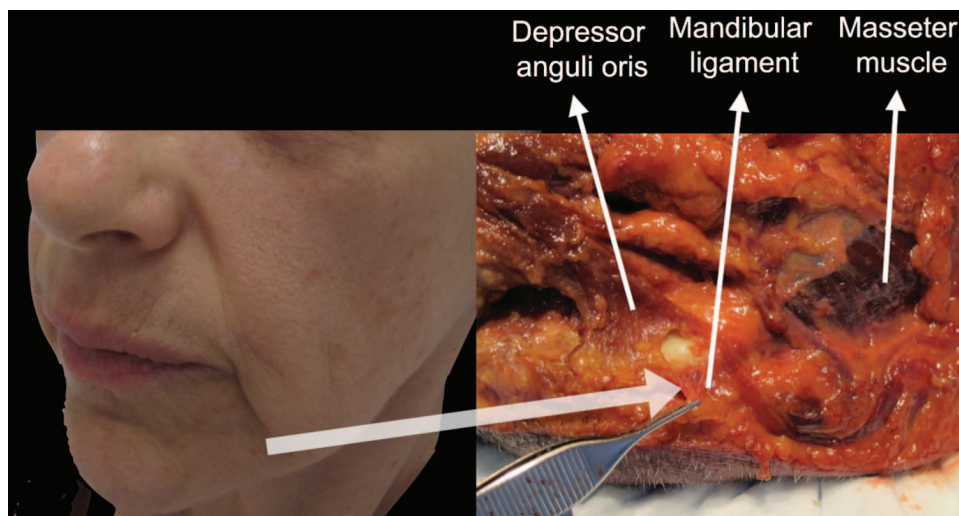


Fig. 4. The marionette fold and the jowl, in this female patient, are explained by the mandibular ligament in the cadaver's picture. The latter still shows the DAO muscle and the masseter muscle.

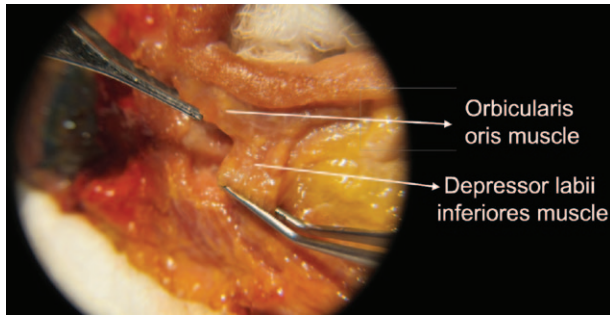


Fig. 5. The lower face of a cadaver shows the orbicularis oris muscle and the DLI muscle.

Orbicularis Oris Muscle

Origin and insertion: It is not merely a sphincter muscle like the orbicularis oculi. It consists of numerous strata of muscular fibers surrounding the mouth orifice with different directions. It consists partly of fibers derived from the other facial muscles, which are inserted into the lips, and partly of fibers proper to the lips. Of the former, a considerable number are derived from the buccinator muscle and form the deeper stratum of the orbicularis. The medial fibers decussate at the angle of the mouth: those arising from the maxilla passing to the lower lip, and those from the mandible to the upper lip. The uppermost and lowermost fibers of the buccinator pass across the lips from side to side without decussation. Superficial to this stratum is a second one, formed on either side by the levator and DAO, which cross each other at the angle of the mouth; those from the levator passing to the lower lip, and those from the depressor to the upper lip, along which they run, to be inserted into the skin near the median line. In addition to these, fibers from the levator labii superioris, the zygomaticus, and the DLI intermingle with the transverse fibers above described, and have principally an oblique direction. The proper fibers of the lips are oblique and pass from the under surface of the skin to the mucous membrane, through the thickness of the lip. There are also fibers that connect the muscle with the maxilla and the septum of the nose above and with the mandible below (Fig. 5).^{6,7}

Function: Closes and projects the lips outward. It is responsible for perioral rhytides formation.⁸

Innervation: Buccal branches from facial nerve.⁶

Depressor Labii Inferioris Muscle

Origin and insertion: This muscle arises from the line of the mandible going upward to insert at the lower lip (Figs. 5 and 6).⁹

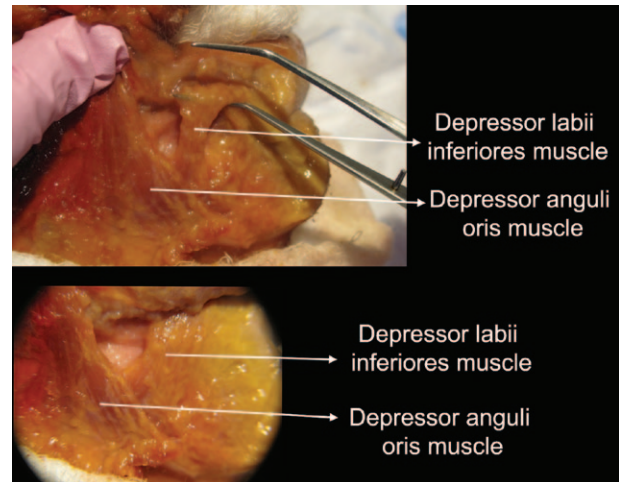


Fig. 6. The lower face of a cadaver shows the DLI muscle and the DAO muscle.

Function: It helps to depress the lower lip.

Innervation: Mandibular branch of the facial nerve.

Depressor Anguli Oris Muscle

Origin and insertion: It arises from the oblique line of the jaw where its fibers converge to be inserted into the angle of the mouth. At its origin, it fuses with the platysma, and at its insertion with the orbicularis oris and risorius muscle (Fig. 6).^{10,11}

Function: This muscle depresses the corner of the mouth.¹⁰

Innervation: The mandibular branch of the facial nerve.⁷

Mentalis Muscle

Origin and insertion: It originates from mandible, covers the mentum, and inserts into the skin below the lower lip (Fig. 7).¹²

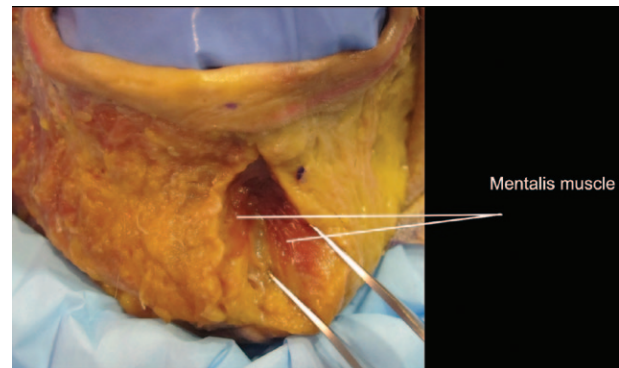


Fig. 7. The lower face of a cadaver shows the mentalis muscle between the superficial and deep fat compartments of the chin.

Function: It elevates and projects the lower lip outward. At the same time, it causes wrinkling of the chin skin. Hypertrophy of the mentalis muscle results in the formation of a fold and creates a “witch chin” look.¹⁰

Innervation: Mandibular branch of the facial nerve.⁷

Masseter

The masseter has a square shape and comprises a superficial and a deeper portion. (See **Video, Supplemental Digital Content 2**, which demonstrates a simulation, with hyaluronic acid, on the cadaver in the superficial fat compartment temporolateral below the skin and above the masseter muscle, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B469>.) The superficial portion is the largest and arises from the zygomatic process and from the anterior two-third of the inferior border of the zygomatic arch. Its insertion is at the angle and inferior portion of the mandibular ramus. The deeper portion arises from the posterior third of the inferior border of the zygomatic arch and is inserted at the superior half of the mandibular ramus. The posterior rim of the masseter is covered by the parotid gland and the anterior margin projects over the buccinators. The parotid gland’s duct (Stensen duct) arises from the anterior part of the gland, crosses the masseter muscle, and at its anterior border penetrates into the buccinator to enter the oral cavity at the level of the second superior molar (Fig. 8).^{6,13}

Vascularization

Generally, the facial artery appears 3 cm in front of the jaw angle and its pulsation can be



Video 2. Supplemental Digital Content 2, a simulation, with HA, on the cadaver in the superficial fat compartment temporolateral below the skin and above the masseter muscle, is available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B469>.

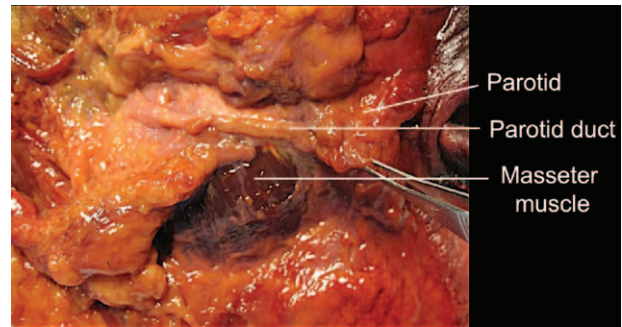


Fig. 8. The lower face of a cadaver shows the parotid, the parotid duct, and the masseter muscle.

easily felt. A lot of vascular branches will appear after that: facial artery, inferior lip artery, superior lip artery, angular artery (Fig. 9).

Laterally and deeper than the facial artery and respective branches (inferior lip artery and superior lip artery), we can notice the facial vein (Fig. 10).¹⁴

Innervation

The inferior teeth are localized in the alveolar part of the mandible. Below the second premolar tooth, on either side, midway between the upper and lower borders of the body, is the mental foramen for the passage of the mental vessels and nerve. The mental nerve provides a sensory innervation; because of that, the chin and prejowl sulcus area are very painful.

On the other hand, in the motor innervation of the lower face, the branches of the motor nerve are buccal branches and marginal mandibular branch. The latter promotes the motor innervation of the corresponding region and also provides the sensory innervation of the same area (Fig. 11).¹⁵

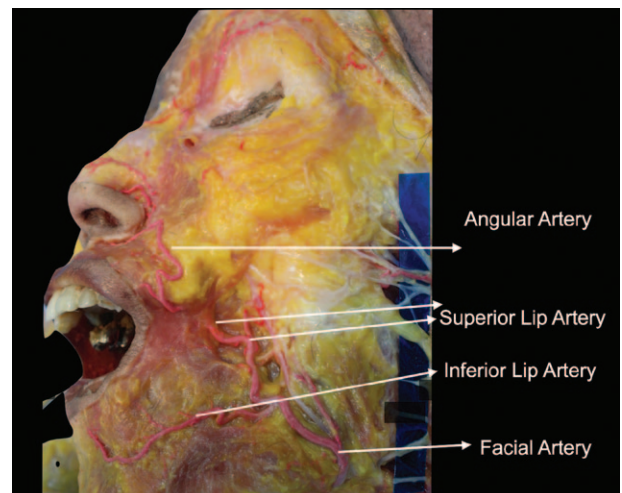


Fig. 9. The facial artery and branches: inferior lip artery, superior lip artery, and angular artery.

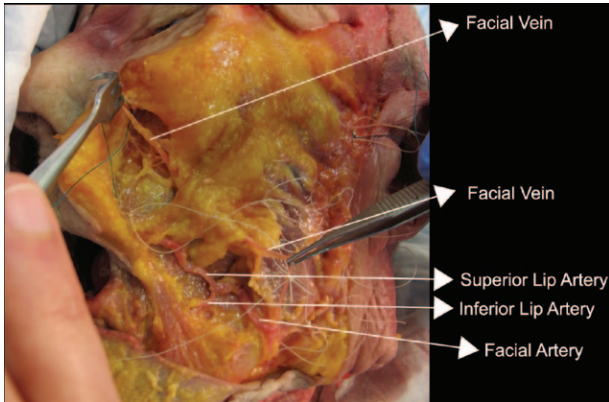


Fig. 10. The facial artery with branches: inferior lip artery, superior lip artery. The facial vein is more lateral and in a deeper position than the artery. The facial vein can be seen inside of the deep fat compartment of the midface.

Melomental Folds

The melomental folds are the crease formed between the commissures of the mouth and the area beside of the chin. We can notice the sequence of the layers of this area: skin, superficial fat compartment, final fibers of the platysma muscle, deep fat compartment, DAO muscle, and the bone.⁷

Jawline and prejowl sulcus: As we told you before, the mandibular line is the area between



Fig. 11. The buccal and the mandibular marginal branches of the facial nerve.

the chin and the jaw angle. The sequence of the layers of this area is as follows: skin, superficial fat compartment, final fibers of the platysma muscle, deep fat compartment, and the bone (Fig. 12).^{4,16} (See Video, Supplemental Digital Content 3, which demonstrates HA, in *green*, in the superficial fat compartment temporolateral above the masseter muscle, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B470>.)

The prejowl sulcus is the area between the chin and the jowl. The jowl begins after the mandibular ligament. The sequence of the layers of this area: skin, superficial fat compartment, final fibers of the platysma muscle in fusion with the DAO muscle, deep fat compartment, and the

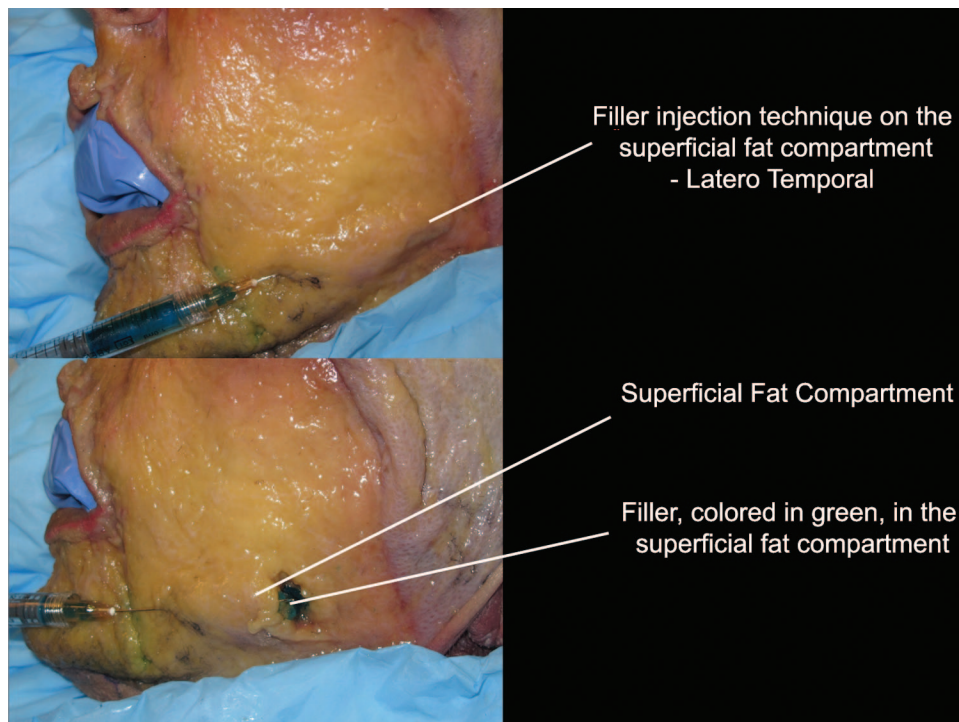


Fig. 12. A simulation, with a heavier HA, on the cadaver in the superficial fat compartment temporolateral above the masseter muscle. (Below) After the dissection, we can notice the HA (in *green*) in the superficial fat compartment temporolateral above the masseter muscle.



Video 3. Supplemental Digital Content 3, showing HA (in green) in the superficial fat compartment temporolateral above the masseter muscle, is available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B470>.

F13 bone (Fig. 13).^{4,16,17} [See Video, Supplemental
v4 **Digital Content 4**, which demonstrates HA, in green, in both layers of fat compartments (superficial and deep), in other words, below and above the DAO and platysma muscles, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B471>.]

Chin

The chin is composed for the structures above of the mental’s symphyses. The sequence of the layers of this area: skin, superficial fat compartment, mental muscle, deep fat compartment, and the bone (Fig. 14). (See Video, Supplemental Digital Content 5, which demonstrates the chin area with the skin lifted to expose the superficial fat compartment, the 2 portions of the mentalis muscle, and the deep fat compartment, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B472>.)

Braz et al¹⁰ described a combined technique to prejowl sulcus augmentation with HA filler and botulinum toxin injections on DAO muscle, depressor inferioris labii muscle, and mentalis muscle. (See Video, Supplemental Digital Content 6, which demonstrates a simulation with HA, on the cadaver in the deep fat compartment of the chin with the HA in green. We can notice above the injection site the mentalis muscle and the superficial fat compartment of the chin. This video is available in the “Related Videos” section of the full-text article on PRSJJournal.com

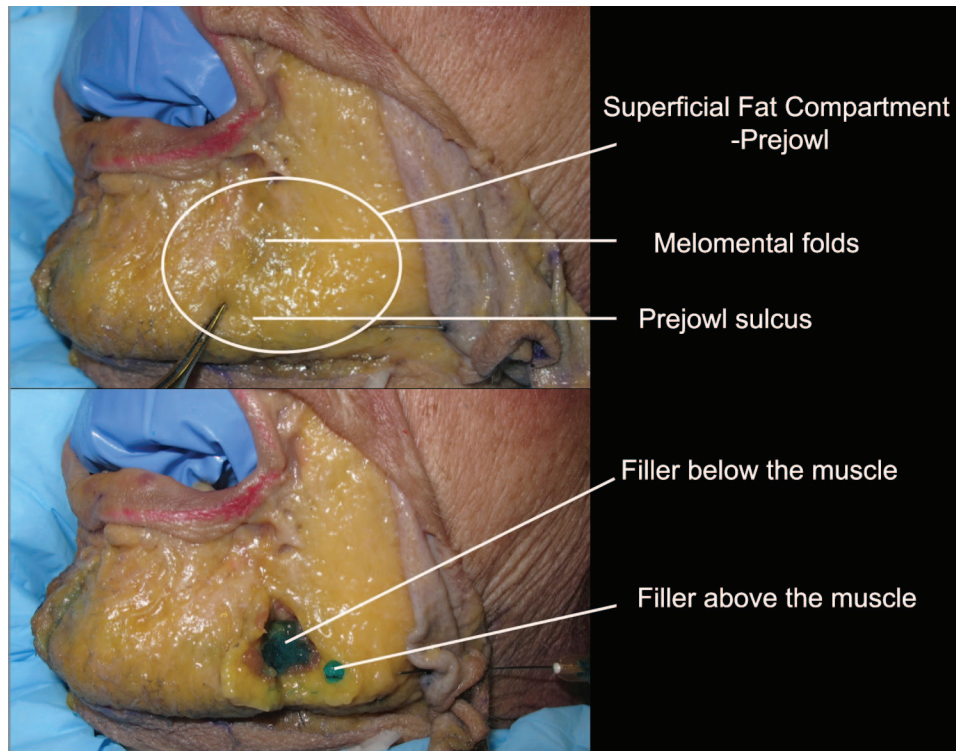


Fig. 13. (Above) The superficial fat compartment of the prejowl area. Inside the circle are the melomental folds and the prejowl sulcus area. (Below) After the dissection of the prejowl sulcus area, we can notice the HA (in green) in both layers of fat compartments (superficial and deep), in other words, below and above the DAO and platysma muscles.



Video 4. Supplemental Digital Content 4, showing HA (in green) in both layers of fat compartments (superficial and deep), in other words, below and above the DAO and platysma muscles, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B471>.

or, for Ovid users, at <http://links.lww.com/PRS/B473>.) The author believes that the combined technique provides a much better result to the cosmetic treatment of the chin and the prejowl sulcus (Fig. 15).

Lips

The landmarks to the perfect lips are some structures very well defined: convex upper and

lower lips, commissures, philtral column and philtral groove, Cupid's bow, tubercle, white roll, and vermillion (Fig. 16).¹⁸

The lips are formed by an outer portion represented by the skin and its annexes, a transition zone, known as lip vermillion or semimucosa, and an inner portion, called lip mucosa. The lip mucosa is wet while the other portions are dry. The orbicularis oris muscle inserts its fibers at the boundary between the semimucosa and lip mucosa and defines 2 fat compartments, described previously by Rohrich et al¹⁹:

Superficial fat compartment, under the semimucosa and above the orbicularis oris muscle (Fig. 17).

Deep fat compartment, below the orbicularis muscle and above the lip mucosa (Fig. 17).

-André Braz, MD

REGIONAL APPROACHES

Lips

Shannon Humphrey, MD, FRCPC, FAAD, Vancouver, BC

In the lip, individual anatomical assessment and specific treatment goals dictate the choice

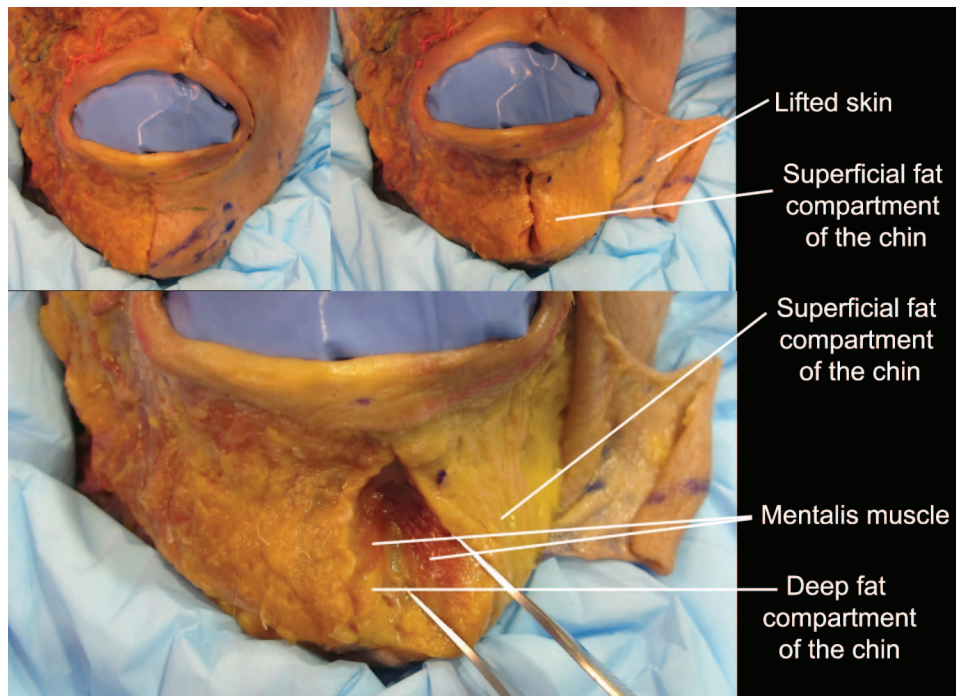


Fig. 14. (Above) The chin area before and after the skin is lifted to expose the superficial fat compartment of this area. (Below) The superficial and deep fat compartments of the chin and the 2 portions of the mentalis muscle.



Video 5. Supplemental Digital Content 5, showing the chin area with the skin lifted to expose the superficial fat compartment, the 2 portions of the mentalis muscle, and the deep fat compartment, is available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B472>.

of filler. To improve lip texture without significant augmentation or alteration in size or shape, the injection of a soft HA filler with high flow capacity (low G' and viscosity) in the immediate submucosal plane reduces the likelihood of lumping and facilitates tissue integration for a smoother and softer look. Using a lighter product allows for very superficial injection, which softens



Video 6. Supplemental Digital Content 6 shows a simulation with HA on the cadaver in the deep fat compartment of the chin, with the HA in green. We can notice the mentalis muscle and the superficial fat compartment of the chin above the injection site, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B473>.

vertical rhytides in the vermillion lip and imparts a hydrated and more radiant appearance. In the video, I am using Juvéderm Volbella (15-mg/mL HA). (See Video, Supplemental Digital Content 7, which demonstrates Dr. Shannon Humphrey’s personal approach to lip treatment, available in the “Related Videos” section of the full-text article

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V7

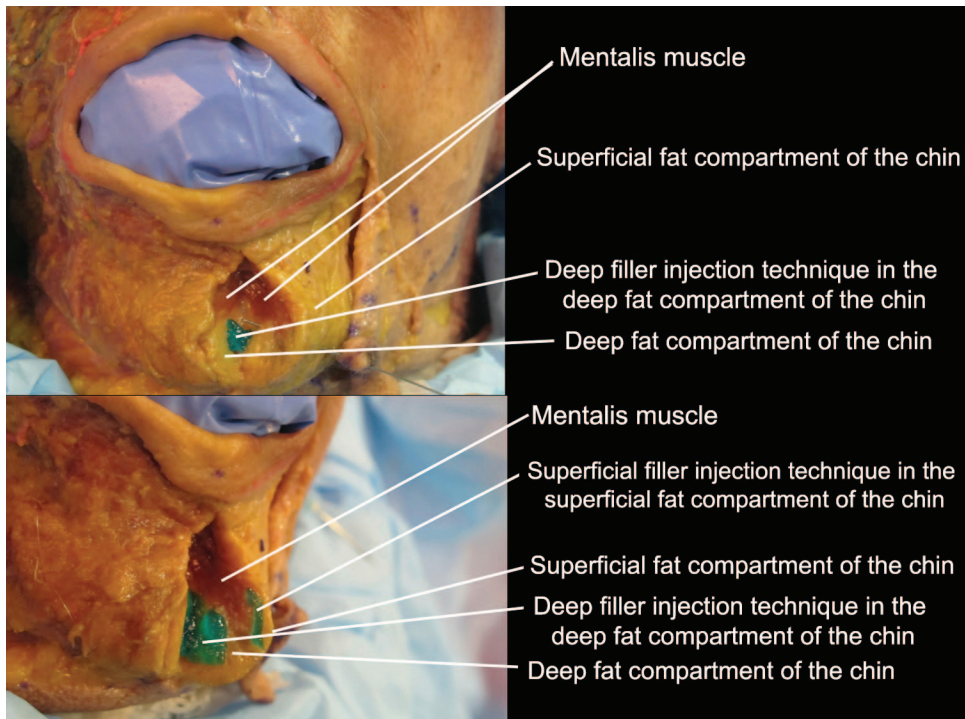


Fig. 15. (Above) The superficial fat compartments of the chin, the 2 portions of the mentalis muscle, and the deep fat compartments of the chin with the HA in green. (Below) The HA, in green, inside both layers of the fat compartments (superficial and deep). Between those layers of fat compartments we can notice the mentalis muscle.

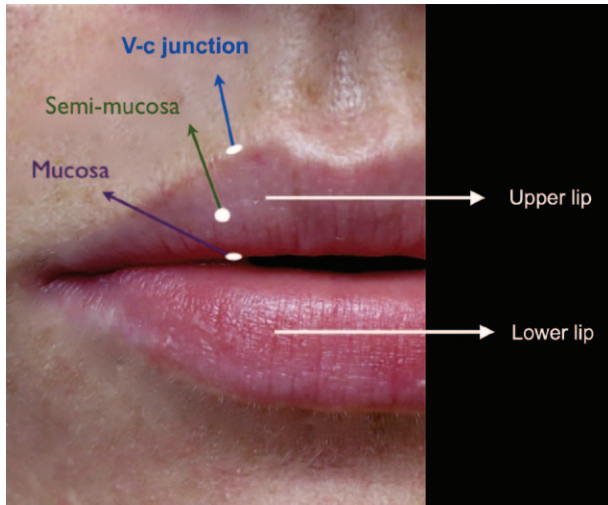


Fig. 16. We can notice on the upper and lower lips the vermilion-cutaneous junction (V-C junction), semimucosa (or dry mucosa), and mucosa (or wet mucosa).

on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B474>.) For injection in orbicularis oris or the deep fat pad, an HA filler with intermediate flow and lift capacity (intermediate G' and viscosity) augments the size and shape of the lip, depending on the injection technique, and offers some substance and support in the

deeper lip while retaining a soft, natural look and feel. In the videos, I am injecting Juvéderm Volift (17-mg/mL HA).

I use a combination of needles and cannulas in the lip. In my experience, cannulas reduce the risk of bruising and may mitigate swelling, although they can be technically more difficult to use in the highly mobile free lip. I prefer a 30-gauge 1-inch microcannula (TSK Laboratory, Vancouver, BC or Dermasculpt) when using a cannula, particularly for immediate submucosal injection. For muscular or deep fat pad injections, or to augment the angle of the mouth, I use a 28-gauge 3/4-inch hypodermic Excel needle.

When it comes to the lips, less truly is more. Conservative treatments will often provide the best combination of subtle aesthetic enhancement and patient satisfaction (Figs. 18 and 19). Moreover, our deeper understanding of facial aging and anatomy—the complex anatomical relationships of various tissues (bone, muscle, fat, and skin)—means we no longer treat certain areas in isolation but take a more global approach to rejuvenation.

Overzealous augmentation of the lip without regard to proper lip proportions in the context of the face as a whole is a common pitfall. Big

F18, F19

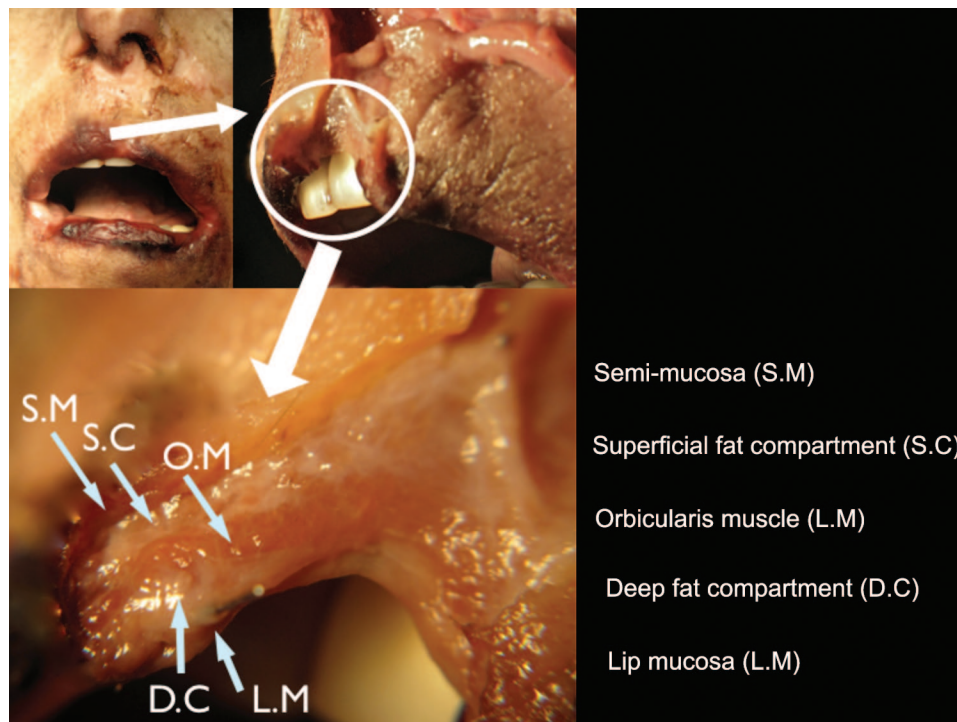


Fig. 17. On the fresh-frozen cadaver after a sagittal cut on the upper lip, we can notice semi-mucosa (S.M), superficial fat compartment (S.C), orbicularis muscle (O.M), deep fat compartment (D.C), and lip mucosa (L.M).



Video 7. Supplemental Digital Content 7, showing Dr. Shannon Humphrey's personal approach to lip treatment, is available in the "Related Videos" section of the full-text article on PRSJourn.com or, for Ovid users, at <http://links.lww.com/PRJ/B474>.

AQ5

does not necessarily mean beautiful. The PHI approach²⁰ provides an excellent framework for beautification in contrast to rudimentary size augmentation (the infamous duck lip), which is out of date and greatly feared by patients themselves. Isolated lip treatment in a patient with other significant signs of facial aging will also lead to less satisfactory results; a youthful lip without an integrated, combination approach will always look unnatural on the aging face.

Although it is tempting to augment the white roll alone in aging patients who have lost definition of the vermilion border, doing so often leads to rigid and unnatural results. Since most of these individuals suffer from loss of perioral volume and bony support, revolumizing the surrounding structures produces a lip that is better supported, slightly everted, and more natural looking in appearance than augmenting the white roll alone. Lengthening of the white lip occurs with aging and results in decreased projection and eversion of the vermilion lip. Poly-L-lactic acid injected in the piriform fossa produces a natural looking eversion of the upper lip and shortening of the

white lip that is—in my experience—difficult to achieve by injection of the lip itself.

When treating the lips, I almost always combine HA with low-dose onabotulinumtoxinA (typically 4 U, with a dilution of 2.5 mL/100 U) divided circumferentially into 8 evenly spaced injection points in the orbicularis oris muscle. Neuromodulators alone offer subtle eversion of the lips and softening of vertical rhytides, whereas combination therapy in the perioral region prolongs the duration of effect compared with either treatment alone.²¹

The aesthetic endpoint is highly individualized and can only be determined after a careful facial assessment. A "cookie cutter" approach rarely works in the lip and is the root cause of the "trout-pout" phenomenon.

The labial artery can be affected, leading to hematoma and—less commonly—vascular occlusion. A thorough grasp of anatomy is required before injecting in all anatomic areas.

Susan Weinkle, MD, Bradenton, Fla.

Successful lip rejuvenation begins with careful assessment of each patient's unique perioral and lip anatomy. While identifying aesthetic strengths and weaknesses and balancing the patient's goals with realistic clinical outcomes, I create a rejuvenation plan. In general, most patients desire a natural, age-appropriate look.

Throughout my experience with a multitude of injectable aesthetic treatment modalities, I have found specific products that target some of the aging symptoms my patients find troublesome. For perioral lip barcode treatment as well as general lip enhancement, Restylane Silk HA is my first choice, for its ability to evenly spread within the submucosal plane. For the patient requiring primarily lip volume and contour augmentation, I prefer the more soft and malleable Juvéderm Ultra. Regardless of the HA product chosen, I find it advantageous to blend in 0.2 mL of lidocaine

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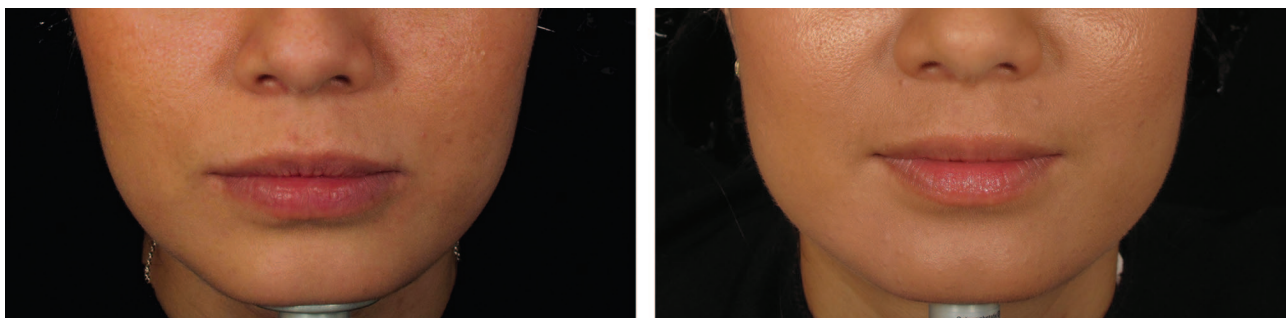


Fig. 18. Before (left) and after treatment (right) with 4 U of onabotulinum toxin A, 1 mL of 15 mg/mL cohesive HA filler, and 0.5 mL of 20mg/mL cohesive HA filler.



Fig. 19. Before (left) and after treatment (right) with 4 U of onabotulinum toxin A, 1 mL of 15 mg/mL cohesive HA filler, and 0.5 mL of 20mg/mL cohesive HA filler.

with epinephrine. This causes slight vasoconstriction, thereby reducing the incidence and severity of ecchymosis. Controlled injection speed is also extremely important.

Beyond choosing the best product, I find the instrument of delivery critical for achieving ideal results. Generally, I use 30-gauge ½-inch needles, 30-gauge 1-inch needles, and a variety of 27- and 30-gauge cannulas. However, I continue to return to the 30-gauge ½-inch needle, which provides the most precise injection control. I frequently use cannulas on the upper lip barcode for the horizontal injection and then, if needed, efface fine lines with a 31-gauge needle. (See Video, Supplemental Digital Content 8, which demonstrates Dr. Susan Weinkle's technique to lip rejuvenation, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B475>.) To avoid lip distortion during injection, I prefer to use topical anesthesia and "talk" anesthesia rather than local blocks.

The anatomy of the lips is very complex. It is important to address each area. Aesthetically notable features include the oral commissure, white roll, ergotrid and barcode, Cupid's bow, Cupid's peak, Glogau-Klein (G-K) point, philtral columns, tubercles, and wet dry line in addition to the overall balance of upper and lower lip volume. It is also necessary to understand the surrounding vascular anatomy and the depth of vessels to avoid an inadvertent and potentially serious vascular occlusive event.

Many patients find aging perioral anatomy a hindrance to their self-confidence and personal interactions. Most commonly, turned down oral commissures can communicate sadness, even in an adynamic face. Treating this area with the support of HAs, while relaxing the depressor angularis oris muscle with a neuromodulator, can make a significant difference in a patient's appearance and quality of life.

As we mature, the upper lip elongates and flattens. By adding volume to the piriform aperture and enhancing the philtral columns, the perioral area can be significantly enhanced. It is important to note that the philtral columns in the mature patient are narrow at the base of the nose and widen as they meet the G-K point. It is desirable to add slight accentuation at the G-K point, thereby enhancing Cupid's peak. When adding volume to the lip, I start at the lateral wet dry line and inject slowly anterograde. Once the overall desired volume has been achieved, it may be necessary to accentuate the upper and lower lip tubercles to avoid a "sausage lip" look. Classically, the maximum volume should be in the middle two-thirds of the lips tapering off laterally to the corners.

Before injecting the entire volume of HA, it is recommended that you pause and show the patient his or her progress. If an area is not adequately



Video 8. Supplemental Digital Content 8, showing Dr. Susan Weinkle's personal technique to lip rejuvenation, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B475>.

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filled, you can still have enough remaining filler for augmentation without having to utilize a second syringe.

One must remember that the aesthetic endpoint in lip rejuvenation is extremely variable. The patient's age, initial volume, and facial shape are important variables. Many patients require gradual lip augmentation over a number of treatments. I have also noted that over time with repeat injections, most patients require far less product to maintain their desired goal.

Fortunately, lip injections are overall safe, with only a few potential adverse side effects. Excessive or unbalanced injections are of course undesirable. Occasionally, small nodules may result from too much product injected in a small space. This can either be expressed or dissolved with hyaluronidase. Frostbite can result from prolonged exposure to ice post injection, especially if anesthesia is used. The most concerning adverse event of course is vascular occlusion. Fortunately, due to the depth of the arteries and the collateral circulation in this area of the face, this complication is uncommon.

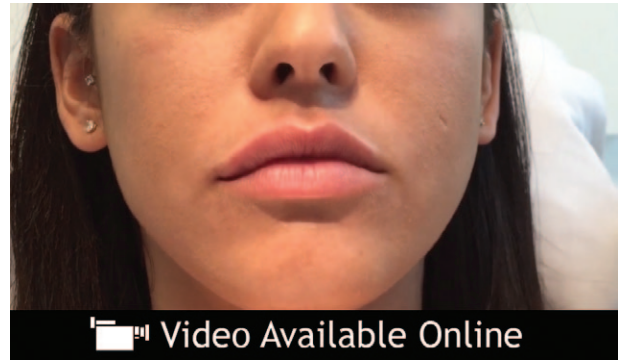
Following these basic guidelines, I have been able to achieve beautiful lip rejuvenation that is extremely gratifying for both the patient and physician.

G. Jackie Yee, MD, Miami, Fla.

When considering lip injections, I determine whether a patient needs volumization and/or definition and accentuation.

A patient with a well-defined lip border may need pure volumization and augmentation. The product of choice is Juvéderm Voluma. It gives the lushness and softness that is desirable in lips. It has a long duration and it causes very little immediate edema after injection. (See **Video, Supplemental Digital Content 9**, which demonstrates Dr. G. Jackie Yee's personal approach to lip injections with HA for augmentation using Juvéderm Voluma injections to the lips for augmentation, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B476>.)

I use Restylane Silk in patients with perioral rhytides, patients who need more definition to their lip border, and patients with shape asymmetries. (See **Video, Supplemental Digital Content 10**, which demonstrates Dr. G. Jackie Yee's personal approach to lip injections with HA for definition, accentuation, and wrinkle correction using Restylane Silk injections to the lips to define and accentuate the shape and correct perioral



Video 9. Supplemental Digital Content 9, showing Dr. G. Jackie Yee's personal approach to lip injections with HA for augmentation using Juvéderm Voluma, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B476>.

wrinkles, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B477>.) I like the very precise correction and fine tuning accomplished with Restylane Silk.

I use the needles that come with the products (not cannulas). I blend the 1-cm³ syringe of Juvéderm Voluma with 0.15 cc of 1% lidocaine with epinephrine (1:100,000) for increased anesthetic effect and smoother, softer results.

It is important to inject products slowly and precisely into lips. I believe that fast injections lead to more irregularities, less precise placement, and more immediate swelling. I use very minimal massage or manipulation after placing the product. I inject using both anterograde and retrograde techniques, changing my needle frequently.



Video 10. Supplemental Digital Content 10, showing Dr. G. Jackie Yee's personal approach to lip injections with HA for definition, accentuation, and wrinkle correction using Restylane Silk injections to define and accentuate lip shape and correct perioral wrinkles, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B477>.

The amount of product injected should be for full correction or full augmentation. No over-correction should ever be performed on lips. Proper anatomical proportions of the lips in relation to the patient's face and anatomy should be respected.

Intraarterial injection and subsequent tissue necrosis and compromise can be avoided by knowledge of the location and depth of the labial artery.

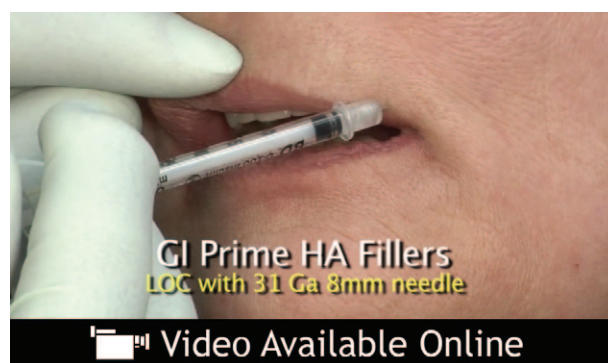
B. Kent Remington, MD, FRCP, Calgary, AB

"Lip Blueprint." the aim of this short video and the blueprint discussion below is to assist in creating the beautiful lip in Caucasian patients and patients with skin of color. There is a difference between inflation, reflation, enhancement, augmentation, and restoration. Most patients just want the lips they once had. Evaluation of good-resolution, nonanimated youthful photographs usually in the early 20s is very instructive in this regard and can help with evaluating what the philtral columns were like, the presence or absence of a vermilion tubercle, and what the balance of the upper and lower lips were like. In lip restoration, we are really trying to create a form of biomimicry—mimic what the lips looked like, say 10 years ago.

Lip and perioral animation. Evaluation of the perioral animation and how this affects the appearance of the lips is an important consideration. Evaluate for lip pursing, gummy smiles (2 main types—"roll-up blind" and "Venetian blind"—require a different neuromodulator approach), and strong pull of the DAO giving the patient a pouty, grumpy look. Exaggerated chin dimpling when talking, chewing, and other animation can detract from the youthful appearance of the lip and perioral area. Neuromodulators can erase these undesirable features.

The patient in this video did not require any neuromodulator in the upper lip zone, but I injected 4 U of Botox in both DAOs. (See Video, **Supplemental Digital Content 11**, which demonstrates Dr. B. Kent Remington's unique technique to lip injections using his formulated lip blue print approach, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSB478>.)

Lateral oral commissure management is key to the youthful look of the lips—this zone is so easily treated poorly. Products like Restylane Silk (fine lines) or Juvéderm Volbella do not have enough viscosity and lifting ability to lift the downturned LOC. The techniques to recreate the strut



Video 11. Supplemental Digital Content 11, showing Dr. B. Kent Remington's unique technique to lip injections using his formulated lip blueprint approach, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSB478>.

work and youthful lift of the corner of the mouth are important to understand. In this patient, I used Juvéderm Voluma, making sure to get above the lateral "red" of the lip and lip when I inject anterograde.

Subvermilion sheeting—the effect of Restylane Silk as well as Juvéderm Volbella in the subvermilion sheeting concept to erase the reticulated lines and creases of the vermilion zone of both the upper and lower lips. The injection technique is both retrograde and anterograde. The positive youthful results are almost like lipstick in a syringe. In this patient's video, you can see the shallow subvermilion technique and at the end of video how the reticulated lines have dissipated.

These products also work well when contouring and reflatting the ergotrid zone above the vermilion right and left sides and the equivalent zone on the lower lip. Injecting a less viscous HA filler, injecting anterograde and retrograde in a fan pattern, using very small amounts of product. Use the same technique indicated on the left and right side of the deflated zone on the lower lip below the vermilion. Both upper and lower lips have septae adjacent to the vermilion border. There are usually 2–4 septae in both upper and lower lips and are like speed bumps noticed with cannulas, but rarely felt with needles.

Inject Restylane Silk and Juvéderm Volbella as with most HA fillers only subdermal—submucosal—and subvermilion. Avoid injecting into the orbicularis oris muscle and the mucous glands of the lip. Lip swelling is related to technique and speed as well as product choice. One of the many positive personalities of both products (Juvéderm Volbella and Restylane Silk) is the patients tell us they feel, look, and behave like lips.

The “White Roll” of the upper lip—what is it and how important is it and how do we restore it for the nice youthful looking lip; advantages of cannulas versus needles. Is there an equivalent “white roll” on the lower lip?

Philtral columns: with the aging process and genetics, the philtral columns may “splay” at the base giving an older aged appearance to the upper lip. To reestablish the narrower youthful look, inject just to the medial side of each philtral columns in a retrograde pattern. This unique technique is a combination of feel proprioception and sight. This is best done with needles rather than a cannula. In this patient, I used Juvéderm Voluma for the lateral oral commissure lifting and contouring and for recreating the philtral columns.

Ultrasound gel helps to softly blend the filler so that there are no detectable transition zones. It also tells you the areas that need more attention. Be aware that there is a difference between blending, molding, and the most aggressive form, which is massaging with cool ultrasound gel.

Longevity is dependent upon degree of initial correction, age group, smokers versus non-smokers, lip animation such as lip pursing habit and playing a musical instrument. We teach our patients that life is about maintenance; your hair, teeth, house, car, dog, and your face including lips. My many years of experience show some patients will go up to 1 year before a “top-up” is necessary.

Their choice of timing of top-ups will depend on their goals—special upcoming events and how focused they are in having a youthful look.

Melomental Folds

Z. Paul Lorenc, MD, New York, N.Y.

Rejuvenation of any anatomical area, utilizing injectable agents, is based on 3 critical factors. The first being a thorough aesthetic clinical assessment of the patient with particular attention paid to each distinct anatomical area. Second is a thorough understanding of the functional anatomy of the particular anatomical area and the understanding of the complex interaction between volume loss and mimetic muscle activity. Finally, an in-depth knowledge of the physiochemical properties of agents is necessary to be able to make the correct agent selection for each anatomical area to be treated.²²

In my practice, based on the above factors, treatment of the melomental area may be performed using Perlane-L (Galderma Laboratories LP, Fort Worth, Tex.) with high G' (541 Pa) and high viscosity (124,950 cPa).⁶ This particular HA

has a high lifting capacity and a robust viscosity, which makes it ideally suited for correction of volume depletion of the prejowl sulcus and for building the support of the oral commissure. On a routine basis, filler injection of the melomental fold is contemporaneously treated with a neuromodulator such as Xeomin (Merz Aesthetics, Franksville, Wis.). The neuromodulator is directed at the midportion of the DAO muscle to decrease the mimetic muscle forces in the area of treatment, thereby increasing the persistence of the filler agent.²³

Method of delivery of an agent is dependent on the anatomical area treated. In the area of the melomental fold, I use 2 different techniques. For revolumization of the PJS, a subperiosteal placement of Perlane-L (Galderma Laboratories LP) is made using a 29G 12-mm needle (Terumo Corp., Tokyo, Japan) at 90 degrees to the skin surface in a depot fashion. The oral commissure and the fold itself are revolumized with Perlane-L (Galderma Laboratories LP) using a 27G 25-mm cannula (TSK Laboratory) delivered by a needle puncture in the deep dermal/submucosal plane. Each injection area is corrected to 100%; no overcorrection is performed. Gentle massage is employed to assure an even distribution of the filler material. Total volume injected varies from patient to patient depending on the volume loss, average being 1.5 cc per session. Xeomin (Merz Aesthetics) is prepared at a 100 U/4-cc NaCl dilution and 2.5 U is injected into the midportion of each DAO, which has been previously marked with the patient in a sitting position.²⁴

Other than the routine aesthetic concerns taken into account during the consultation and delivery of the products, rejuvenation of the melomental fold has an area-specific safety consideration pertaining to potential inadvertent weakening of the DLI muscle. As demonstrated in the accompanying video, my preference is to inject 2.5 U of incobotulinum toxin A per each DAO at the midportion of a vertical line drawn between the oral commissure and the angle of the jaw. (See Video, Supplemental Digital Content 12, which demonstrates Dr. Z. Paul Lorenc's personal technique to treating the melomental folds, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B479>.) The injection point is located 1.0 cm lateral to the line in its midportion. Delivering the neuromodulator at this specific point prevents an inadvertent injection into the muscle fibers of the DLI, which may cause oral incompetence and/or

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Video 12. Supplemental Digital Content 12, showing Dr. Z. Paul Lorenc's personal technique to treating the melomental folds, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B479>.

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asymmetry of the lower lip. Placing the injection point significantly higher than the routinely advocated injection at the level of the angle of the jaw allows for a very efficient use of the neuromodulator. Because the DAO is a pyramidal muscle, injection at this point has a longer duration due to the BNT unit/muscle mass ratio being higher. Immediately after the injection, gentle massage in a medial to lateral direction is applied to assure avoidance of injecting the DLI.

Patients are routinely seen 1 week post injection to evaluate symmetry and the possible need of further treatment to achieve the appropriate aesthetic endpoint. Utilizing the multimodal approach for the correction of the aging melomental fold allows the practitioner to address both causative factors, volume loss, and hyperactivity of the mimetic musculature of the area. Not only both factors are addressed, but the persistence of the aesthetic effect is prolonged.

Steve Yoelin, MD, Newport Beach, Calif.

Melomental folds, also known as marionette lines or "puppet lines," commonly occur during the aging process. It has been my experience that people often consider melomental folds to be the most bothersome feature of their faces. A downward-turning mouth can indicate sadness or unhappiness. This is very unfortunate since the individual in question is typically neither sad nor unhappy at all.

Marionette lines may be a symptom of previous or current volumetric changes in regions peripheral to the area inferior to the oral commissure. These peripheral areas include, but are not limited to, the lateral portions of both the midface and lower face. It is reasonable to address

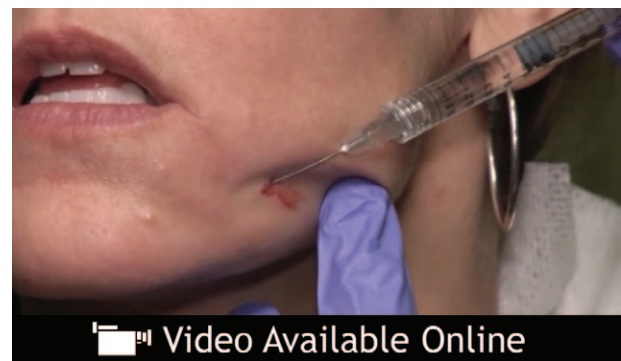
melomental folds by using dermal fillers to augment the regions noted above before addressing the marionette lines themselves. Initially, addressing the problem of volumetric loss, rather than the symptom of volumetric loss, can be a more effective, more efficient, and more aesthetically pleasing way to rejuvenate the aging face in general and the melomental folds in particular.

Once the issue of peripheral volume loss has been addressed, it has been my experience that the marionette lines may still be noticeable and problematic. If this is the case, I will consider treating the DAO muscles with neurotoxins as well as treating the marionette lines directly with dermal fillers. I feel that, if a patient has an active DAO, it is important to consider treating this muscle with an appropriate amount of neurotoxin. Given the fact that many dermal fillers are now formulated with lidocaine, an ingredient that may complicate the evaluation and treatment of DAOs, it may be advantageous to treat the DAOs before using dermal fillers.

I find it challenging to attain consistently good results when treating the melomental folds with dermal fillers. This may be because there is a lack of boney support beneath the folds. This lack of boney support makes it more difficult to create a lifting effect with dermal fillers.

I use both needles and cannulas to treat this area of the face. (See Video, Supplemental Digital Content 13, which demonstrates Dr. Steve Yoelin's personal approach to treating the melomental folds, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B480>.) I think that it is important to note that needles may allow a greater level of precision relative to

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Video 13. Supplemental Digital Content 13, showing Dr. Steve Yoelin's personal approach to treating the melomental folds, is available in the "Related Videos" section of the Full-Text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B480>.

cannulas; however, some feel that cannulas may be safer than needles. In my experience, cannulas tend to cause less bruising relative to needles.

During the treatment process, I typically fill the folds themselves with robust HA-based filler. This can be done with a needle or cannula.

When using a needle, the HA filler can be administered in layers in the deep dermis and in the subdermis. When using a cannula, the HA dermal filler can be administered in the subdermal regions of the face. Once the folds have been addressed, I will typically administer a series of HA threads just below the lateral portion of the lower lip. This can be done using a needle or cannula. After the area just below that lateral lower lip has been treated, I turn my attention to the area lateral to the oral commissure. I will place a series of small aliquots in the subdermis, with one aliquot lateral to another just below and a third aliquot just above the commissure. These final injections are administered using a needle.

It is important to understand the anatomy of this region of the face. The mental nerve, artery, and vein may be found close to the inferior aspect of the melomental fold. A clear understanding of these vital structures will help to reduce the risk of vascular compromise and will help to reduce the incidence of both bruising and patient discomfort during the injection procedure.

My goal is to create an improvement in the depth of the melomental fold and to elevate the downward-turning mouth. If I am able to accomplish these 2 goals, I feel that the treatments are successful. It is vital not to overtreat melomental folds to avoid an unnatural end result.

Once the treatment is completed, I typically massage the region to make sure that that the product is evenly distributed throughout the treatment area. It may be helpful to schedule a follow-up visit with your patient 10 to 14 days after his/her initial treatment session so that you can evaluate the treated area.

Jawline and Prejowl Sulcus

Heidi A. Waldorf, MD, New York, N.Y.

The jawline and prejowl sulcus are an important unit to create a naturally youthful 360-degree appearance. The jawline and prejowl sulcus will improve as outlined below with replenishment of the remainder of the face. Although almost any of the USFDA approved filling agent can be used, I like poly-L-lactic acid for generalized volumization or more focal lifting with almost any of the HAs or with calcium hydroxylapatite. Because an attractive jawline is well defined or “sharp,” I prefer a

more viscous or stiff filler like calcium hydroxylapatite (Radiesse or Radiesse Plus) or a lifting HA like Juvéderm Voluma or Perlane-L for injections directly along the boney margin.

Injection of the prejowl sulcus can be done from a lateral entry or, my preferred method, injected perpendicularly directly on bone with a needle where possible. (See **Video, Supplemental Digital Content 14**, which demonstrates Dr. Heidi A. Waldorf’s personal approach to treating the jawline and prejowl sulcus, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B481>.) Because many patients requiring lower face definition have had prior facial surgery or are men with dense terminal hair follicles, threading a cannula may be difficult. I choose a 27- or 28-gauge 5/8- or 1.5-inch needle. I use a combination of retrograde linear injections and bolus.

The order of improvement is important to allow the patient to see improvement and maximize the effect of the filler used. Because volume loss in the midface and upper face causes ptosis of skin below, I begin by adding support to pull the upward vectors. That means revolumizing the cheeks to reduce the pseudoptosis that aggravates the nasolabial folds and marionette lines. Adding support in the prejowl sulcus reduces the marionette lines, lifts the corners of the mouth, and develops the anterior portion of the forward pulling vector of the jawline. Finally, I develop the posterior jawline from the edge of the jowl to the ear.

All areas can be treated in 1 treatment session or over 1 year depending upon how conservative the patient is medically, cosmetically, and financially and the degree of volume loss and



Video 14. Supplemental Digital Content 14, showing Dr. Heidi A. Waldorf’s personal approach to treating the jawline and prejowl sulcus, is available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B481>.

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photodamage. Patients with fat loss along the boney jawline but a slim neck will see results fastest, particularly in combination with other noninvasive tightening and resurfacing techniques. This technique is not for those with excess fat of the neck and submental area until that fat is reduced with other methods. Otherwise, filler will be “lost” and invisible.

Women’s jawlines should be a continuous line ending at the ear. However, the masculine jawline is more angular. Adjusting injection technique from 1 retrograde injection to 2 perpendicularly placed injections makes the difference.

Patients need to be prepared that even the most expert injector cannot create a jawline in the patient who really requires a surgical face or neck lift. For those with significant laxity who refuse surgical intervention to improve the lower face, the noninvasive therapeutic plan must include a combination of lifting and volumizing from the inside with filling agents and improving the tone of the skin with tightening devices like radiofrequency, ultrasound, and fractionated lasers. Although multiple procedures can be done simultaneously, I generally prefer to separate them with a long-enough interval that any posttreatment edema or skin barrier disruption has cleared.

For very thin patients, the jawline and prejowl sulcus will not camouflage fillers that have been injected too superficially. In these same patients, there is a small risk of fillers in the prejowl sulcus being visible from within the mouth through the buccal mucosa. I have had 3 patients with either a small asymptomatic nodule from poly-L-lactic acid or what appeared to be a white plaque after calcium hydroxylapatite biopsied by an oral surgeon concerned about malignancy. In all 3 patients, pathology revealed only a mild foreign body reaction.

In an attempt to reduce the risk of infection after soft tissue augmentation, including biofilm reaction, it is important to cleanse the face well with antiseptics extending preparation under the jawline and onto the lips and ears. Patients are asked to avoid dental procedures or cleansing 2 weeks before and after treatment and aggressive flossing for a week after to reduce the risk of bacteremia. Patients with any history of oral or facial herpes virus infection are given 2 g of Valacyclovir before treatment and 2 g approximately 12 hours later. The most serious concern when treating the lower face is the risk of vascular occlusion. Avoidance of intravascular injection by injecting directly on bone where possible, pulling back on the syringe plunger to check for blood flow when

using poly-L-lactic acid or HA gel, and/or using a cannula of 25G or higher.

Babak Azizzadeh, MD, FACS, Beverly Hills, Calif.

The prejowl sulcus is an area that has been traditionally undertreated. Alloplastic implants, autologous fat grafting, and fillers have been described.^{25–27}

Fillers are used for all patients not undergoing rhytidectomy and/or chin augmentation. A variety of different products are available that can adequately treat the area. HA gels, calcium hydroxylapatite, and poly-L-lactic acid can be utilized. The author does not like utilizing permanent fillers.

For most patients, the author recommends HA gels due to their reversibility. Restylane Silk and Perlane-L have a fairly high G' that allows maximal lifting, whereas Juvéderm Voluma provides a potentially longer duration.

A single access point is typically utilized at the anterior portion of the jowls. (See **Video, Supplemental Digital Content 15**, which demonstrates Dr. Babak Azizzadeh’s personal technique to treating the jawline and prejowl sulcus with dermal fillers, available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B482>.) The entry point and the mental foramen are infiltrated with 1–2 cc of 1% lidocaine with 1:100,000 epinephrine. Small aliquots are injected in retrograde and fanning fashion. Special attention is made to the area just below the mandible as there is often a significant depression.

The aesthetic endpoint is full correction to restore a straight jawline and create a smooth



Video 15. Supplemental Digital Content 15, showing Dr. Babak Azizzadeh’s personal technique to treating the jawline and prejowl sulcus with dermal fillers, is available in the “Related Videos” section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B482>.

transition between the jowls and chin. Sometimes, the area posterior to the jowl region needs also to be filled to accomplish this task.

Pain and blanching along facial artery distribution are warning signs of potential vascular occlusion or embolism. The physician must immediately intervene to avoid serious complications. Hyaluronidase should be infiltrated. Warm compresses, topical nitroglycerin, aspirin, hyperbaric oxygen, and low-molecular-weight heparin could also be considered depending on patient's condition.

Kimberly J. Butterwick, MD, San Diego, Calif.

I prefer needles in this area. Although I joined the cannula bandwagon a few years ago, I have now returned to needles for faster treatments and more tactile feel. I do like cannulas in the medial cheek, periorbital area, and hands to minimize bruising and reduce the risk of intravascular injection in key areas. In the preauricular and mandibular angle areas, the tissue is often fibrous as many patients who need filler here are older and have had rhytidectomy or other tightening procedures. Needles pass through this tissue more readily.

My preferred fillers for the jawline and prejowl sulcus are CaHA²⁸ and higher G' HA fillers²⁹ for maximum lift. If volumizing the entire face, I may choose monthly poly-L-lactic injections. I prefer needles due to ease of passage and tactile feel and use a combination of supraperiosteal depot and retrograde fanning techniques. (See **Video, Supplemental Digital Content 16**, which demonstrates Dr. Kimberly J. Butterwick's personal technique to treating the jawline and prejowl sulcus using 2 methods, retrograde threading

with CaHA and supraperiosteal depot injections with HA, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSJ/B483>.) For depot injections, I transfer higher G' HA fillers into 31-gauge insulin syringes for safe low pressure injections on bone that are comfortable for the patient. For retrograde fanning, I prefer longer needles: 28G ¾ inch (27ID) and 25G 1–1.5 inch.

Technical pearls: start with supraperiosteal depot injections at the chin—if recessed, pre- and postjowl concavities, mandibular angle, and sometimes zygoma for lifting the jowl. Then inject with retrograde threads along the preauricular, mandibular, and zygomatic areas to create a smooth mandibular border and balance facial shape. Aesthetic caveats in females include overfilling the chin and prejowl area causing an overly square jawline rather than a tapered feminine one.

The aesthetic goal is to elongate and smooth the mandibular border, erasing the concavity of the pre- and postjowl sulci, and to lift and pull back the jowl (Fig. 20).

Safety considerations include avoiding the facial artery as it crosses the mandibular border at the anterior border of the masseter. Deeper structures in the preauricular area (superficial temporal vessels and parotid gland) are avoided by staying in the immediate subdermal plane.³⁰ Inject slowly while constantly moving retrograde to avoid intravascular injection. Aspirate near vessels before injection.

Chin

Mauricio de Maio, MD, ScM, PhD, São Paulo, Brazil

Chin reshape is important to bring balance, harmony, and proportion to the face. It is usually neglected by most injectors. Juvéderm Voluma is versatile to compensate bone, muscle and, chin fat pad. Its rheological properties enable natural result at rest and on animation.

The art of Chin architecture is demonstrated by the MD Codes. Each chin subunit is coded as follows: The 6-point chin reshape—C1 (mental crease—labiomental sulcus); C2 (chin apex); C3 (anterior chin—soft tissue pogonion); C4 (submental—soft tissue menton); C5 (lateral lower chin), and C6 (prejowl sulcus) (Fig. 21).³¹ Volumizing the chin with a single big bolus or injecting at random will not provide optimal and natural contour.

The aesthetic endpoint should be assessed with the patient on animation (full smile, kissing, and pouting), in different positions (oblique,



Video Available Online

Video 16. Supplemental Digital Content 16, showing Dr. Kimberly J. Butterwick's personal technique to treating the jawline and prejowl sulcus using 2 methods, retrograde threading with CaHA and supraperiosteal depot injections with HA, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSJ/B483>.



Fig. 20. A 55-year-old woman before (*left*) and after (*right*) receiving 2 cc total volume of highly cross-linked HA filler along the mandibular border, prejowl sulcus, mandibular angle, and preauricular region. Note the smoother, more defined mandibular border and chin and tighter lower third of face with pullback of jowl.

profile, and tilting down). On animation, total absence of creasing or lines is desirable. However, the skin cannot be too tight and circulation and venous return on digital pressure should be at normal speed. The soft tissue at the chin level should be slightly movable and not paralyzed.

The chin area is quite forgiving. Needles (27G) are preferably used when deep injections onto the bone are required. (See Video, Supplemental Digital Content 17, which demonstrates Dr. Mauricio de Maio's personal approach to chin

reshaping using Juvéderm Voluma, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B484>.) Proper aspiration is mandatory especially close to mental foramen. Blunt cannulas (25G) are advisable if the skin is adhered to the bone. Expanding the subcutaneous and muscle fibers with blunt cannulas may be required in severe cases. Needles may be needed back for final retouch.

v17

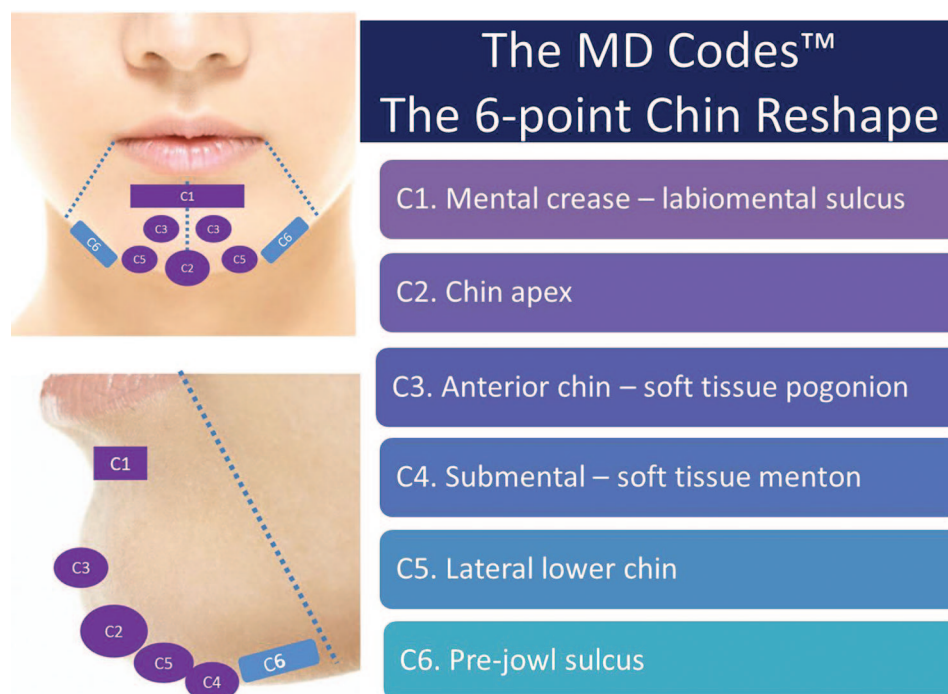
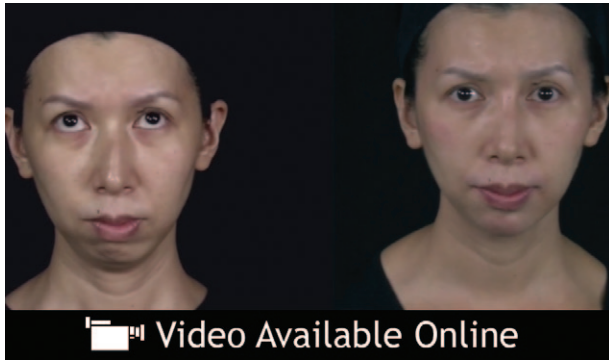


Fig. 21. The MD codes: the 6-point chin reshape.



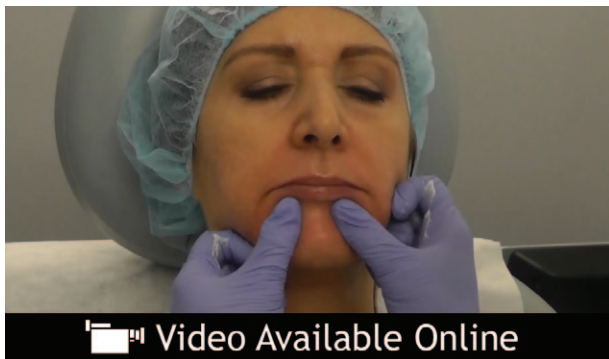
Video 17. Supplemental Digital Content 17, showing Dr. Mauricio de Maio's personal approach to chin reshaping using Juvéderm Voluma, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B484>.

Neil Sadick, MD, FAAD, FAACS, FACP, FACPh, New York, N.Y.

The lower face and chin represent the final artistic sculpturing touches in panfacial structural rejuvenation employing fillers and neuromodulators to achieve structural scaffolding and facial balance. I commonly employ poly-L-lactic acid, calcium hydroxylapatite, and larger molecular weight HA derivatives in the chin, mandible, underlying mentalis muscle, nasolabial folds, and lateral lower face.

I prefer a 25G 1–1.5-inch needle for poly-L-lactic acid and a 27G cannula for other products. I suggest HA products for younger individuals and poly-L-lactic acid or calcium hydroxylapatite products for the middle-aged patient. (See **Video, Supplemental Digital Content 18**, which demonstrates a bimodal structural approach to lower

V18



Video 18. Supplemental Digital Content 18, demonstrating a bimodal structural approach to lower face rejuvenation in a 53-year-old neuromodulator and filler-naïve female patient using Dysport, Juvéderm Voluma XC, and Juvéderm XC, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B485>.

face rejuvenation in a 53-year-old neuromodulator and filler-naïve female patient using Dysport, Juvéderm Voluma XC, and Juvéderm XC, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B485>.)

It is often necessary to employ a neuromodulator before filler implantation to relax an overactive mentalis muscles, elevate the nasolabial angle by targeted DAO injections, treat fine rhytides, or reduce masseter hypertrophy in this region.

A bimodal approach yields optimal results in this area with deep depot injections, carried out from an inferior site in a vertical deep dermal fashion utilizing a fanning technique, to achieve mandibular fat pad support followed by customized dermal subcutaneous level injections for contouring as outlined by the physician and patient during the initial consultation.

The aesthetic endpoint is correction and symmetrical contouring of the chin, nasolabial folds, and mandible (Fig. 22).

F22

Patrick Trevidic, MD, Gisella Criollo-Lamila, MD, and Philippe Garcia, MD, Paris, France

For us, "chin" is not just the anatomical chin, but it is also all the area from one mandibular ligament depression to the other and up to the commissure.

Because we want to project the chin and fill the depression of the mandibular line in front of the jaw, we use the needle for a deep bolus or fan injection to project the anatomical chin and we use the cannula for the depression from the mandibular line to the commissure with a fan technique above the muscle in the subcutaneous layer

For this procedure, we always use HA with high cohesivity for its lifting capacity in this area. (See **Video, Supplemental Digital Content 19**, which demonstrates Dr. Trevidic, Criollo-Lamila, and Garcia's technique for chin reshaping using a highly cohesive HA, available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRS/B486>.)

V19

(1) To project the chin, the product needs to be injected in all the layers of the chin to increase the lifting effect. Only if you inject deep, the lifting effect will be less visible.

We perform, 15 days earlier, a botulinum toxin injection in the mentalis to reduce the tightness of the skin induced by this muscle.

(2) For the filling of the area of the depression, we are not too deep to tighten the skin and to maintain the mandibular line using a high cohesivity product.

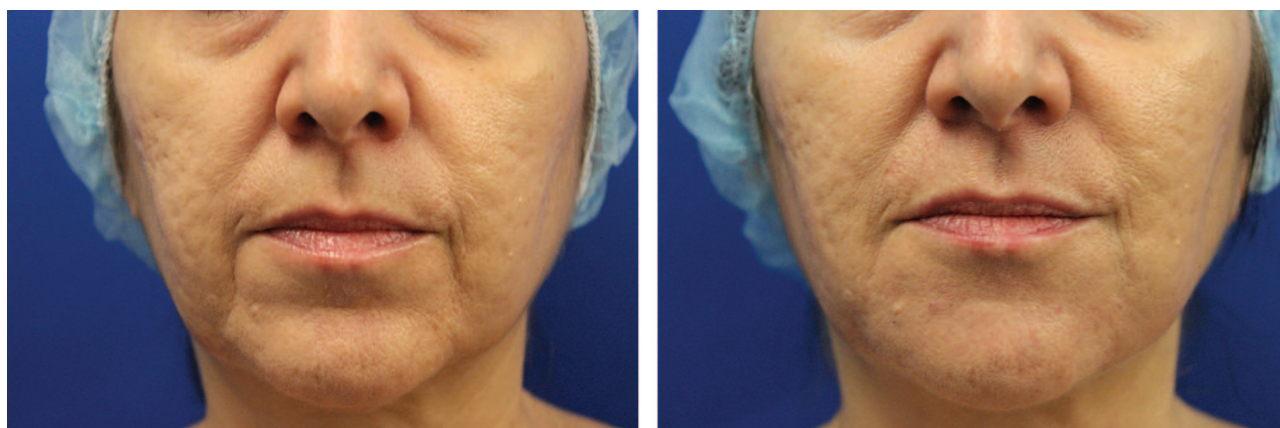


Fig. 22. (Left) A 53-year-old filler and neuromodulator-naïve female patient before lower face rejuvenation. (Right) The patient is shown after lower face rejuvenation utilizing Dysport, Juvéderm Ultra Plus XC, and Juvéderm Voluma XC.



Video Available Online

Video 19. Supplemental Digital Content 19, showing Drs. Trevidic, Criollo-Lamila, and Garcia's technique for chin reshaping using a highly cohesive HA, is available in the "Related Videos" section of the full-text article on PRSJJournal.com or, for Ovid users, at <http://links.lww.com/PRSB486>.

We do not reach the jowl and do not put too much product as it can increase the drooping of the tissue

First point: indications. This technique is for patients around 40–45 years old with a beginning of sagging of the lower face (small jowl and visibility of the fixed point of the mandibular ligament and a little retrogenia) or young patient with retrogenia who do not want to undergo surgery.

Second point: contraindications. This technique is not for patients with a middle or huge sagging of the lower face because it will increase the square aspect of the chin when you add too much filler and increase the weight within the drooping tissues. These patients are candidates for surgery

There is no anatomical danger in this area, only frequent hematoma and bruising in the area of the mandibular ligament.^{32–37}

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AQ12

PATIENT CONSENT

Patients provided written consent for the use of their images.

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