

FIGURE 2.4 Fanning. After injecting a line of filler by the linear threading technique, change the direction of the needle and inject along new line, then repeat. (By courtesy of Dr. Deborshi Roy.)



FIGURE 2.5 Depot. The needle is advanced to the level of the bone and retracted slightly. Bolus amounts of filler are then deposited. (By courtesy of Dr. Deborshi Roy.)

When evaluating the face, we break it up into three units: the upper face, from the hairline down to the horizontal axis that goes through the canthi; the midface, from below the canthi to the upper lip; and the lower face, which starts from the upper lip and ends in the upper neck (Figure 2.1). Loss of volume can take place in any of the three areas and is usually not confined to one. The most common area treated for volume loss is the midface, followed by the lower face. Off the face, volume loss is most commonly treated in the dorsal part of the hands, décolleté, buttocks, knees, and arms. Other applications include treatment for scars or postsurgical deficits.

Injection Techniques

Depending on which filler is being used and which area is being treated, there are three choices for the amount of material used. One can opt for a 1:1 correction, overfilling, or underfilling. In most cases, one

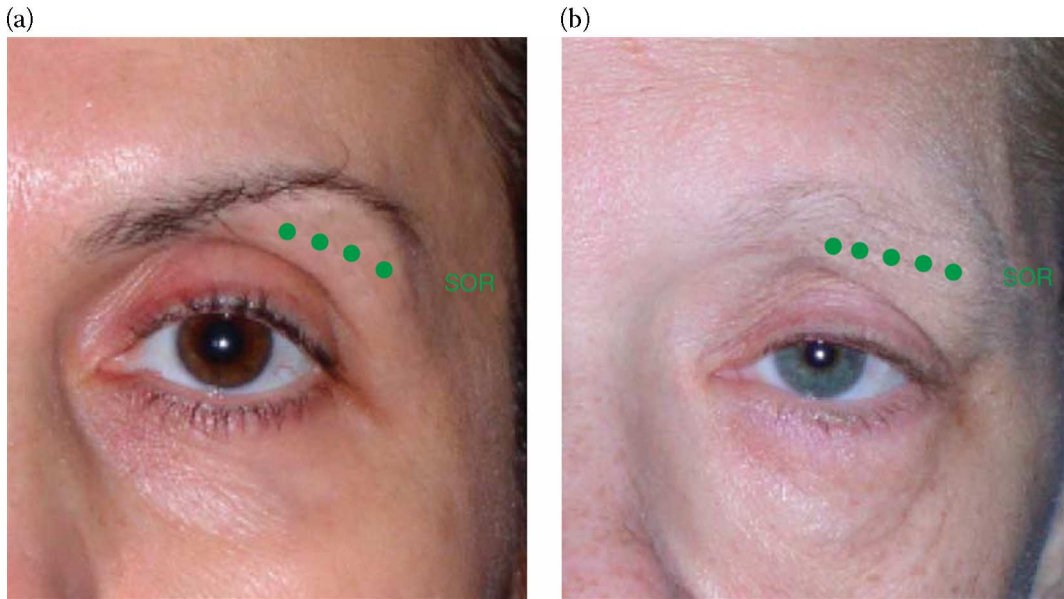


FIGURE 5.2 (a) The normal brow area. Note the relationship to the supraorbital rim (SOR). (b) The aging brow with volume loss and ptosis. Note the change in relationship to the supraorbital rim (SOR).



FIGURE 5.3 Markup of treatment areas and injection plan.

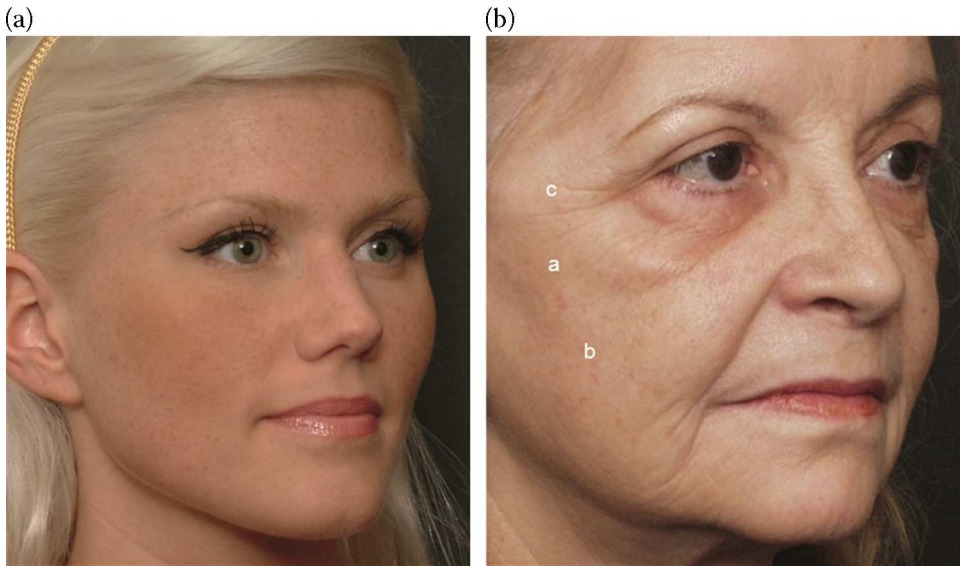


FIGURE 7.1 (a) This woman in her mid-twenties displays the characteristics of a youthful midface. There is an absence of shadowing, with smooth transitions between facial zones. (b) Midface aging is characterized by inferior orbital rim, anterior and lateral cheek volume loss, all of which create a marked shadowing eliminating the once seamless transition from lower lid to cheek. As in this patient, malar mounds (a), defined by the orbicularis retaining ligament superiorly (c) and the malar septum inferiorly (b), may become pronounced with age-related volume loss. (Adapted from Ref. [1].)



FIGURE 7.2 (a, b) Midface rejuvenation is achieved with the addition of volume to restore the single convexity, uniting the lower lid and cheek subunits. Lower lid transconjunctival blepharoplasty was performed in addition to autologous fat transfer to the inferior orbital rim and cheeks. (From Carniol PJ, Sadick NS. *Clinical Procedures in Laser Skin Rejuvenation*. London: Informa Healthcare; 2007.)

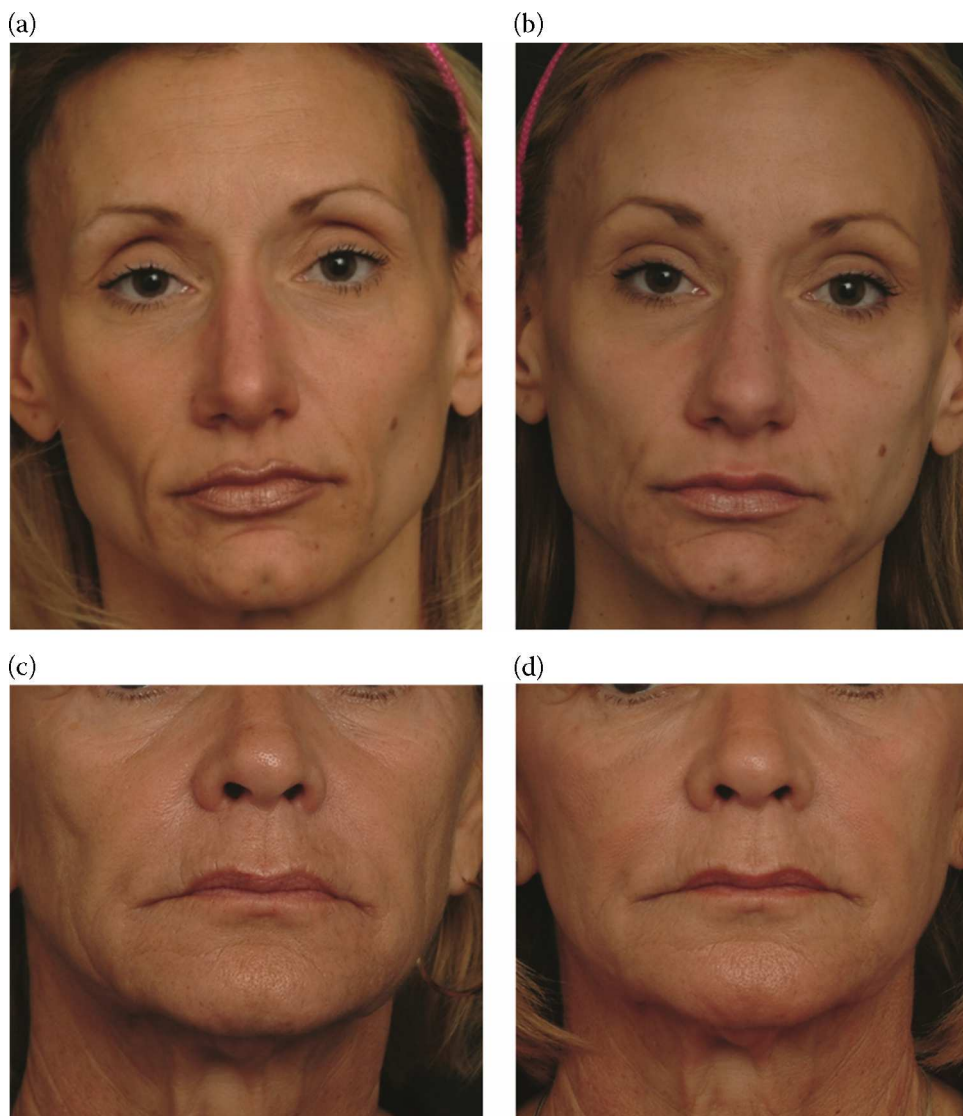


FIGURE 7.14 (a, b) Pre- and posttreatment photographs of buccal volume replacement with hyaluronic acid (HA) dermal filler in a younger patient with global facial volume loss. One milliliter of Restylane Lyft was used to fill the buccal and submalar region on each side. (c, d) Pre- and posttreatment photographs of buccal volume replacement with Juvederm Ultra (0.8 mL) in an older patient with more focal volume loss. (Photo courtesy of Glasgold Group Plastic Surgery.)

often become focused on the NLF because it is the facial feature most easily seen in a mirror. The global loss in facial volume is difficult to see even though this is the underlying cause of deepening in the NLF. The relative position of the NLF on the face is fixed by the suspensory strut of the zygomatic musculature, which inserts into the skin at the fold. As the face deflates and the maxilla rotates posterior cephalad, the foundation of the tissues surrounding the NLF is lost and this tissue hangs tethered only by the suspension of the muscular strut (5).

Correction of the NLF should be focused on minimizing any harsh shadow in order to make a softer transition from cheek to upper lip. In evaluating the NLF, the nature of the fold should be appreciated; is it a deep concavity creating shadowing or is it finer creasing that is seen in the skin particularly toward the inferolateral aspect? Further, it is also important to elicit what aspect is bothersome to the patient.

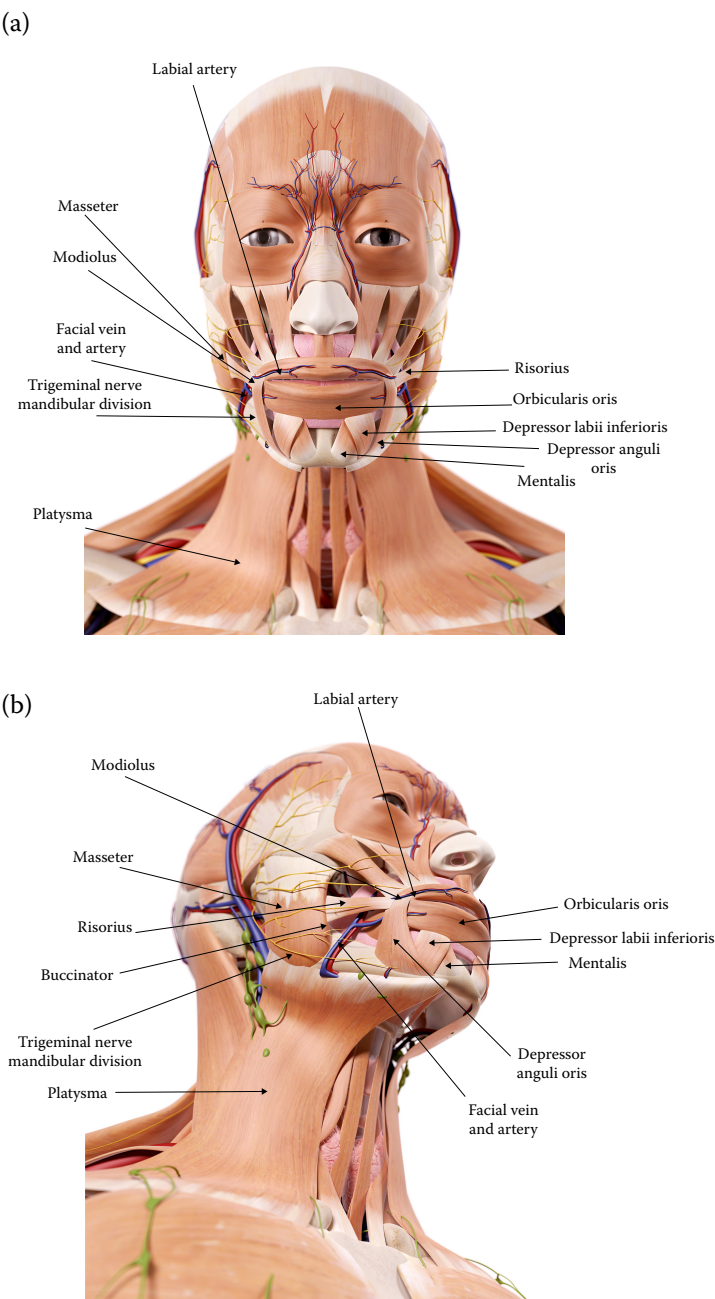


FIGURE 8.1 (a, b) Muscles of facial expression of the lower face and neck.

with contraction. It responds very well to neurotoxin injections. The depressor labii inferioris interlaces with the orbicularis oris fibers as they encircle the upper lip and meets its contralateral partner before attaching to the parasymphyseal region of the mandible. Medial to these muscles are the paired mentalis, small quadrangular muscles arising from the symphysis and inserting into the dermis of the chin below the lower lip border. The mentalis elevates the chin skin, as in an expression of doubt, and contributes to

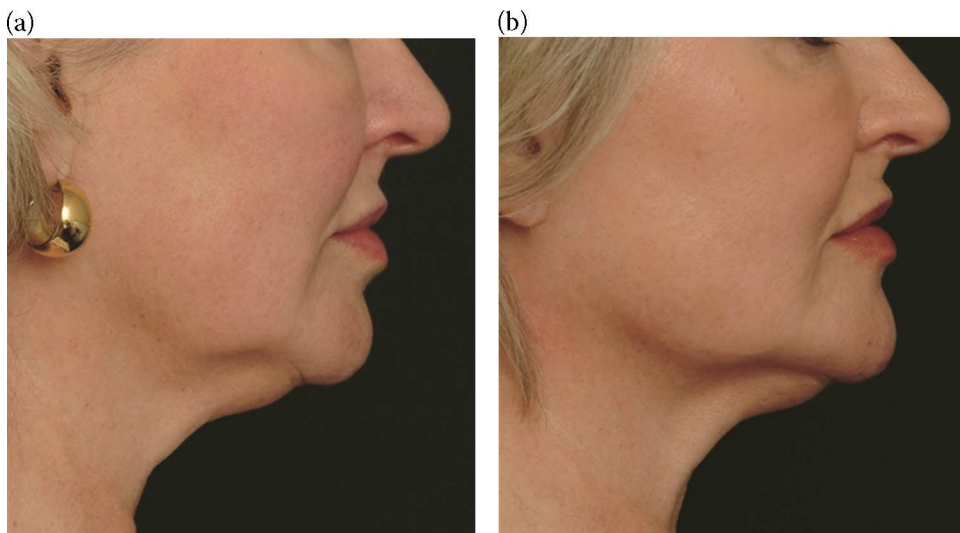


FIGURE 9.4 (a) This patient demonstrates both jowl descent and prejowl sulcus contraction in the presence of a very adherent mandibular ligament. (b) Jawline definition was improved with prejowl sulcus and lateral jawline volume, using a total of 3 mL of Restylane. The appearance of persistent jowling is from the inability to fully overcome the tethering effect of the mandibular ligament. In this patient the optimal result would require facelift combined with release of the mandibular ligament and filling of the prejowl sulcus. (Photo courtesy of Glasgold Group Plastic Surgery.)

sulcus and lateral jawline) down to the level of the jowl. The prejowl sulcus marking is basically a triangle, tapering into the chin anteriorly and the jowl posteriorly (Figure 9.8a and b). The angle marking is also a triangle with its lateral inferior corner rounded off, and its anterior corner tapering into the posterior border of the jowl. A topical anesthetic can be used. Aseptic technique should be employed by prepping the skin with chlorhexidine. HA filler injections can be injected either with linear threading or serial puncture technique. Alternatively, blunt-tipped cannulas can be used to further decrease risk of bruising and increase patient comfort. Depth of injection is in the mid to deep dermis, staying more superficial to overcome the most adherent part of the mandibular ligament as well as for defining the lateral jawline (Figure 9.8c and d).

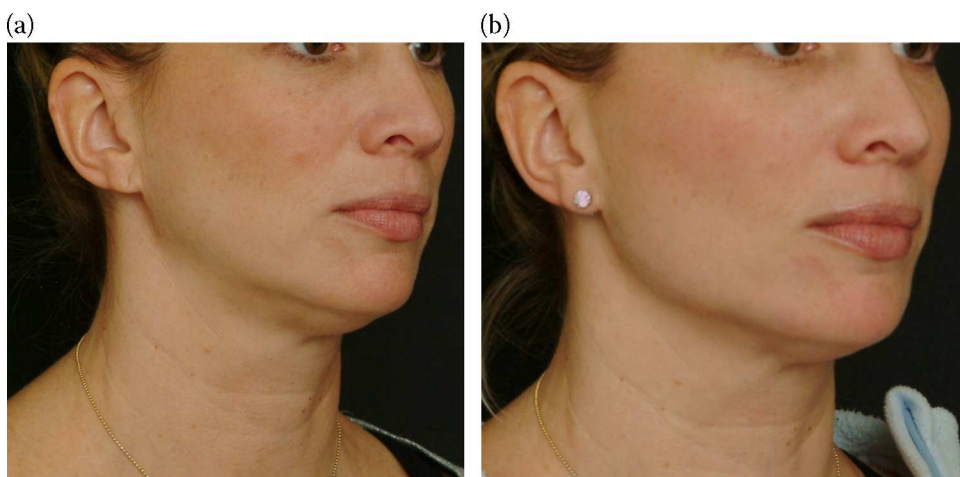


FIGURE 9.5 (a) Prior to treatment this patient demonstrates congenitally deficient mandibular angle definition. (b) Angle definition was improved by filling the lateral jawline with HA injectable filler. (Photo courtesy of Glasgold Group Plastic Surgery.)

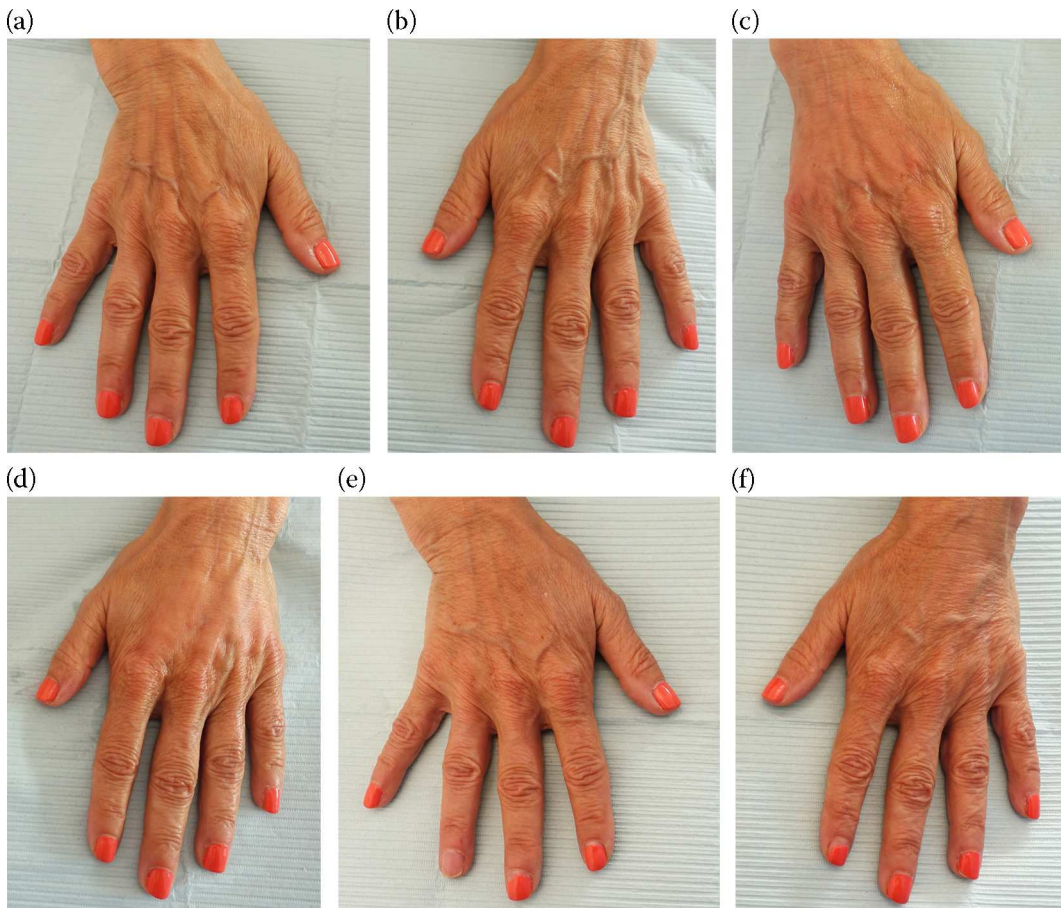


FIGURE 11.8 (a, b) A 59-year-old female patient before treatment; (c, d) immediately following injection with calcium hydroxylapatite (1.5 cc) and 1% lidocaine (0.3 cc) to each dorsal hand; (e, f) 9 months posttreatment.

key to decreasing swelling and managing any minor discomfort, also. Patients are usually told to avoid strenuous activity for 1–3 days posttreatment. Typically, hand edema and ecchymosis last for less than 1 week.

Injectable Fillers Used for Hand Rejuvenation

Previous methods of hand rejuvenation largely relied on autologous fat transfer (AFT) to the hand (9). Expectedly, issues with volume retention and unpredictable results were common complications of this technique. The introduction of the use of dermal fillers for hand rejuvenation has now provided an excellent, consistent option for restoring volume loss, thereby restoring a more youthful appearance to the hand. The ideal soft tissue filler for the dorsal hand should be soft, pliable, provide adequate volume around the prominent structures of the aged hand, and be durable enough to persist through repeated, regular daily hand motion. Filler selection should always be determined based on thorough consultation, comprehensive patient evaluation, and with consideration of individual treatment goals. Available soft tissue fillers include calcium hydroxylapatite (CaHA), HA, poly-L-lactic acid (PLLA), and autologous fat.

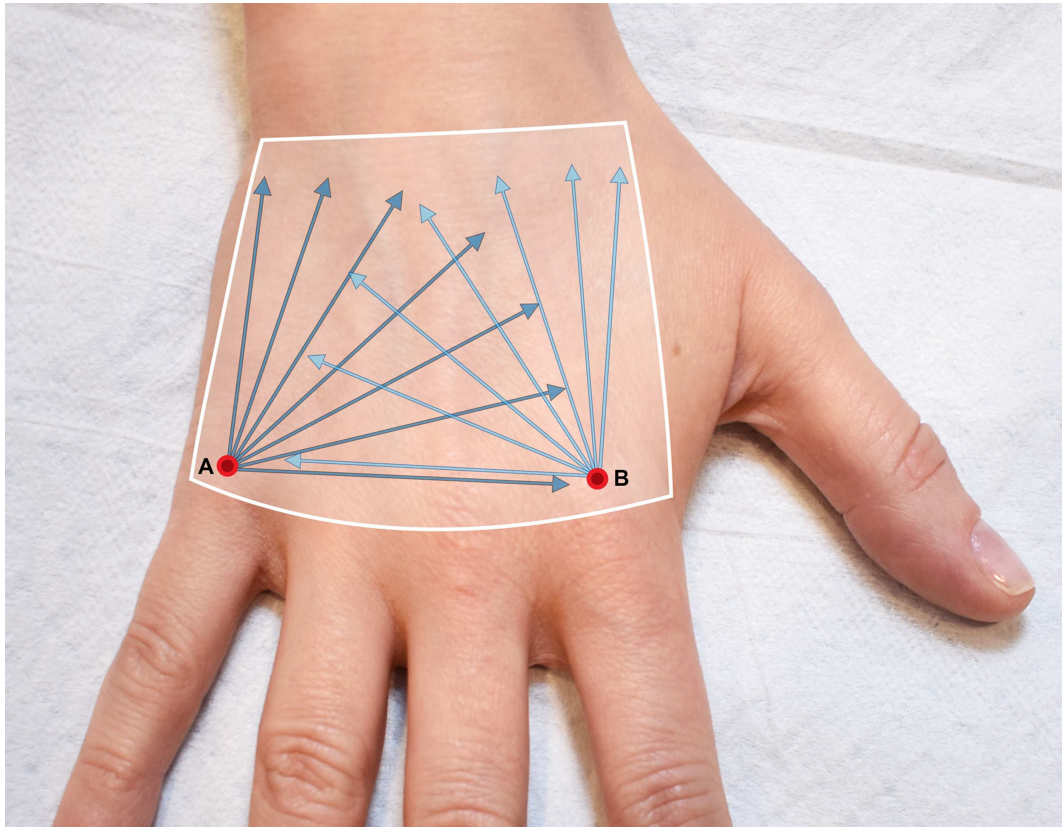


FIGURE 11.10 Dorsal hand with digital overlay showing the zone of treatment, port sites, and injection pattern. White lines indicate boundaries of the treatment zone. Cannula is inserted through the port site at the fifth metacarpal metacarpophalangeal joints (MCPJ) (shown at point A) and advanced along the path of the dark blue arrows in a fanlike manner (from ulnar to radial). Cannula is inserted through port site at the second metacarpal MCPJ (shown at point B) and advanced along the path of the light blue arrows (from radial to ulnar).

streptococci. HA is hydrophilic and retains water to increase its volume. Several HA products offered differ in their particle size, viscosity, and concentration (13). Restylane Lyft with lidocaine (Galderma, Lausanne, Switzerland) was the first HA filler to receive FDA approval for dorsal hand augmentation in 2018. Other HA fillers, such as those within the Juvederm (Allergan, Madison, NJ) family, are considered off-label when used for dorsal hand augmentation. Imperfections with injection with HA can be reversed with hyaluronidase (25). If HA is injected too superficially, a blueish hue can be seen, commonly known as the Tyndall effect.

Proper examination of the hand is required to accurately assess the severity of volume loss and determine the best choice of HA filler for each patient. Patients with a thick dermis and volume loss of the dorsal hands will likely need an HA filler with larger particle size and G' such as Restylane Lyft. Patients with a thinner dermis with volume loss as well will need an HA filler with a moderate G' and smaller particle size to look and feel more natural when injected such as Juvederm Ultra or Ultra Plus. In these cases, if an HA filler with a larger particle size and G' is used, the dorsal hand may look more edematous as a final result rather than appearing natural. Per hand, ~2 cc of Restylane Lyft is used. Although the FDA indicates for the injection of 0.2–0.5 cc in each intermetacarpal space (not to exceed 3.0 mL per hand) using a needle, our clinical experience favors the use of a cannula to decrease bruising. Combined HA therapy using Juvederm HA products for the injection of approximately 2 cc total per hand is well-described. HA effects typically last from 6–18 months in the dorsal hand (26,27).

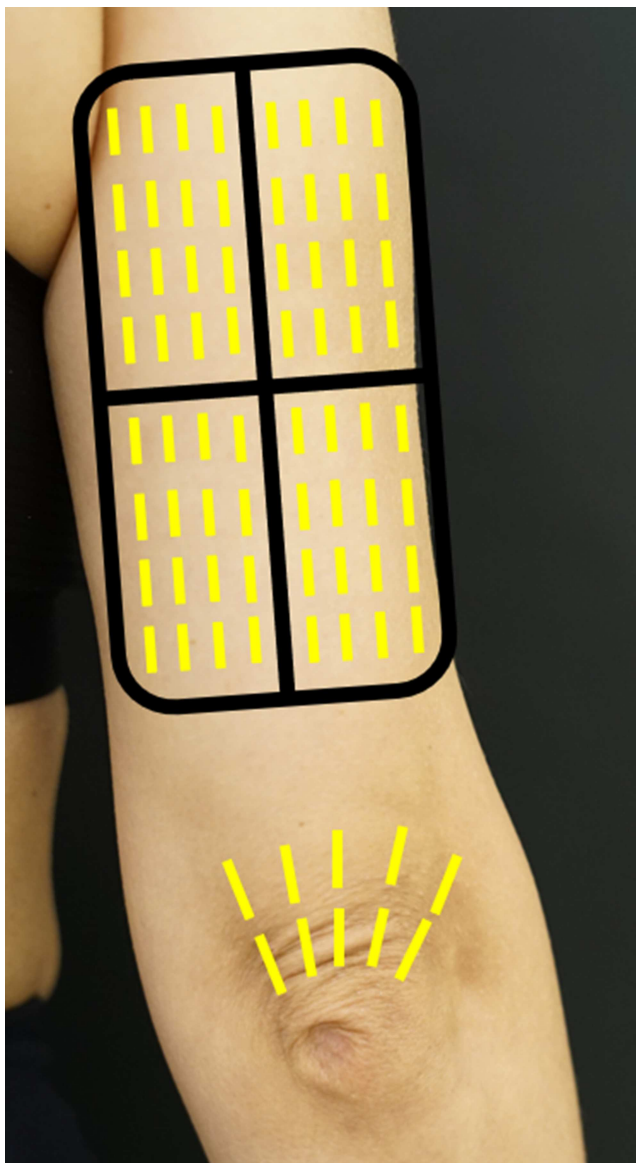


FIGURE 12.4 Posterior arm injection pattern.

directly related to careful patient selection, appropriate injection technique, and adequate amount of product used. Usually, younger healthy patients, with mild-to-moderate skin laxity, present faster and longer results from PLLA.

Adverse Events

The most frequent events reported in some patients include pain at the injection site, discomfort, erythema, ecchymosis, and bruising. Other adverse reactions include infections, vascular events, hematomas, granulomas, papules, nodules, and allergic reactions. In 2009 the authors recommended a final PLLA dilution volume of 20 mL to treat the arms and so far there have been no reports of nodules, papules, or other delayed adverse events with the technique described above.