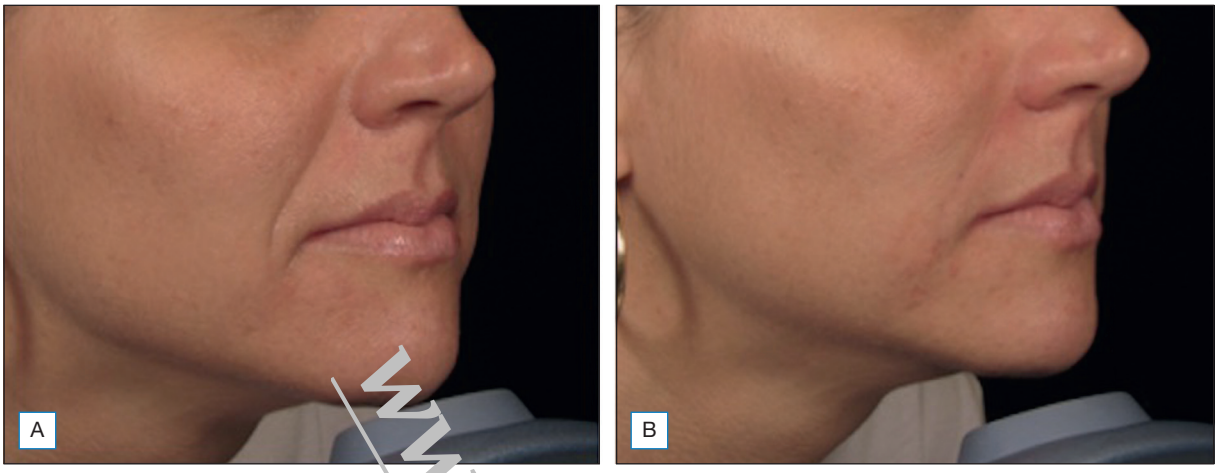

Figure 7.1 Forty-three-year-old woman **(A)** before and **(B)** after injection of the nasolabial folds using 1.3 mL of Radiesse. *(Courtesy of Dr. David Ozog.)*

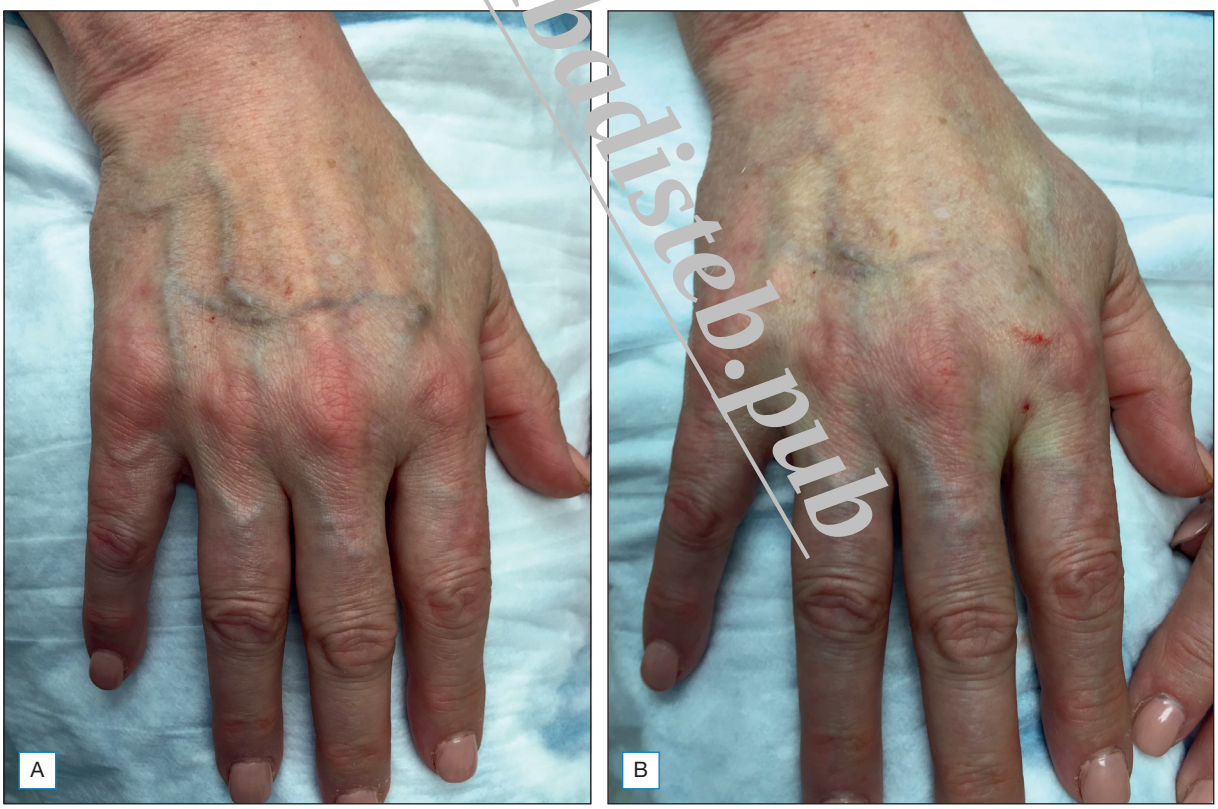

Figure 7.2 Fifty-four-year-old female **(A)** before and **(B)** after 1.3 mL of injectable CaHA to the dorsal right hand via cannula. Vasoconstriction is due to use of epinephrine. *(Courtesy of Dr. David Ozog.)*

The EMERVEL® range		EMERVEL® TOUCH		EMERVEL® CLASSIC		EMERVEL® LIPS		EMERVEL® DEEP		EMERVEL® VOLUME	
Gel texture											
Rheological characteristics Optimal Balance Technology™											
Cross-linking	Calibration	1 out of 4	1 out of 3	2 out of 4	1 out of 3	3 out of 4	1 out of 3	4 out of 4	2 out of 3	3 out of 4	3 out of 3
Viscosity		Soft, subtle		Intermediate firmness		Firm		High firmness		Firm	
Lifting capacity		Moderate volume effect		Moderate volume effect		Moderate volume effect		High volume effect		Very high volume effect	
Depth of injection		Superficial Dermis		Dermis		Vermilion lip/Vermilion border		Deep dermis/Subcutaneous		Subcutaneous/Supraperiostic	
Size of Ultra Thin Wall needle		30 G 1/2		30 G 1/2		30 G 1/2		27 G 1/2		23 G 1	
Indications		Perioral lines	Periorbital lines	Nasolabial folds	Marionette lines	Lip enhancement	Lip contour	Deep nasolabial folds	Deep marionette lines	Cheekbones Cheeks	Chin Facial oval
Comfort		Without lidocaine		With* or without lidocaine		With* or without lidocaine		With* or without lidocaine		With* or without lidocaine	
Blister packaging		1 x 1 mL		1 x 1 mL		1 x 1 mL		1 x 1 mL		1 x 2 mL	

* 0.3 % of lidocaine

CE 0459 - EMERVEL is a medical device. Injectable solution for wrinkles filling. EMERVEL is a trademark owned by Galderma S.A

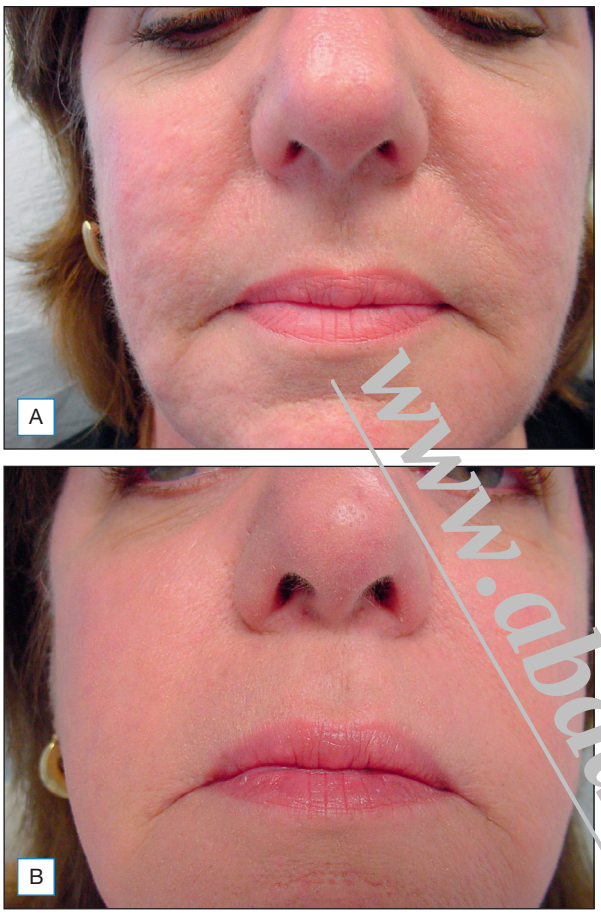

Figure 12.4 **A,** Acne scarring. **B,** After a series of injections with Silikon-1000.

Figure 12.5 Silikon-1000, which is specifically US Food and Drug Administration (FDA)-approved for ophthalmic use but may be legally used off-label for skin augmentation.

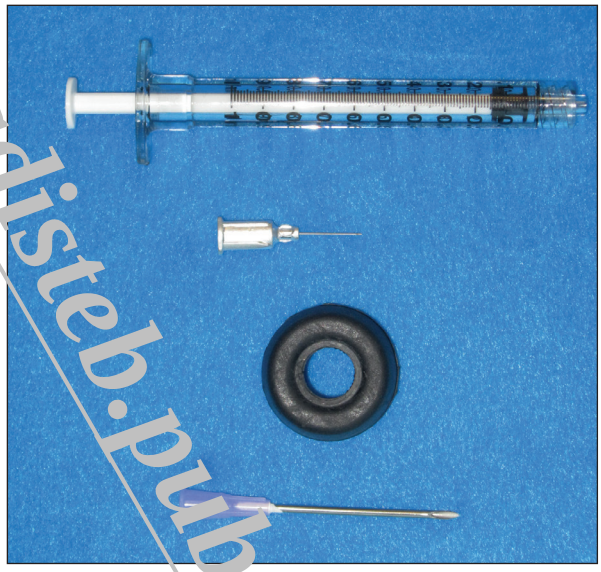

Figure 12.6 Instrumentation; from top to bottom, 1 mL BD syringe, 27-gauge ½ inch needle, autoclaved electrical bushing, 16-gauge needle.

Materials

The most appropriate HPLIS for off-label soft tissue augmentation is Silikon-1000 (Alcon, Fort Worth, TX) (Fig. 12.5); 5000 cs Adatosil (Bausch & Lomb, Rochester, NY) may also be used off-label but is too viscous to inject through small-gauge needles. Using a 16-gauge Nokor needle, 0.5 mL of LIS is drawn into a 1 mL Becton Dickinson (BD) Luer-Lock syringe (Fig. 12.6), using sterile technique. As molecules from the rubber stopper of the syringe could theoretically contaminate the HPLIS after a long exposure period, it should be drawn into the injecting syringe immediately prior to treatment and should never be stored in the syringe. HPLIS is most easily injected through a 27-gauge 0.5-inch (6 mm) Kendall Monoject aluminum-hubbed needle. Plastic-hubbed needles tend to pop off with the higher injection pressures needed for injection through smaller-gauge needles. To increase injector comfort, 0.5-inch inner diameter rubber electrical bushings purchased from a hardware store may be autoclaved and placed over the barrel of the syringe to cushion the physician's second and third fingers during injection.

Pearl 1

Of the two FDA-approved liquid silicones, Adatosil-5000 and Silikon-1000, Silikon-1000 is more suitable for injection through small-gauge needles, and hence for skin augmentation, due to its lower viscosity.

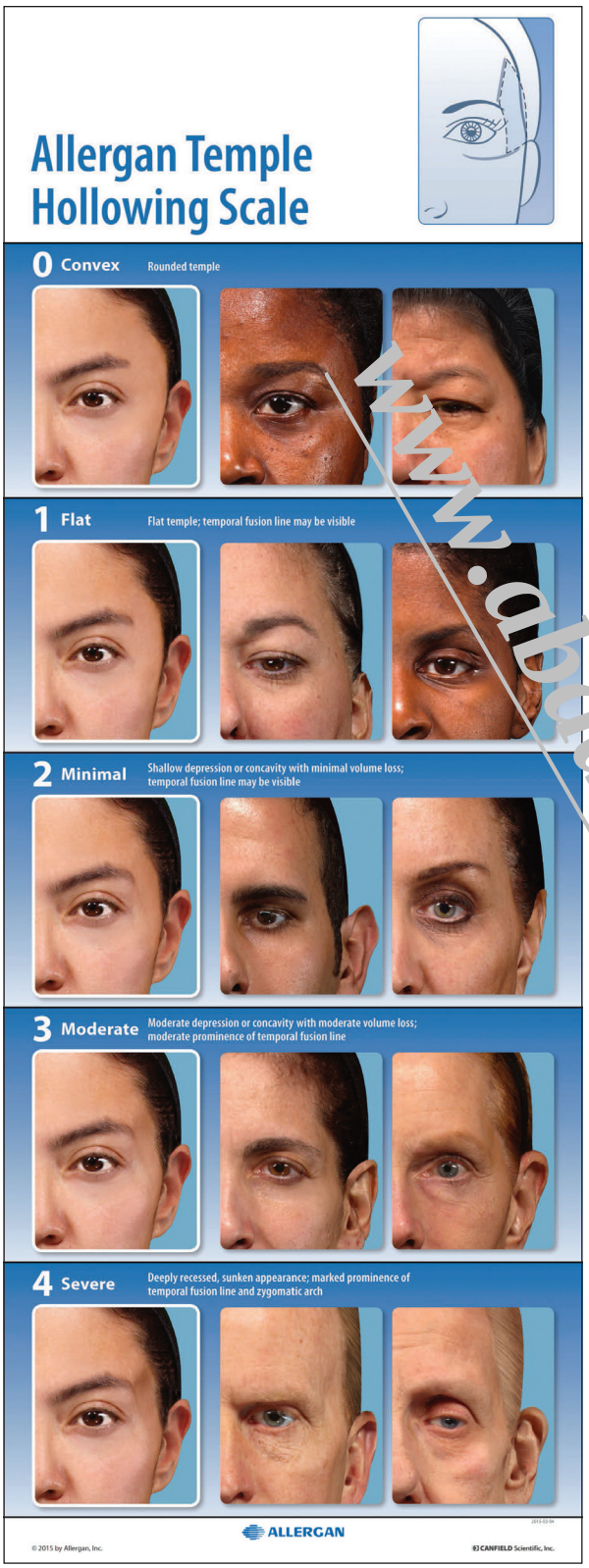

Figure 15.2 The Allergan Temple Hollowing Scale. The extent of temporal volume deficit (within area of diagram shown in upper right corner) is assigned a grade of 0 (convex) to 4 (severe). *Carruthers, 2016 submitted to Derm Surg.*

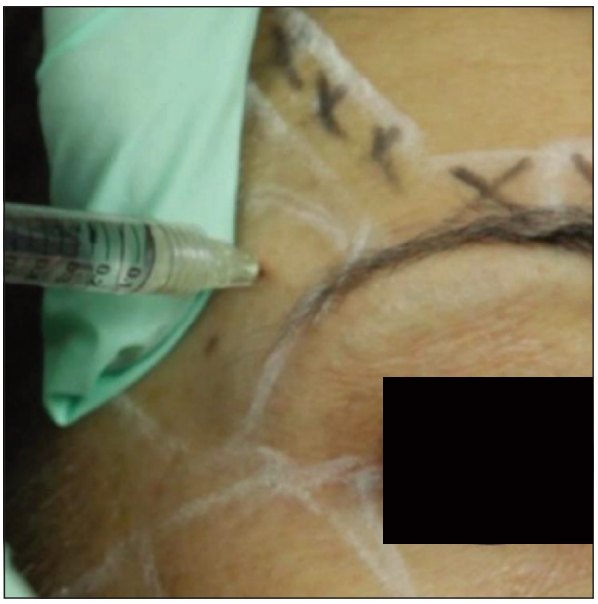

Figure 15.3 Injection technique: position of needle and injection of product. It is critical that the needle is inserted within the safe injection window at an angle perpendicular to the skin and directed deep until it makes contact with bone. Once placed, the injector delivers a slow, steady depot of HA while placing a finger posteriorly to allow the filler to progress smoothly into the hollowed te[illegible]. *Reproduced with permission from Breithaupt AD, Jones DH, Broz A, Narins R, Weinkle S. Anatomical basis for safe and effective volumization of the temple.* Dermatol Surg. *2015;41(suppl 1):s279–s283.*

be pl[illegible] inferior and lateral to this point. All injections should occ[illegible].5 cm above the zygomatic arch to avoid contact with the MTV and should be placed anterior to the facial hairline because this area offers minimal results with regard to cosmetic enhancement.[1]

To successfully place the filler on the periosteum, the injector should insert the needle perpendicular to the skin and guide it deep until the needle makes contact with bone (Fig. 15.3).[1] The injector should then aspirate the syringe until air is visible; this will help to confirm that the needle was not placed intravascularly, although this is not always foolproof, especially with small-bore needles. A slow, steady injection of 0.5 to 1.0 mL of HA filler is recommended for each treatment per temple. The injector may choose to place a finger posteriorly to ease the flow of product into the temple and prevent diffusion to the hairline and massage the temporal area to ensure even distribution of product and achieve smooth, optimal contour (Fig. 15.3). An alternative but equally safe and effective method to that previously described involves vertical injection of HA dermal filler on bone at a single point 1 cm lateral to the temporal fusion line, approximately 1 cm superior to the brow.[11] Using this method, maintaining the needle tip in contact with bone is paramount to avoid intravascular injection. Overall, both injection techniques are considered reliable, safe,

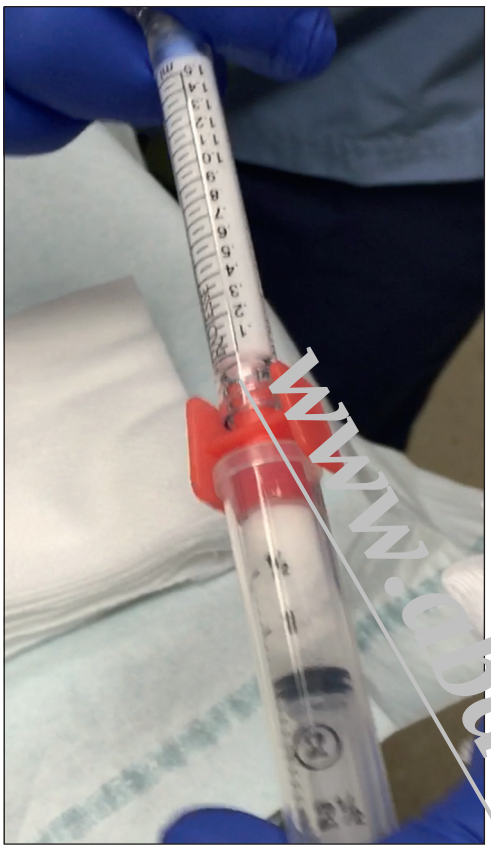

Figure 23.1 Technique to mix CaHA with anesthetic: 1.5 mL of 1% lidocaine without epinephrine in a Luer Lock syringe, attached to a syringe containing 1.5 mL of CaHA via a disposable Luer-to-Luer lock connector and mixed.

rejuvenation. They mixed 2.0 mL of 2% lidocaine without epinephrine per 1.3 mL syringe of CaHA. A total of 0.3 to 1.0 mL of the product was injected interdigitally using a 25-gauge 1.5-inch (3.75 cm) needle at three to five insertion points, as opposed to a single bolus injection. They reported high patient satisfaction rates with only a few short-term side effects, such as persistent edema requiring oral corticosteroids for resolution.

Several larger studies by Busso et al., Bank, and Marmur et al. have supported the safety and efficacy of CaHA as an anti-aging hand filler. Busso et al. published a multicenter, randomized controlled trial of 101 patients followed over 6 months and established a new hand volume severity scale to assess results. Following administration of a lidocaine bolus preoperatively, CaHA was administered as a bolus into the dorsal hand using a 27-gauge, 0.75-inch (20-mm) needle. Aside from reporting statistically significant improvement in the treatment group, the study also found that adverse events, including bruising, itching, pain, redness, and swelling (Fig. 23.2), were frequent yet short in duration and did not affect overall patient function significantly.

From 2013 to 2014 another prospective, randomized controlled study was performed in 114 patients who were randomized and received immediate or delayed treatment, which validated the primary findings supporting US Food and Drug Administration (FDA) approval. The Global Aesthetic Improvement Scale (GAIS) was used to evaluate effectiveness from "worse" to "very much improved." The Merz Hand Grading Scale (MHGS) Cohen, et al. Dermatol Surg. 2015 Dec;41 Suppl 1: S384-8, a five-point photonumeric scale, was used to objectively rate the severity of aging in the hand from 0 (no loss of fatty tissue) to 4 (very severe loss of fatty tissue; marked visibility of veins and tendons) (Fig. 23.3).

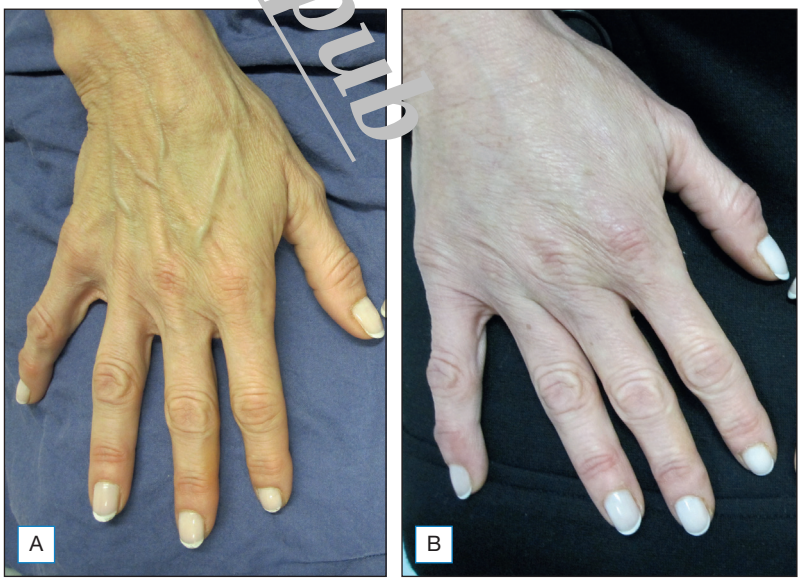

Figure 23.2 Postoperative swelling. Two weeks after injection of CaHA-lidocaine mixture the patient had clinical improvement but complained of persistent pain at rest and with movement. Her symptoms resolved after 1 month with oral corticosteroids and massage: (A) before treatment and (B) 10 days after treatment.