

DERMATOLOGIC SURGERY

VOLUME 35

NUMBER 12

DECEMBER 2009

ISSN 1076-0512

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Filler Injection with Micro-Cannula Instead of Needles

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The author has indicated no significant interest with commercial supporters.

Volume augmentation with injectable fillers has become a popular cosmetic facial procedure,^{1,2} with more than 1 million hyaluronic acid filler injections given in 2007, a 35% increase from the previous year.³ These procedures are typically performed using hypodermic needles, most often supplied with the product. There are numerous problems associated with needles, including pain, tissue damage from a sharp beveled edge, bruising and vessel laceration, the need for multiple punctures, and needle phobia on the part of the patient.⁴⁻⁶ In certain applications, using a longer, blunt injection device has numerous advantages for the injector and patient.

Small-gauge fat injection cannulas are commonly used for microinjection of fat in anatomic areas that require precision and atraumatic injection.⁷⁻⁹ These cannulas are available in various sizes and lengths for fat injection and have numerous advantages for filler injection in selected areas. I use a 0.9-mm (20 gauge) micro-injection cannula (Tulip Medical, Inc., www.tulipmedical.com) that is available in 4- or 5-cm length disposable and autoclavable models (Figure 1). The cannula has Luer-Loc and friction grip fittings to accommodate most common filler syringe types from various companies.

The main advantages of a 5-cm blunt cannula over traditional 0.5 inch needles are atraumatic injection and the ability to inject an entire lip or nasolabial fold using a single puncture site. In addition, it is easier to inject (less plunger pressure) the fillers through this cannula, and there is less injection pain

and less edema and bruising than with needles. Finally, multiple punctures are unnecessary. Explaining these advantages to the patient also seems to have a positive psychological influence on the procedure and recovery.

Because these cannulas are bigger than needles and blunt, they are not optimum for intradermal injections. The use of the injection cannulas for fillers is more applicable to areas of deeper injection such as the middle of the lip, tear trough area, and the midface¹ and jowl regions. These regions are traditionally treated in the deep dermal or subdermal plane and require "inflation" as opposed to the more precise intradermal micro-volume filling of individual rhytides. Areas where the fat injection micro-cannula is not optimal include the superficial nasolabial folds, philtral columns, superficial vermilion border, or other intradermal applications. The cannula is more advantageous than needles when providing volumetric plumping of the lip with deeper injections. Although this is traditionally performed with 0.5 inch needles, the repeated puncture and sharp point and bevel can cause bruising. With the fat injection cannula, a single entry point is used, and the 4.0-cm device can be inserted through the length of the entire lip. The filler is injected on withdrawal, and because of the larger bore of the cannula, there is little back pressure on the syringe, requiring less effort and making the injection more fluid and faster than pushing a gel through a 28-gauge needle. The atraumatic cannula tip is also gentler on the tissues than a sharp needle. Novice injectors are warned that the filler extrudes much

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ISSN: 1076-0512 • *Dermatol Surg* 2009;35:2005-2008 • DOI: 10.1111/j.1524-4725.2009.01323.x

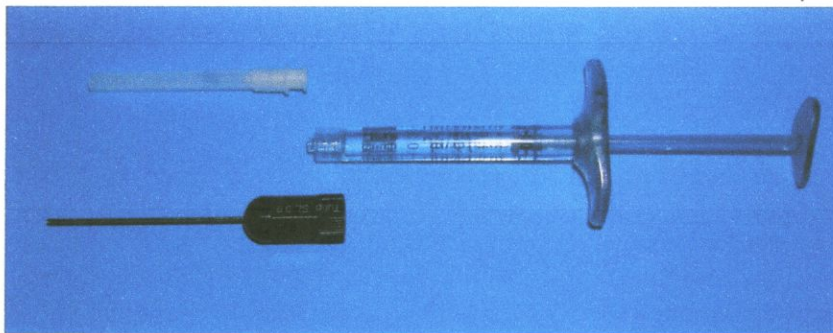


Figure 1. The 0.9-mm fat injection cannula is attached to the Luer-Loc connector on the filler syringe in place of the needle.

more easily and much faster from the cannula than from a standard filler needle.

The cannula is attached and purged of air, and an 18-gauge needle is used to make a single puncture at the inferior nasolabial fold region, or the oral commissure for the lips (Figure 2).

The micro-cannula is inserted the entire length of the fold or lip, and the filler is injected in a linear threading motion while withdrawing (Figure 3). When injecting the lip, filler can be tapered by injecting less laterally and increasing the deposition in the central third of the lip while withdrawing. For doctors who prefer antegrade flow, the injection can be done conversely by injecting the filler while advancing the cannula. The former is the author's choice when injecting larger volume areas such as the midface or prejowl depression (Figure 4).

Discussion

Doctors experienced with fat injection are familiar with the atraumatic nature of thin, blunt cannulas. The cannula is ideal for deeper nasolabial fold and lip filling as well as areas that require larger volume filling such as the midface and jowl regions. In essence, any filler application that requires deeper and voluminous fill can be performed with less trauma using the cannula instead of a needle. For indications or injectors that prefer intradermal or more superficial injection, the traditional needle is more advantageous because the cannula would be difficult to

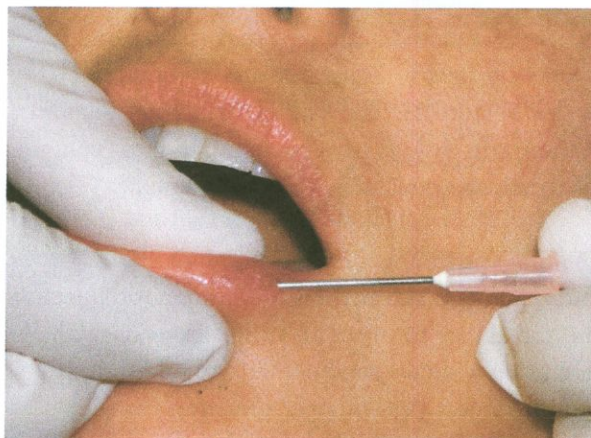
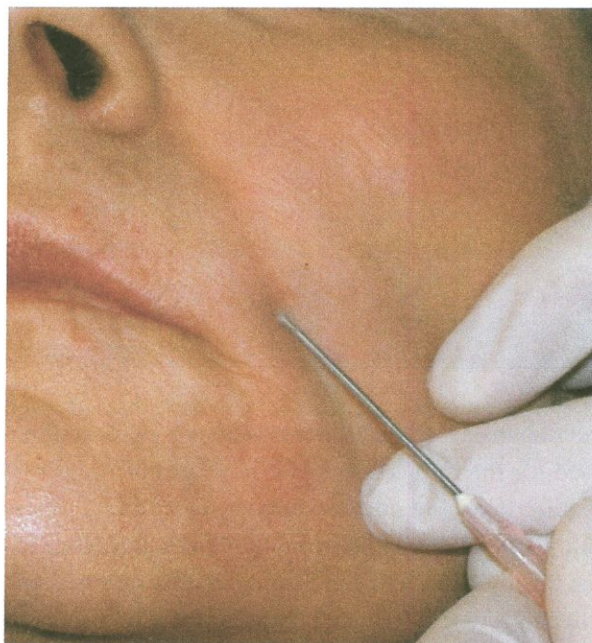


Figure 2. An 18-gauge needle is used to make a puncture at the injection site to provide tissue access for the blunt micro fat injection cannula.

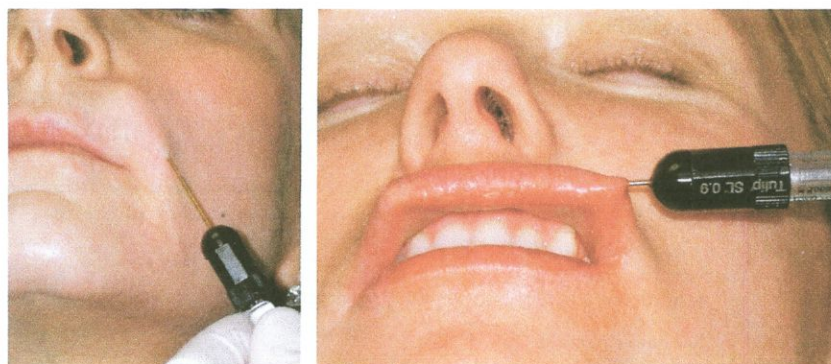


Figure 3. The micro fat injection cannula is inserted the entire length of the proposed augmentation, and the filler is injected upon withdrawal from a single puncture.

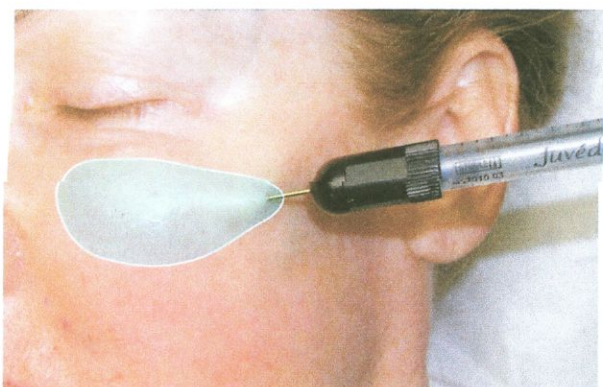


Figure 4. This diagram shows how to inject filler using the blunt-tipped micro-cannula in the midface and jowl regions.

navigate in more superficial planes such as transverse forehead or vertical lip rhytides.

Because gentle massage is frequently employed with filler injection to prevent lumps and “homogenize” the result, care must be taken not to extrude the filler out of the 18-gauge needle puncture site. To prevent this, the puncture site is pinched with the thumb and forefinger, and the massage is performed in the direction away from the puncture site.

Conclusion

Using a 20-gauge (0.9-mm) 5-cm, blunt micro fat injection cannula as an alternative to hypodermic needles can simplify filler injection in selected applications. This device has produced less edema and bruising (especially with lip injection) and faster recovery in the author’s practice. It can be considered for inclusion in the armamentarium of any cosmetic surgeon who injects facial fillers.

Author’s Note Recently Allergan has changed the thread system on their filler syringes, and the cannula may not seat as well as the older Allergan syringe thread system. Tulip Medical is working on an updated cannula to accommodate Allergan’s new thread system. In the interim, simply wrapping nonporous tape at the junction of the cannula and syringe will prevent filler leakage at this connection. Medicis injectable products have a threaded adaptor

on their syringes. This is easily pulled off the syringe, and the cannula adapts perfectly with a grip on the syringe end.

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