OPEN

PRS GLOBAL OPEN

VIEWPOINT

Cosmetic

Thickness-adjustable Injectable Poly-D,L-Lactic Acid: A Versatile Filler

Jui-Yu Lin, MD*; Chuan-Yuan Lin, MD*†

In recent years, there has been increasing popularity and interest in injectable fillers for facial rejuvenation. Hyaluronic acid (HA) fillers are the most widely used injectable fillers. Although there are many kinds of HA fillers on the market, each HA filler has its own rheological properties. Various facial regions may need fillers with different rheological properties. Therefore, there is no one HA filler suitable for all indications.[1]

Injectable poly-D,L-lactic acid (PDLLA; AestheFill, REGEN Biotech, Seoul, South Korea) is a collagen-stimulating filler.[2,3] Recently, we published two articles in the *Plastic and Reconstructive Surgery—Global Open* journal.[4,5] A vial of injectable PDLLA can be reconstituted by 1.5–24 mL of sterile water.[4,5] The suspensions are further divided into four groups of density for different indications of injection: thickest ($D_{1.5}$–D_3), thick (D_3–D_6), thin (D_6–D_{12}), and super-thin (D_{12}–D_{24}).[4] Various suspensions have different rheological properties. However, they have never been discussed in previous articles. The purpose of this article is to discuss the properties and volume effect variations of four groups on their different indications.

According to our experience and the animal studies,[2] by using $D_{1.5}$ suspension, volume decrease after injectable PDLLA administration is found to be minimal. Thereafter, the volume effect could last for 2 years. By using suspensions other than $D_{1.5}$, volume decrease occurs several days after injection due to absorption of additional water. Then, the residual volume remains the same and lasts for 2 years. Therefore, additional water approximately equals the water that exceeds 1.5 mL per vial. (**See table, Supplemental Digital Content 1,** which illustrates the properties and indications of four groups of PDLLA, **http://links.lww.com/PRSGO/C50**.)

For nasal and chin injection, "thickest" suspension is used because of its high elastic modulus (G') and

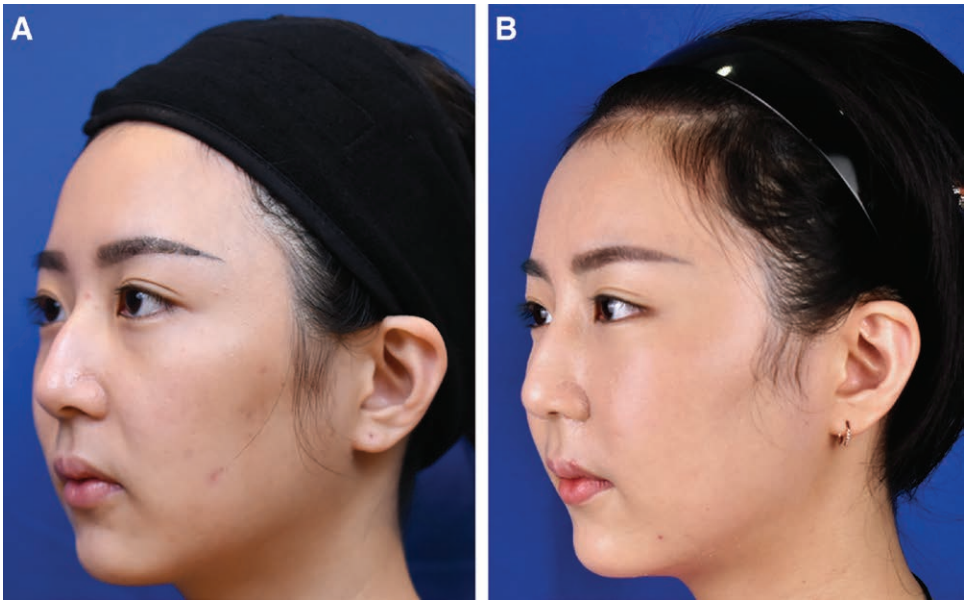

Fig. 1. A 24-year-old woman who received "thickest" suspension of injectable poly-D,L-lactic acid injection for her chin and hump nose, "thick" suspension for her naso-labial folds, "thin" suspension for her tear-trough deformities, and "super-thin" suspension for her mid-facial skin texture. A, Preoperative view. B, Eight-month postoperative view. (Photographs courtesy of Chuan-Yuan Lin, MD.)

*From *Li-An Medical Clinics, Taipei City, Taiwan; †Jourdenwell Aesthetic Clinic, Kaohsiung, Taiwan.*

Received for publication March 12, 2022; accepted April 11, 2022.

Plast Reconstr Surg Glob Open 2022;10:e4365; doi: 10.1097/GOX.0000000000004365; Published online 8 June 2022.

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.

cohesivity. With high G', the projection can be maintained because it can resist the compression force of overlying skin, fat, and muscle over bony prominences. With high cohesivity, lateral spreading of the filler is minimal.[1] For wrinkle correction or volume augmentation, it is better to use a filler that can spread easily so as to prevent the occurrence of obvious edges and bumps from happening. A filler with medium-to-low cohesivity would be the best choice.[1] Accordingly, "thick" suspension for deep wrinkle correction and "thin" suspension for shallow wrinkle correction are used. Additional water in these suspensions will be absorbed several days after injection. Therefore, overcorrection by using "thick" and "thin" suspensions seldom happens. For texture improvement over a large area skin, only the property of easy spreading is needed, instead of the volumizing effect of the filler. As a result, "super-thin" suspension would be the choice (Fig. 1).

There are some limitations in using this filler. The injection planes are the supra-periosteum and subcutaneous layers. Care must be taken not to inject the filler into other layers. For example, intramuscular injection easily causes nodule formation. Additionally, there is no dissolving enzyme for injectable PDLLA. Practitioners who intend to administer injectable PDLLA must be aware of potential risks and the management of adverse effects should they arise. Nevertheless, injectable PDLLA is a versatile filler for a wide range of indications.

Chuan-Yuan Lin, MD
Li-An Medical Clinics
4F, No. 267, Lequn 2nd Road
Zhongshan, Taipei 104452, Taiwan
E-mail: linchuanyuan@doctortou.com

PATIENT CONSENT

The patient provided written consent for the use of her image.

DISCLOSURE

Drs. Lin and Lin are medical consultants of Jiangsu Wuzhong Aesthetic Biotech., and medical directors of REGEN Biotech.

ACKNOWLEDGMENT

The authors want to give special thanks to Normand Mailhot-ME-TESL for his kind assistance with manuscript editing.

REFERENCES

1. Pierre S, Liew S, Bernardin A. Basics of dermal filler rheology. *Dermatol Surg.* 2015;41(suppl 1):S120–S126.
2. Lin CY, Lin JY, Yang DY, et al. Efficacy and safety of poly-D, L-lactic acid microspheres as subdermal fillers in animals. *Plast Aesthet Res.* 2019;6:16.
3. Chen SY, Chen ST, Lin JY, et al. Reconstitution of injectable poly-D,L-lactic acid: efficacy of different diluents and a new accelerating method. *Plast Reconstr Surg Glob Open.* 2020;8:e2829.
4. Lin CY, Pervykh S, Lysikova V, et al. Two-fold serial dilution: a simple method to adjust thickness of injectable poly-D,L-lactic acid. *Plast Reconstr Surg Glob Open.* 2021;9:e3753.
5. Lin JY, Lin CY. Adjusting thickness before injection: a new trend for preparing collagen-stimulating fillers. *Plast Reconstr Surg Glob Open.* 2021;9:e3653.