

Facial assessment for poly-L-lactic acid application—One product, different outcomes

Volume 7 Issue 3 - 2023

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Received: June 26, 2023 | **Published:** July 14, 2023

Introduction

Anatomical knowledge has improved and expanded over the years and now covers the three-dimensional view.¹ Therefore, an approach that balances all the facial structures, respecting the gender, ethnicity, and desires of each patient, could allow natural and harmonious results when using injectables.

The use of poly-L-lactic acid (PLLA), a collagen biostimulator, for aesthetic goals has grown exponentially.²⁻⁴ However, there is a lack of consensus about its real benefits some believe it's for laxity treatment, and others claim that it gives volume, or improve the skin quality. Because of this many injectors are afraid of volumizing faces that may need tightening without noticing that we may obtain both depending on how the injector decided to distribute the particles of the product, because in a nutshell: where the particles are is where the effect will be more pronounced. Thus, based on the clinical experience of the authors, we present here the main indications for the use of PLLA and its forms of application in the face for best obtaining the expected results in different facial shapes and needs.

Description of the rationale

Different patients' needs can be full filled by the same product (PLLA). For this approach, it is essential to carry out a rigorous facial assessment of the patient to determine bone losses, the status of superficial fat compartments, and skin quality.⁵ We suggest a stepwise assessment of these conditions, as shown in Table 1.

Table 1 Facial assessment based on the patient's baseline

Facial Assessment	Condition	
Facial shape	Heavy face	Thin face
Loss of volume in the zygomatic region	present	absent
Loss of facial contouring	present	absent
Loss of fat compartments (shadowing)		
anterior	present	absent
lateral	present	absent
submalar	present	absent
Skin quality issues—dermal atrophy, acne sequelae, accordion lines	present	absent

Based on this assessment, we suggest four different applications of PLLA, depending on the intended outcome (Figure 1).

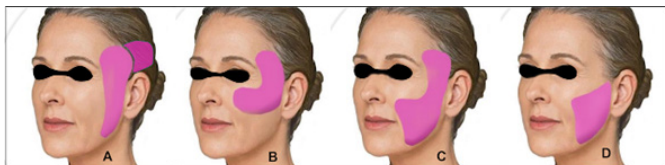


Figure 1 Scheme of the application according to the desired outcomes. A) Lifting effect in heavy faces with or without extension inside hairline; B) Lifting effect on consumed faces with zygomatic projection; C) Volumization for consumed faces; D) Skin quality improvement.

Heavy face-lifting effect with or without extension inside the hairline

These patients have thicker skin and filled fat compartments, especially superficial ones, predisposing them to a more rounded face. The retro ligamentar application should be made in the fixed part of the face, prioritizing the upper and lower temple, using a concentration of at least 50% of the PLLA volume in these areas. The rest of the volume should be injected laterally throughout the preauricular area from the zygomatic arch to the mandible (Figure 1A). In these cases, PLLA is rarely applied in the midface. The possibility of applying more than one vial may be considered, respecting the distribution suggested above (Figure 2).



Figure 2 An example of a man in his fifties with a heavy face. Four vials of PLLA were applied in the temple region after the hairline and from the preauricular to the jawline (retroligamentar injection), two vials each session, 45 days of interval. A – Before; B – Six months after the second session.

Lifting effect on consumed faces with flattening of the zygomatic projection

Patients with this condition have noticeable skin sagging with volumetric loss in the zygomatic area. Flattening, poor definition of the mandibular line and deflations on the face are commonly found.

To achieve a good lifting effect, we suggest the application of at least 70% of the PLLA volume in the temple (anterior and posterior temporal areas) and an additional volume over the zygomatic arch area. As for the remaining product, we recommend its application in the preauricular and posterior areas of the mandible (Figure 1B). Because there is a large area to be covered, the use of two vials in the first session should be considered to optimize the results (Figure 3).



Figure 3 Example of a woman aged 46-years old who needed volumization and zygomatic projection. Three sessions were needed, using one vial per session. A – Before; B - 45 days after; C- 3 months after the last session. Observe the increase in the length of bizygomatic diameter.

Volumization for consumed faces

Patients with great volumetric loss due to significant fat loss show areas of concavities or shadowing with a reduced reflection of light. High-performance athletes, HIV patients, post-bariatric patients, and those who have lost a great deal of weight also have this profile.

The PLLA should be applied in the temple, zygomatic arch, and submalar area in the first session (Figure 1C). Depending on the need, the use of two vials (one vial per side) should be considered. A cannula is the most recommended applicator due to the high risk of complications in these areas. In general, applying large amounts in the submalar area is not recommended due to the possibility of anesthetic results (Figure 4).



Figure 4 Example of a woman aged 35 years with volume loss in the temples and a narrow lower third of the face who needed to improve her facial proportions. The application was made in two sessions, three vials/session. A –Before; B – Six months after the last session.

The volumetric expansion obtained in pan facial but natural. We do not observe overfilled symptoms but rather a subtle reposition in the lost superficial fat compartments.

Skin quality improvement

Dermal atrophy, acne sequelae, fine wrinkles, and accordion lines, among others, are conditions that would greatly benefit from the use of PLLA to improve skin quality.^{2,3}

The application should be made with a needle in the subdermal plane, never in the intradermal plane. It should be as superficial as possible but still in the subdermal layer. Injections should be performed in parallel lines containing 0.01 to 0.02ml per line, with

the total volume around 1.0ml but up to 2.5ml in exceptional cases (considering a dilution of 8 to 10 ml in the initial vial) (Figure 1D). A needle length of $\frac{1}{2}$ to $\frac{3}{4}$ should be used to avoid volumization of the submalar area and other sessions may be needed (Figure 5). For acne scars, we suggest proceeding with a subcision of the whole area before injecting, to achieve better and long-lasting results.



Figure 5 Example of an athlete aged 60 years old with facial sagging needing skin quality improvement, mainly in the submalar area. Four vials in 4 sessions. A – Before; B – After three months; C – Six months after the last session.

Discussion

PLLA is a collagen biostimulator, the use of which will lead to optimal results if the correct indications are followed and the assessment of patients is handled skilfully.⁶ The application of PLLA based on the four indications described in this paper, according to facial assessment, could meet more specific outcomes and better match the results to the patient's desires. For fear of the results, some injectors may deprive themselves of the real true and consistent benefits of PLLA.

As is already known, PLLA plays an important role in improving skin quality,^{2,3,7} smoothing the facial surface, increasing skin thickness, improving the appearance of acne scars, and treating fine wrinkles. For these objectives, the application should be made as close as possible to the dermis, using a needle or cannula according to the injector's preference for both choices the injection is in the subdermal plane, avoiding intradermal and deep subcutaneous injections, thus ensuring that the product is actually injected below the dermis, where the fibroblasts have their optimal functioning. In the past the authors used a multi-level approach (subdermal, subcutaneous and supraperiosteal) but a recent publication by Mazzucco et al.,⁸ showed that using only subdermal layer we can get the same clinical and ultrasonographic benefits.

Although only the use of needles is approved in some countries, in Brazil, the use of cannulas has shown excellent results, as they require fewer injection sites, are safer in that they prevent intravascular injections, can be used in different topographic planes on the face, and are very useful in high risks area such as the temple. However, when opting for cannulas, we suggest using diameters between 21 and 23 G, paying special attention to stopping the retrograde injection 1 cm before the cannula comes out to avoid product accumulation at the base of the fanning, near the entry point of the cannula. The use of needles can also be considered, but due to safety requirements, areas such as the temple should be avoided, as should superficial intradermal applications. Injections should stop before the needle is removed to avoid inadvertent deposit particles in the intradermal layer of the skin. Needles are very useful for improving skin quality. The diameter of the needles should be between 24 and 27G.

The main purpose of this paper: to elucidate that the benefits will appear where the particles of the product are, so they can be driven by the injectors.

The patterns described in Figure 1 were studied during the last 12 years by the authors and they guarantee the delivery of consistent, natural and long lasting results for each of the 4 different purposes that a patient may need: Lifting effect in heavy faces, Lifting effect for faces that do not have a good zygomatic projection, volume regeneration and repositioning, and skin quality issues. The difference between them rely in the distribution and the concentration of the particles in the target areas.

Conclusion

The proposed method of clinical application is based on pairing a good facial assessment and using different patterns of distributing the PLLA to deliver different outcomes. One patient may need volume whereas another may need lifting and both results can be achieved but the amount of particles and the areas where they are injected are different,⁵ leading to the best practice of product application for patients that seek natural-looking and long-lasting results. We believe that based on this rationale, the benefits of PLLA and its versatility can be fully explored.

Acknowledgments

None.

Conflicts of interest

Dr Haddad and Dr Avelar are speakers and consultants for Galderma Brazil.

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