Personal orbicularis mouth muscle suspension technique for lip augmentation: a case report

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Abstract

The elliptical lip technique has been developed as a method to prevent dermal overfilling syndrome, a common complication in traditional lip augmentation procedures. This approach integrates an intraoral component, targeting specific anatomical points to elevate the orbicularis oris muscle, with a conventional extraoral technique. The present case report demonstrates how the elliptical technique allows for remodeling the contraction dynamics of the orbicularis oris muscle through targeted hyaluronic acid (HA) infiltrations. This dual approach—combining both intraoral and extraoral techniques—defines a new strategy for lip augmentation that avoids the common complications associated with dermal filler overload. The method involves suspending the orbicularis oris muscle via supraperiosteal HA injections, creating an upward vector that supports and repositions the entire premaxillary complex. The results of the clinical case demonstrate a natural enhancement of lip contour and volume, achieved through muscular support rather than excessive filler deposition, thereby preserving tissue expressiveness and minimizing the risk of "dermal filler syndrome."
Keywords: Lips, Filler, Muscular Lip Filler, Myo-Extrinsic Modulation, Lip Augmentation, Lip Technique, Neo-Muscular Approach

Introduction

The elliptical lip technique has been developed as a method to prevent dermal overfilling syndrome, a common complication in traditional lip augmentation procedures. This approach integrates an intraoral component, targeting specific anatomical points to elevate the orbicularis oris muscle, with a conventional extraoral technique. The motivation behind this study stems from the observation that the orbicularis oris muscle undergoes significant structural remodeling with aging, primarily due to premaxillary bone resorption. This osseous remodeling affects the maxillary and mandibular frameworks, resulting in a loss of ligamentous tension in the orbicularis oris muscle and a subsequent downward migration of facial soft tissues. Additionally, this degenerative process contributes to the elongation of the upper lip, altering facial aesthetics.
The technique presented here involves a combined strategy of deep, localized infiltration and mechanical elevation of the orbicularis muscle. This dual mechanism is intended to restore both tone and support at the muscular and cutaneous levels. By reestablishing the functional suspension of the orbicularis oris, the method offers a rejuvenating effect on the perioral region, enhancing both lip definition and dynamic expressiveness while minimizing the risks associated with volumetric overload.

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Clinical case

A 40-year-old woman presenting with reduced lip tone, primarily due to bone resorption of the maxillary region, was referred for treatment. She also offered, which led to an altered structure and function of the orbicularis oris muscle, resulting in visible lip contraction.

Before applying the technique, the patient underwent enzymatic treatment with hyaluronidase to dissolve any residual dermal filler from previous procedures. After a 60-day waiting period, the new treatment was administered. The patient reported both functional improvement—evidenced by decreased perioral tension, as assessed through subjective satisfaction questionnaires—and aesthetic enhancement in lip volume and contour.

The technique consists of five targeted intraoral injections combined with external volumization through micro-wheal injections along the vermilion border. The intraoral approach involves supraperiosteal infiltrations at specific anatomical landmarks: the nasal spine, the area adjacent to the third dental element, the canine region, and between the first and second dental elements. The product used in all treatments was LG Yvoire 720, a hyaluronic acid filler selected for its excellent volumizing capacity, high elasticity, low toxicity, and strong cohesiveness.

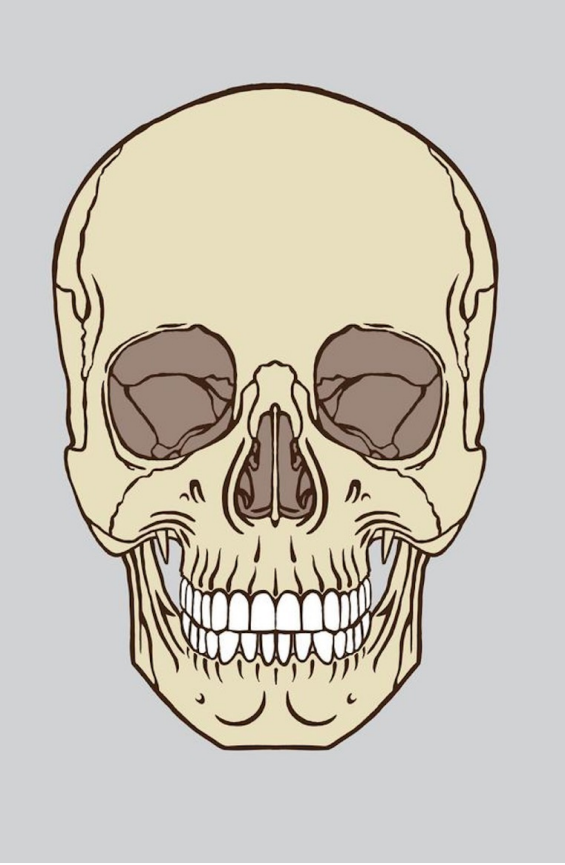

Figure 1. Anatomical landmarks on the frontal plane of the maxillofacial skeleton. Injection points include: (1) the nasal spine, located 5 mm from the gingival margin and adherent to the mucosa of the gingival fornix; (2) the interspace between the second and third dental elements bilaterally; and (3) the canine region.

This biphasic HA formulation ensures optimal injectability and integrates well with tissue, combining elasticity with mechanical lifting ability. Its molecular cohesiveness is specifically advantageous in resisting degradation from vertical compression forces, thereby maintaining projection and structural integrity over time. The product's high elastic modulus enables both precise placement and long-lasting aesthetic outcomes.

The objective of the proposed technique is to elevate the orbicularis oris muscle—an elliptical muscle structure—through a controlled mechanical push, thereby enhancing support and achieving lip volumization with minimal product usage. The method involves five precise intraoral infiltration points: the nasal spine, the area between the second and third dental elements bilaterally, and the canine region (Fig. 1).

This approach is designed to counteract the common adverse effects of traditional hyaluronic acid injections, such as granuloma formation, exaggerated upper or lower lip projection, unnatural lip contours, and increased orbicularis muscle tone due to filler overload (see Fig. 2). In contrast, this method uses targeted injections of small HA volumes to redefine the lip contour while avoiding heaviness or aesthetic distortion.

The technique is intended as an elegant and natural alternative to conventional methods such as the vertical or "Paris Lips" techniques. It begins with thorough disinfection of both the external lip skin and intraoral mucosa using chlorhexidine-based mouth rinses and hydrogen peroxide. Once cleansed, infiltrations are performed using a 30-gauge needle.

Each intraoral injection delivers 0.15 ml of HA at five predefined points:

1. Starting at the nasal spine.
2. Between the first and second incisors.
3. At the canine position.
4. Between the first and second dental elements on the contralateral side.
5. Between the third and fourth dental elements on the opposite side.

These supraperiosteal infiltrations create a mechanical fulcrum effect, lifting the orbicularis oris muscle that has descended due to age-related changes and bone resorption. Following this, micro-wheal injections are administered externally along the vermilion border and red portion of the lips (each 0.05 ml) to restore turgor without adding significant weight or volume.

This dual intraoral-extraoral approach yields noticeable and immediate volume enhancement, even with minimal product, due to the muscle's reactive elevation. The entire vermilion contour is refined, extending to the lower lip. The lower lip is treated using micro-wheal injections, while Paris Lip techniques may be employed to improve lateral extension (Fig. 3)

Electromyographic studies of the five injection points revealed a measurable reduction in orbicularis oris muscle contraction, resulting in a more dynamic, harmonious, and refined functional profile (Fig. 4). This outcome is attributed to the submuscular suspension and elevation effect induced by HA, which creates extrinsic myomodulation—distinct from the intrinsic modulation achieved with botulinum toxin.

Figure 2. Preoperative presentation of the patient exhibiting a skeletal Class III malocclusion.

Figure 3. Comparative pre- and post-treatment images of a patient with Class III skeletal malocclusion treated using the intraoral elliptical technique.

Discussion

As previously highlighted, extrinsic myomodulation represents one of the most critical components of this technique. Electromyographic analysis demonstrated that strategically placed supraperiosteal infiltrations of the orbicularis oris muscle could significantly reduce muscle contraction and influence the broader function of the perioral musculature.

Based on this principle, the authors applied a similar strategy to the labial portion of the orbicularis oris, aiming to observe whether comparable modulatory effects could be achieved. Post-treatment evaluations using isometric surface readings confirmed a reduction in muscle contraction, suggesting the creation of new isometric points within the orbicularis structure—an effect not previously documented.

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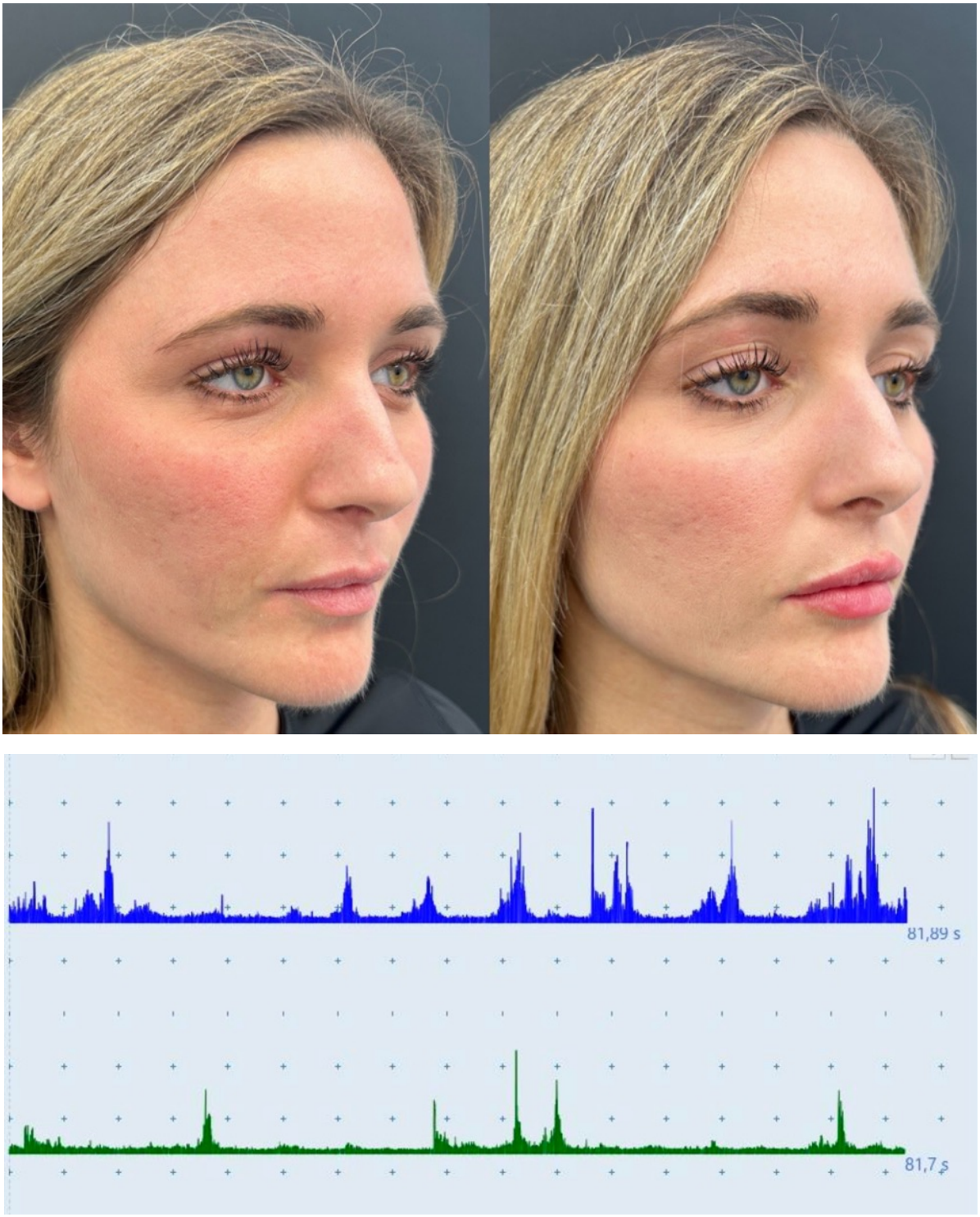

Figure 4. Electromyographic recordings taken before and after treatment show a measurable reduction in the intensity of orbicularis oris muscle contraction.

While many publications have addressed cutaneous filler techniques, there is a notable lack of studies exploring intraoral approaches. This work, therefore, proposes what may be the first electromyographic investigation specifically targeting the orbicularis oris muscle via intraoral access.

Ultrasound imaging confirmed that the filler remained stable at the infiltration sites over time, with no evidence of infection or complications. Strict antiseptic protocols were followed, including the use of chlorhexidine rinses and hydrogen peroxide cleansing of the mucosa and skin.

Muscle-focused analysis has become increasingly important, especially in the context of conditions like

Overfill Syndrome, which has emerged alongside the global expansion of aesthetic medicine. Lips are often the first area subjected to filler treatments, sometimes excessively and at frequent intervals. Such practices can lead to complications, including granulomas, migration, and stiffening of the orbicularis oris muscle.

To address these issues, the patient was pretreated with hyaluronidase, which facilitated the reactivation of physiological muscle tone before the new filler procedure. Another emerging complication under review is "Decado Syndrome," characterized by a decline in perioral muscular expressiveness, likely linked to impaired lymphatic drainage due to HA accumulation. In such cases, the skin and subcutaneous tissues appear edematous and poorly reactive, significantly diminishing the patient's expressiveness. As a result, facial expressions, including smiling, can be altered in patients with chronic overfilling.

The elliptical technique offers a solution by inducing a controlled reduction in the expression of the superficial orbicularis muscle. With carefully placed and anatomically sound HA infiltrations, it is possible to achieve long-lasting, stable, and harmonious results, restoring the expressive capacity of the perioral region.

In existing literature, intraoral filler injection techniques have only been described for two specific anatomical points, as in the so-called "bone-level" method. In contrast, the present technique modifies and expands the injection points to achieve a broader skeletal thrust along the premaxillary region, aiming to support and elevate the orbicularis oris muscle of the mouth more comprehensively and functionally.

The five standardized maxillary injection sites selected in this technique influence not only the orbicularis oris muscle but also the depressor of the nasal septum and the levator labii muscles. This anatomical targeting allows for precise modulation of muscle activation through both extrinsic and intrinsic mechanisms. The extrinsic myomodulation achieved here refers specifically to the biomechanical effects of HA infiltration on muscle dynamics, distinct from the inherent modulation induced pharmacologically via botulinum toxin.

Electromyographic recordings following the HA infiltrations revealed a measurable reduction in orbicularis muscle contraction. This was attributed to a neuromodulatory effect caused by changes in the position and insertion of the muscle bellies, resulting in a lower contraction intensity and workload, while enhancing the muscle's mechanical efficiency. Significantly, these infiltrations did not compromise the muscle's structural integrity or function, but rather optimized its action and reduced fatigue.

This modulation effect extended beyond the orbicularis oris, impacting the facial soft tissue dynamics of the middle and lower third of the face. The upward force generated by the HA, together with the natural expansion it provides, contributed to an aesthetic elevation of the overlying skin and subcutaneous layers, yielding a harmonious and rejuvenated appearance.

The technique is particularly well-suited for individuals showing signs of bone resorption—a common occurrence with aging—or in patients with maxillo-mandibular imbalance, such as class III skeletal relationships or diminished maxillary projection. In such cases, restoring premaxillary volume and structural support enhances both appearance and function.

Compared to traditional cutaneous filler approaches, intraoral supraperiosteal infiltrations demonstrate a lighter aesthetic impact, reducing the risk of facial heaviness or distortion often associated with superficial overfilling. Infiltrations at the maxillary level are especially indicated in patients with age-related maxillary resorption or underdevelopment. Infiltrations in the mandibular sulcus are beneficial for patients with retrognathia or chin hypoplasia, enabling a more harmonious reconstruction of the facial profile.

Conclusion

The present study aimed to evaluate both the functional effectiveness and the aesthetic enhancement of facial harmony achieved through intraoral hyaluronic acid (HA) infiltration techniques. Based on the clinical results and the current scientific literature, the elliptical lip augmentation method emerges as a valid and innovative alternative to conventional filler approaches. By utilizing both intraoral and extraoral HA injections, this technique not only provides structural support and natural volumization of the lips but also significantly reduces the risk of complications such as Overfill Syndrome. Furthermore, it offers long-term stability and restores the expressive functionality of the orbicularis oris muscle throughout the lips and the perioral region. This approach represents a shift toward a more anatomical, muscle-based philosophy in aesthetic medicine, prioritizing functional biomechanics and dynamic expressiveness alongside volumetric improvement. The elliptical technique thus stands as a scientifically grounded, elegant, and minimally invasive solution for achieving naturally enhanced lips with preserved muscular tone and aesthetic balance.

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