

## CI II Orthognathic Discrepancy Treated with Non-Surgical Procedure using HA: A Case Report

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### Abstract

**Background:** Dermal fillers offer a nonsurgical approach for reducing facial rhytides and restoring facial volume. Fine lines and wrinkles, loss of volume, texture changes, melasmas and solar lentiginos are common concerns seen in cosmetic practice. In dental clinical practice, besides rejuvenation aspect we can be faced up to malocclusions and orthognathic problems that leads to facial asymmetry, impaired oral competence, articulation deficits, and psychological problems. Treatment options include a multifaceted treatment plan, including orthognathic surgery. A variety of non-invasive approaches can be used to address the multiple tissue changes that can be undertaken. HA dermal fillers have become more widely used by physicians and a favorite for patients due to its immediate, natural-appearing effects with minimal adverse events and recovery time. The aim of this work was to rejuvenate and restructure the face of an Angle class II patient, previously recommended to orthognathic surgery, with mandibular retrusion and with expressive loss of facial volume, wrinkled skin and marked nasolabial folds.

**Methods:** In this case-report Hyaluronic acid-injectable fillers (Rennova Fill and Rennova Lift) were used for soft tissue volumizing and contouring. **RESULTS:** the decrease of the discrepancy between jaws, revolumization of cheeks, malar area, softened nasolabial folds, facial lifting and an overall rejuvenated aspect were observed. We concluded that HA fillers are less invasive procedures to treat many aspects of facial discrepancies, it is well accepted t by patients and should be offered as a nonsurgical treatment option in specific cases.

**Keywords:** Hialuronic Acid; Facial Volume; Asymmetry Face

### Introduction

Hyaluronic acid is a glycosaminoglycan biopolymer composed of alternating residues of mono saccharides D-glucuronic acid N-acetyl-D-glucosamine linked in repeated units. This substance has the enormous ability to bind water and form hydrated polymers of high viscosity. Hyaluronic Acid is naturally occurring in the same identical form in the intercellular matrix of dermal layers of the skin of all species and has an extraordinary high biological compatibility. The amount of hyaluronic acid in the skin decreases with age, and loss of this substance results in reduced dermal hydration and increased folding [1]. When the hyaluronic acid chains are chemically cross-linked, the solubility and the rheological properties of the material change and become more viscous and water-insoluble as gels. The physical properties of hyaluronic acid gels are controlled by the molecular weight and the concentration of the material and by the degree of cross-link [2]. The use of cosmetic injectables, including Hyaluronic Acid (HA) has significantly increased in popularity over the past two decades. The America Society of Plastic Surgeons reports an increase from 652,888 soft tissue filler procedures in 2000 to 2,3 million in 2014, whereas more invasive surgical procedures have become slightly less popular [3]. In the past, fillers were used for surface treatments with

a dermatologic approach and short-lived results. Today, fillers are no longer used to address wrinkles but mostly to restore volumes and the level of their injection is the deep planes and not the skin. This strategy of injection is based on surgical concepts and maintenance of results is the rule [4]. In dentistry there are some aspects of facial esthetics-the so-called “macroesthetic” profile that focuses on the overall facial appearance of the patient. Many patients are hyperaware of rhytides, or wrinkles, in the perioral region which may detract from an overall pleasing appearance [5]. But there are other situations where it’s possible to achieve a good facial harmonization, lifting effect and mitigate facial asymmetry of different etiologies.

**Case Report**

A 49-year-old non-smoker caucasian female was seen in January/2017 with concerns regarding wrinkling, loss of volume and photo damage to the mid and lower face, especially the perioral area. Besides that, she showed a significant discrepancy and asymmetry between lower and upper arches, which was caused by a Class II Division I malocclusion and that should be treated with surgical approach. The patient emphasized that she wanted gradual and very natural-appearing overall improvement and did not desire the surgery. To address her concerns, a multistep combination treatment plan was developed.

**Treatment Goals**

The goal in the midface augmentation was to restore the loss of volume to a dramatically change in its shape causing the lifting effect. As midface does not have clear boundaries to the limit of augmentation [6], we aim to reduce asymmetry using the more youth side as a template. Thus we planned injecting HA gel in the anteromedial cheek and submalar region of the contralateral side first. Once the close symmetry was reached other areas were filled in the following sessions. The secondary areas filled were nasolabial folds, nose, tear throughs, lower orbital fat pads, jaw line, prejowl sulcus and chin. A dermatologist treated the photo damage and melasmas.

**Preoperative planning and preparation**

The proper preparation of the patient includes an explanation to the patient about the individual concerns and the improvement that can be achieved with fillers. Despite patients hopes not all facial aging can be improved with fillers. Anatomic variations and stages of aging need to be considered when planning treatment. A written informed consent and a General Health Questionnaire should be obtained before the first injection session. A full facial analysis with standard photos documentation of the area being treated and the entire face should be done before any treatment [7], as showed in figure 1.



**Figure 1:** Complete Facial analysis at baseline.

**Procedures**

At baseline 1 ml of cross-linked HA gel (Rennova Lift) was injected to start laterally over the periosteum of zigoma in order to provide a firm and reliable base to lift the midface in supralateral direction. In the sequence, HA filler (Rennova Fill) was added to her nasolabial fold (1.0 ml total), to the tears troughs and to the lower orbital fat pads with a HA injection in the supraperiosteal plane to make the lower lid fullness less noticeable [10]. In march/2017 the patient returned to additional HA filler in the lips and filter (1.0 ml total) with Rennova Fill. Two months later 3.0 ml of Rennova Lift were injected into her cheeks, chin, prejowl sulcus, jaw line and nose. We aimed a modest chin augmentation and symmetry of the upper lip.

**Post procedure care**

The treated area was massaged thoroughly and cold compress were taken over it. The patient was asked to call if she experiences unusual pain, swelling, tenderness or bruising. The patient returned immediately to her usual activities.

**Adverse Effects**

Although adverse effects of HA injectables for soft tissue augmentation are relatively uncommon in the hands of an experienced injector, potential adverse events must be discussed with patients. The most serious complication of HA fillers involves injection into or around the facial vasculature [8].

FDA reports of adverse events associated with HA injections include bruising, erythema, swelling, pain, itching, and more rarely, infections or abscesses, raise bumps, allergic reactions, or tissue necrosis [9].

**Results**

Marked reduction in dynamic and static rhytids, reduction in perioral folds and volume loss, as well as overall improvement in texture and pigmentation were observed. The cheeks volume was restored as well as the shape and jaws contour. The eye lid and the zygomatic fillings caused the lifting effect. The Chin augmentation virtually corrected the CI II Angle.



**Figure 2:** Before and after Hyaluronic Acid (Rennova Lift and Rennova Fill). Overall revolumization, improvement of submalar cheek hollowness. The wrinkles were minimized and a better symmetry between sides was achieved. The appearance of the prejows was improved by filling the sulcus between jowl and chin with a supra periosteal injection, also a chin augmentation was achieved.



**Figure 3:** Before and after HA injection in the chin, prejows sulcus and nasolabial fold. Chin augmentation was achieved and harmonic relation between nose tip and chin was obtained.



**Figure 4:** Before and After HA injection adding a fine supraperiosteal volume to the nose dorsum and a small and careful injection below the nose ridge to give structural support to nose tip.



**Figure 5:** Before and after HA injection in the whole face after the third session. Overall rejuvenated skin's aspect and correction of the discrepancy between jaws. A significant chin's augmentation was achieved.

### Conclusion

Based on this experience, we concluded that HA fillers can be used successfully in the management of face asymmetry and for midface augmentation. It restores the loss of volume, the jaws contour and its shape causing the lifting effect. The Chin augmentation virtually corrected the CI II Angle. Combining this material with different techniques provided good results in this study.

### Conflicts of Interest

The authors have no financial or other conflicts of interest to disclose.

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