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Case Report

Combination of Products based on Hyaluronic Acid to Achieve Maximum Performance and Natural Results in the Middle Third of the Face: A Case Series

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Abstract

The middle third of the face is a wide region that is directly related to facial structure, for this reason it is a region frequently treated by professionals through cosmetic interventions. In this area there are several important structures that are correlated with each other, such as bones, ligaments, muscles, fat pads, and subcutaneous tissue. In order to properly treat the upper third of the face, it is important to know the characteristics of the products that will be used, since the interaction of the product with the anatomical area where it is injected directly interferes on the results obtained. The objective of this case series is to describe possible combinations of hyaluronic acid used in the middle third of the face to obtain natural aesthetic results. Three patients had the middle third of the face treated with an individualized treatment plan, combining different products according to the results objectives of each clinical case. The clinical cases illustrated and discussed in this case series demonstrate that the combination of hyaluronic acid-based products, the knowledge of the properties and differentials of each product, as well as the use of appropriate techniques, are favorable strategies to achieve natural results in the third face medium.

Introduction

Facial filling with hyaluronic acid (HA) is currently the second most performed minimally invasive aesthetic treatment in the world [1]. However, HA is not only used to fill grooves and pits, but also to shape facial contours and improve imperfections or asymmetries. The growth in the number of aesthetic procedures also leads to an increase in the amount of hyaluronic acid-based products available on the market [2,3]. By analyzing the face in a meticulous and detailed way, respecting the multifactorial aging process, it is possible to determine areas and techniques that will be used to perform procedures with HA [1-3]. The middle third is an important region for the restructuring procedures of the face, and this region is delimited by the periorbicular area and the base of the nose [4]. This is usually the region primarily chosen by professionals for cosmetic interventions on the face. The middle third of the face has a generous subcutaneous layer and good bone support, mainly represented by the maxilla, which is extremely affected during the aging process, as bone remodeling in the region is very accentuated along with the descompartmentalization of the superficial fat pads, processes that significantly contribute to external facial changes [5]. The vast majority of muscles that promote facial mimic are located in the middle third region of the face, so choose the right gel depending on the layer is essential to enable normal and natural movement of the entire region [6]. For this reason, know the characteristics of the products is imperative for every injector. The perfect synergy between the behavior of the product in relation to the anatomical site where it will be injected and the patient's expectation are fundamental to obtain healthy and natural results. Without the junction of this information the results will happen by chance or may not happen at all [7]. Thus, the objective of this series of clinical cases is to show possible combinations for the middle third of the face using the two Restylane technologies (NASHA and OBT), demonstrating good aesthetic performance while maintaining natural parameters.

Case Series

All patients who participated in this case series were submitted to a rigorous anamnesis before undergoing the treatment. Asepsis of the face of all patients was performed using 2% alcoholic chlorhexidine, and local anesthesia with 2% lidocaine with vasoconstrictor was used when necessary.

Clinical Case 1 - Refinement and light structuring

A 36-year-old male patient sought treatment to perform rejuvenation of the middle and lower thirds of the face. When analyzing the patient's facial parameters in detail, a loss of volume in the middle face area is evident, especially in the premaxillary and zygomatic arch regions. In order to restructure the region, a bolus injection of HA (Restylane NASHA) was planned in the anterior maxilla (0.5 ml on each side), bolus applied with needle (Gauge 27), to restore volume and projection. The choice for this gel was based on the characteristics of the patient and the product. The patient did not need a high projection, but rather a slight tissue lift in the maxilla. In the zygomatic arch region, hyaluronic acid (Restylane Refyne OBT - 0.3ml on each side) was used in the retroinjection technique, application performed with a cannula (Gauge 22), working through vectors refining the area, obtaining a natural result through an association of techniques and different fillers of hyaluronic acid. In addition to the treatment of the middle third of the face, applications were also performed on the patient in other regions of the face.

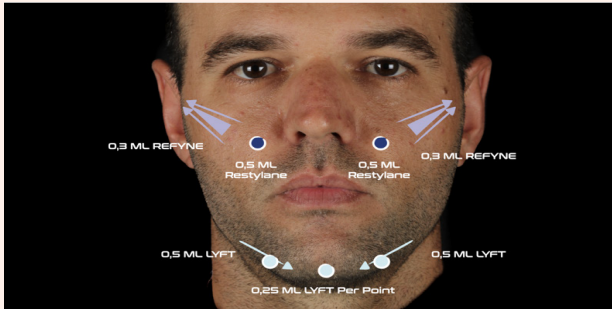


Figure 1: Mapping of the application of Hyaluronic Acid in the middle third of the face, showing areas of application in bolus, and areas of application by retroinjection.



Figure 4: Tissue repositioning after application of Hyaluronic Acid in the middle third of the face.

Clinical Case 3 - Movement control and maintenance

A 44-year-old female patient complaining of collapse of the central region of the face and formation of abrupt folds in the region of the base of the mandible. Another patient's complaint was exaggerated gingival exposure during smile. The products chosen for the middle face were again chosen according to the expectations and functional anatomical characteristics of the patient. For movement control and less gingival exposure, an extremely firm product with low flexibility was chosen, which would be responsible for block the gingival exposure during movement, Restylane Lyft, 0.3 ml in the nasolabial sulcus region, subcutaneous plane, application with a cannula (Gauge 22), in addition, 0.2 ml, also of Restylane Lyft, was applied in the Piriform fossa, bone tight plane and application with a needle (Gauge 27). In the maxillary region, Restylane Volyme was chosen, a contrary objective to the previous application, the latter has high flexibility and good capacity to allow and naturally follow the movements of the region, 0.5 ml per side was applied in the subcutaneous using a cannula (Gauge 22). In addition to the treatment of the middle third of the face, applications were also performed on the patient in other regions of the face.



Figure 2: Tissue repositioning after application of Hyaluronic Acid in the middle third of the face.

Clinical Case 2 - Structuring and Definition

A 42-year-old male patient complained of lack of strong and evident expression in the middle of the face. In a first analysis, it was noted that the bi-goniac distance was bigger than the bi-zygomatic distance, this inversion, especially in male patients, may not be so favorable. The patient had good tissue thickness, thus allowing the use of products with high capacity for vertical projection.

Specifically in this case, the option was the combination of 1 ml of hyaluronic acid (Restylane Lyft) divided into several bolus applied with needle (Gauge 27) along the bone tissue, along the zygomatic arch and maxillary region, additionally in the subcutaneous area, the application of 1 ml of hyaluronic acid (Restylane Defyne), in order to accentuate the definition of the region, application performed with a cannula (Gauge 22). In addition to the treatment of the middle third of the face, applications were also performed on the patient in other regions of the face.

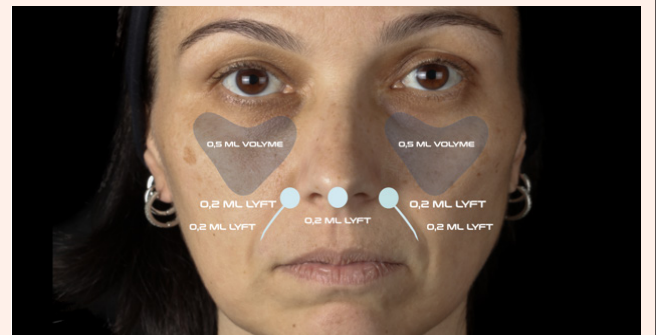


Figure 5: Mapping of the application of Hyaluronic Acid in the middle third of the face, showing areas of application in bolus, and areas of application by retroinjection.

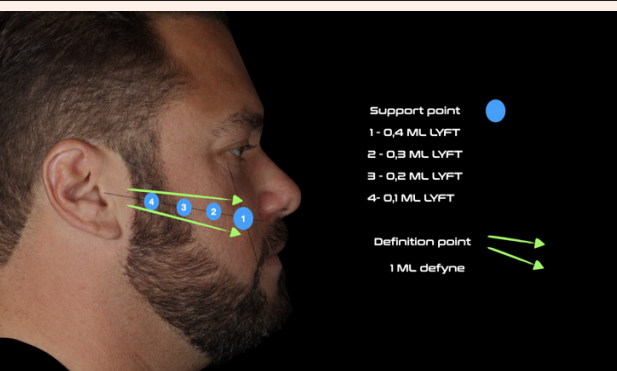


Figure 3: Mapping of the application of Hyaluronic Acid in the middle third of the face, showing areas of application in bolus (support points) and areas of definition where HA was applied by retro injection technique.



Figure 6: Tissue repositioning after application of Hyaluronic Acid in the middle third of the face.

Discussion

The facial aging process is constant and progressively and affects all layers of the face, the understanding of how this process happens in front of each facial anatomical structure helps in the elaboration of adequate treatment strategies with hyaluronic acid-based fillers [8]. When designing an individualized treatment plan for the patient, thinking about the management of the facial aging process, is essential to understand the properties of the products in order to choose appropriately and correlate with the expected effect (projection, volumization, restructuring) [8]. The primary approach to the lateral and upper face, especially in the region of the temple, zygomatic arch and angle of the mandible, bring the high potential to generate beneficial effects that are visualized in the integration with the other thirds and facial regions (panfacial results). As the repositioning potential is understood, with regional gains being quantified, it is possible to work with hyaluronic acid-based products in a more direct and objective way, obtaining more satisfactory results [9,10].

Available in Europe since 1996 and in Canada since 1998, Restylane is produced by fermenting bacteria from a specific strain of streptococci, and has been in clinical use for over 14 years, FDA approved in 2003 for correcting moderate facial wrinkles and folds, It is currently used in over 60 countries. Designed for injection in different layers, the NASHA (non animal stabilized hyaluronic acid) line differs in its products only in particle size, all maintaining the same crosslinking, being slightly modified gels with an excellent degree of effectiveness [11,12].

Due to highly sophisticated production technology, they are manufactured with hyaluronic acid stabilized with homogeneous particles and natural bonds that incorporate only 1% of cross-linking, characterizing a gel with a high degree of purity, requiring only a minimum amount of cross-linking agent, it is worth mentioning that the reticulation in all products of the line is the same, but the projection capacity is not, due to the difference in the size of the particles, thus Restylane Lyft, promotes a very accentuated vertical projection effect, sustaining the fabrics in a substantial way, around it, Restylane also has a good projection capacity but inferior to Restylane Lyft [13].

The gels with OBT technology (optimal balance technology) were developed for contour and natural expressions in dynamic areas of the face. They are mainly horizontal volumizers that present high flexibility, with smooth and diffuse tissue integration, indicated for mobile areas and to mimic superficial fat pads. With a concentration of 20mg/ml of hyaluronic acid, they present three degrees of crosslinking and three particle sizes that result in gels with different textures and different projection capabilities [14]. In general, products with a high G' (G prime) are firmer, with a more elastic response to pressure, better supporting dynamic facial forces, while products with a lower G' (G prime) are softer, consequently less elastic [15]. The anatomical knowledge, associated with the knowledge of the different gels as well as their properties and peculiarities, allows the optimization of the results, allowing the choice of gels suitable for each situation with a focus on the effects at the end of the treatment [9,10].

The product's firmness characteristic can indicate the plan of its application in most clinical situations, and the mixture of characteristics of the OBT line provides 4 different levels of products ranging from weak and extremely flexible gels, for application in more superficial planes and refinement (Refyne) to a product with high flexibility and medium firmness, extremely positioned for dynamic areas with a lot of mobility (Kysse), gels with good particle size that will perform a role of horizontal volumization and space occupation (Volyme) and finally a gel with great projection capacity, but with relative flexibility (Defyne) [7]. Tissue quality, the anatomical area in question as well as the expectation of the patient regarding the results are factors that must be taken into account during planning, so that it is possible to outline the most appropriate strategy and technique of application according to the selected gels [8]. The three dimensional approach to minimally invasive facial treatments with strategic associations of materials and techniques has led professionals to achieve better and safer results. Generally, approaches to the lateral face, behind the functional and anatomical line defined by the true ligaments, generate different effects than when products are applied to the middle face, in front of the ligament line. Specific application points on the lateral face for tissue repositioning, revert to indirect or non-regional effects of lifting the tissues on the middle face [16,17]. In the clinical cases discussed in this series, individualized strategies were mapped, and the choice of gels was made according to the expected effects on the final results as detailed in Table 1.

Table 1: *SC - Subcutaneous / Supraperiosteal (SP)

| | Objective | Area | Tissue Quality | Product | |
|--------------------------|--|---|--------------------------------|---|------------|
| Refinement | Slight refinements in the subcutaneous | Zygomatic arch and maxilla | Satisfactory or Unsatisfactory | Restylane (SC) | Figure 1 A |
| Volumization | Large and medium subcutaneous volumizations, thinner patients with good definition in the zygomatic arch and/or lack of contour and absence of volume in the maxilla | Zygomatic arch and maxilla | Satisfactory or Unsatisfactory | Volyme (SC) | Figure 1 A |
| Structure and definition | Combination with high tissue projection capacity | Zygomatic arch and maxilla | Satisfactory | Lyft (SP) and Defyne (SC) | Figure 1 B |
| Structure and definition | Combination with high tissue projection capacity | Zygomatic arch and maxilla | Satisfactory or Unsatisfactory | Defyne (SP) and Volyme (SC) | Figure 1 B |
| Movement maintenance | Maintain or improve movement of the middle third of the face, maintaining tooth and gum exposure | Maxilla, nasolabial sulcus and piriform fossa | Satisfactory or Unsatisfactory | Volyme (SC) and/or Refyne (SC) | Figure 1 C |
| Movement control | Decrease the movement of the middle third of the face, reducing tooth and gum exposure | Maxilla, nasolabial sulcus and piriform fossa | Satisfactory | Lyft (SC or SP) and/or Restylane (SC or SP) | Figure 1 C |

It is therefore clear that an effective application, with satisfactory effects in terms of volumization, structuring, definition and tissue repositioning depends directly on the choice of the appropriate gel. Faced with the varied possibilities of characteristics, it is possible to use different products and technical associations in order to optimize results. The application techniques performed on this series of clinical cases were also mapped taking into account the optimization of the final effects, as illustrated in Figures 1A, 1B and 1C.

Conclusion

The combination of products and techniques is an alternative strategy in treatments using hyaluronic acid, provided that there is an adequate understanding of the different properties and versions of the products, in addition to the knowledge of the effect that each specific product can provide, associating all this with the areas of treatment and knowledge of the anatomical structures present there, it is possible to obtain results with a high degree of satisfaction.



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