

Filling of the orbital inferior area and nasojugal groove with low concentration hyaluronic acid: a new application technique

Preenchimento dos sulcos orbital inferior e naso-jugal com ácido hialurônico de baixa concentração: uma nova técnica de aplicação

ABSTRACT

Non-surgical techniques used in the rejuvenation of the periorbital region, notably regarding injections of hyaluronic acid for the correction of depressed areas. However, in spite of the good results brought by these described techniques and products, there are still complications linked to their use, such as color alterations, irregularities in the surface of the skin, local edema, and long time of recovery. In an attempt to abate those undesirable effects, thirty patients were treated with a filler of low hyaluronic acid concentration, slowly and sequentially depositing small drops in a superficial plane, reminding a string of beads, with the subsequent application of digital pressure. This technique of easy application, has presented good aesthetical results and lower risk of undesirable effects and complications.

Keywords: hyaluronic acid; orbit; rejuvenation.

RESUMO

As técnicas não-cirúrgicas utilizadas para o rejuvenescimento da região orbicular tem gerado discussões, principalmente as injeções de ácido hialurônico para a correção de depressões locais. Apesar das técnicas descritas e produtos utilizados trazerem bons resultados, ainda estão associadas a alterações da cor, irregularidades na superfície cutânea, edema local e tempo de recuperação. Na tentativa de amenizar esses efeitos indesejáveis, 30 pacientes foram tratados com ácido hialurônico de baixa concentração, com a deposição lenta e sequencial de pequenas gotas lembrando um rosário, em plano superficial. Esta técnica trouxe bons resultados estéticos, facilidade na aplicação, e menor risco de complicações e efeitos indesejados.

Palavras-chave: ácido hialurônico; órbita; rejuvenescimento.

INTRODUCTION

The treatment of constitutional or aging-related deformities in the inferior and lateral orbicular areas and in the nasojugal groove using hyaluronic acid fillers has been described by Airan (2005), Kane (2005) and Goldberg (2006), and others^{1,2,3}. The periorbital area presents difficult anatomical characteristics for the application of fillers, due to the extremely thin constitution of the skin, its proximity to the orbital bone and the eye, the extreme vascularization of the area and the risk of blindness resulting from the compression of the optic nerve resulting from a retro-bulbar hematoma^{4,5}.

How do I do?

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We used hyaluronic acid fillers in normal clinical practice for two years, with concentrations varying from 20 to 25 mg/ml (25mg/ml Teosyal global®, 20mg/ml Restylane®, 24mg/ml Surgiderm 24XP® and 22.5mg/ml Esthelis®), diphasic or monophasic, with different degrees of viscosity and reticulation among the molecules, applied with needles or personal micro cannulas, in the deep dermis and/or beneath the orbicular muscle. We observed that some patients developed minor irregularities and alterations in skin color after treatment, or experienced sporadic swelling in the treated areas that sometimes persisted for a few months. These effects were probably related to the higher hygroscopic and volume replacement capacities of the higher concentration of hyaluronic acid and the products' high viscosity, in addition to the slower degradation caused by the high degree of reticulation.

MATERIALS AND METHODS

In an attempt to reduce these undesirable effects, we assessed the effects of a monophasic product with a low concentration of hyaluronic acid (Juvederm Refine®), injected in the medium to deep dermis of the orbital inferior and nasojugal grooves. Patients with deformities in the inferior orbital area, including the presence of pseudo-herniation of fat, were treated with 18 mg/ml Juvederm Refine®, filling in the infraorbital area and nasojugal groove, in private medical practices between July and December 2008.

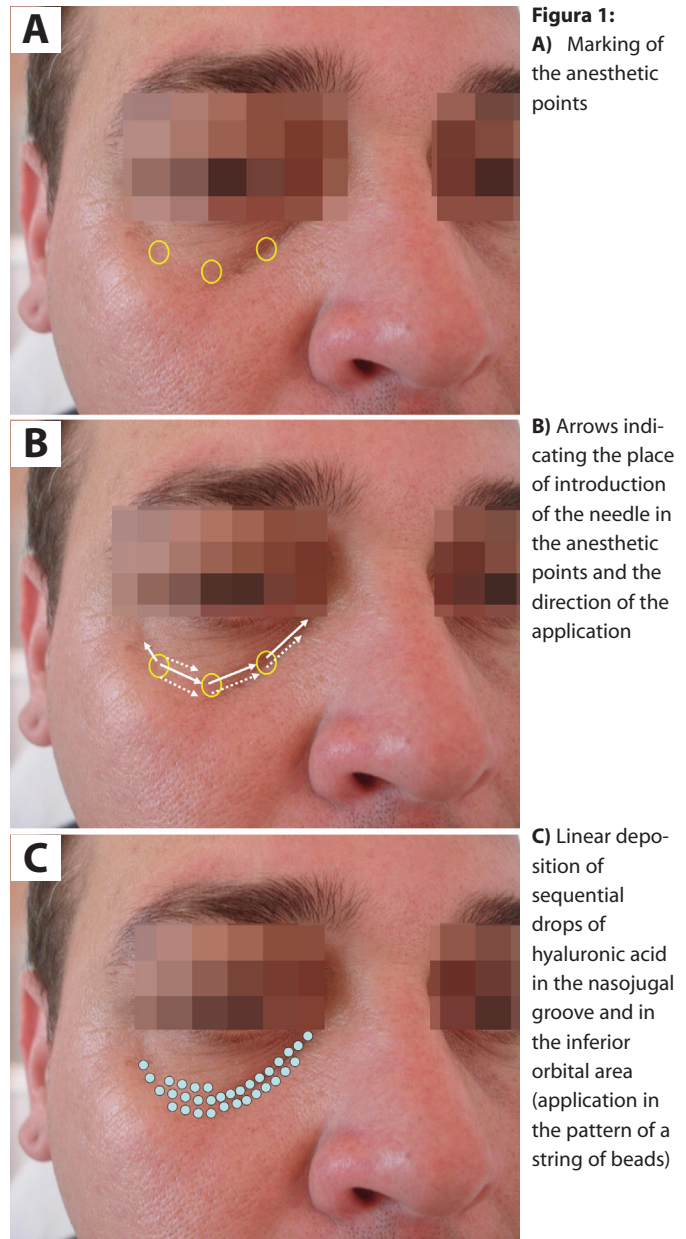
After a thorough evaluation of the patient in an upright position, the area to be treated was marked and pictures were taken. With the patient slightly reclined, the skin was cleaned with alcohol, and one to three anesthetic points were marked (Illustration 1-A). Subsequently, an intra-dermal injection of 0.03 – 0.05ml of lidocaine 2% with epinephrine was applied at the marked points, followed by the application of light digital pressure.

After 10 to 20 minutes, as the anesthetic points turned pale, the filler was administered with the insertion of a 30G 1/2 needle in the medial anesthetic point, up to the closest portion of the nose to be treated (Figure 1-B). Next, an intradermal retro-injection was applied, with the slow and sequential deposit of small drops of hyaluronic acid, resembling a string of beads (Figure 1-C). Without removing the needle, new lines of application were implemented parallel to the first, until the area was completely filled. After the withdrawal of the needle, digital pressure of average intensity was applied against the bone to evenly disperse the product.

The needle was then inserted into the next anesthetic point and the procedure repeated until the nasojugal groove and the orbit inferior border areas were completely treated. Immediately after the injections, light cold compresses were applied on the site. The patient was advised to avoid physical exercises and exposure to high room temperatures for 48 hours.

RESULTS

Thirty patients (24 female), aged 19 to 55 (average 37.5) were treated. All revealed a high degree of satisfaction with the



procedure, reporting an absence of pain during the application and immediate improvement, with a more jovial and rested appearance of the treated areas (Figures 2, 3 and 4).

The volume of filler injected varied from 0.1 to 0.4 ml on each side; most patients received from 0.15 to 0.25 ml per side.

No edemas, irregularities in the skin or visual alterations were observed after the procedure. Ten patients presented small, localized bleedings that disappeared within five days. All were capable of returning to their activities the day after the procedure.

In the follow-up consultation, 15 days after, seven patients received additional injections in localized areas, ranging from 0.05 to 0.15 ml per side. The maximum total injected dose, including the initial and the complementary application, reached 0.4ml per side in one patient only.



Figure 2: Before and immediately after the application of 0.2 ml of hyaluronic acid in each orbit



Figure 3:
A) Pre-application

B) Immediately after treatment of the lateral area of the orbit. Paleness of the anesthetic point still present. Total dose injected: 0.3ml per orbit.

C) Three weeks after

DISCUSSION

Due to the peculiar anatomy of the periorbital area, there is no consensus in the literature regarding the best technique for the application of hyaluronic acid in that site. Previous studies have described diverse application techniques in which the procedure was carried out through deep injections of great amounts of hyaluronic acid just above the periosteum: ¹ across a superficial plane (dermis), to lift the depression caused by the orbital malar ligament, ² beneath the orbicular muscle, using the multiple thin lines technique to create a tridimensional outline, ³ or through the deep application under the orbicular muscle associated with the superficial application ⁶. Hyaluronic acid products with concentrations of 20 mg/ml (Restylane[®], Perlane[®] and Hylaform[®]) were used in all described patients. The volume applied was usually greater than 0.3ml per orbit, reaching a total per orbit of 4.0 ml in one case ³. Adverse effects reported following the procedure were pain, hematomas, color alterations and cutaneous irregularities ^{1,2,3}, persistent edemas in the site or in the malar region for months after the procedure – which is five patients did not respond to the use of hyaluronidase ³.

We describe the treatment of the periorbital area with low concentration and low viscosity hyaluronic acid fillers using a new application technique, where the product is injected into the dermis, through retro-injections, with the placement of the drops resembling a string of beads. The low concentration and

low viscosity of the product, as compared to previously used products, were possibly the main factors for the excellent results obtained and the absence of undesired effects. The use of anesthetic points, in addition to providing comfort during the application, reduced the risk of bleeding resulting from the vasoconstriction caused by the epinephrine. With the intradermal application of the product, there is a low risk of vascular lesions due to the greater distance of the needle from neuro-vascular structures, such as the infra-orbital nerve and artery, located underneath the orbicular muscle. This distance reduces the danger of



Figure 4: A) Pre-application

B) 30 days after

C) 12 months after

blindness to an almost negligible risk. Moreover, no cutaneous irregularities were found even immediately after

application, the recovery time was insignificant, and the aesthetic results of small amounts of the product were excellent.

The decision to deposit sequential drops was made due to the good aesthetic results obtained using this technique in areas where there are muscular contractions. In this way, although the volume in the area is increased, edemas or the increase of rhytids in the inferior eyelids do not take place during the smile.

According to the manufacturers, the products remain in the skin for approximately six months. The applications were administered 18 months before this paper was written; until then, only one patient needed an additional application 13 months after the initial procedure. The more superficial application, the limited mobility of the local skin, and the dermal thickening stimulated by the hyaluronic acid were probably responsible for the longer duration of the treatment.

We believe that the choice of the injection points and the injected volume, rather than the concentration or reticulation of the hyaluronic acid, represent the main factors of success of this procedure, meaning that deeper locations must be chosen when more viscous products are used.

CONCLUSION

Therefore, our data suggest that treating the inferior orbital and nasojugal areas using a superficial injection points and a

filler with a low concentration of hyaluronic acid (Juvéderm Refine® 18mg/ml), can yield excellent aesthetic results, increase the ease of application, and reduce the risk of complications and undesired effects.

NOTE

In Brazil, Juvéderm Refine and Surgiderm 18 are different commercial names used to designate the same filler product, manufactured by Allergan. ●

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