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Myomodulation with hyaluronic acid for correction of gummy smile

Miomodulação com ácido hialurônico para o tratamento do sorriso gengival

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ABSTRACT

The "gummy smile" occurs when more than 3–4 mm of gingiva appears during the act of smiling. It is considered unattractive and causes aesthetic disharmony. It has a multifactorial etiology, with several techniques described for its correction. Myomodulation with hyaluronic acid is a non-surgical alternative with immediate and lasting results. In this article, we present a case of myomodulation with hyaluronic acid to correct "gummy smile" in a 31-year-old patient.

Keywords: Hyaluronic acid; Gingiva; Smile

RESUMO

O sorriso gengival ocorre quando há exposição de mais de 3-4 mm de tecido gengival durante o ato de sorrir. É considerado pouco atraente e causa de desarmonia estética. Possui etiologia multifatorial com diversas técnicas descritas para sua correção. A miomodulação com ácido hialurônico é uma alternativa não cirúrgica, com resultados imediatos e duradouros. Neste artigo nós apresentamos um caso de miomodulação com ácido hialurônico para correção do sorriso gengival em uma paciente de 31 anos.

Palavras-chave: Ácido hialurônico; Gengiva; Sorriso

Letters

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INTRODUCTION

The discomfort caused by the excessive gingival display, or a “gummy smile”, is an increasingly common complaint in dermatology practice. The choice of therapeutic approach must rely on a detailed analysis of the underlying factors.¹ Botulinum toxin is the most popular intervention. However, in some cases, the limitations on the natural movement of the facial muscles cause patient discomfort.² In these situations, myomodulation with hyaluronic acid (HA) is an effective alternative that yields immediate and longer-lasting results.^{2,3}

This article presents a detailed video analysis of the case of a 31-year-old woman with a gummy smile treated with myomodulation of the involved muscles.

Anatomical evaluation and proposed course of treatment:

Diagnostic assessment: (Figure 1)

Figure 1 analysis shows a gummy smile with an anterior pattern due to hyperactivity of the levator labii superioris/alaque nasi muscles.³ Conversely, when the facial muscles are at rest, the corner of the mouth is projected downwards, creating a sullen expression (“sad mouth”). The descended mouth corner causes in this patient are a hyperactive depressor anguli oris muscle, ptosis of the zygomatic retaining ligaments (the attachment points of the main elevation muscles of the mouth, i.e., the zygomatic major and minor), and deflation of the lateral suborbicularis orbiculi fat (SOOF), which acts as a pulley to facilitate the lifting action of these muscles.⁴ There is also some hyperactivity of the depressor septi nasi muscle, as seen in Figure 2.



FIGURE 1: Diagnostic analysis

1. Zygomaticus major m. - 2. Zygomaticus minor m. - 3. Orbicularis oris m.
4. Levator alaeque nasi m. - 5. Levator labii superioris m.

Proposed treatment: (Figure 2)

1. Supraperiosteal and infrazygomatic lifting and anchoring (using the lift technique⁵) and replacement of SOOF volume to increase the contractile power of the zygomatic muscles and facilitate mouth corner elevation.
2. Reduction of muscle hyperactivity through deposition of hyaluronic acid over the levator labii superioris alaeque nasi and levator labii superioris muscles. We used the same technique to decrease hyperactivity of the depressor septi nasi and correct ptosis of the nasal tip while smiling.
3. Myomodulation of the depressor anguli oris muscles will be performed at a later date.

Treatment steps as shown in the video:

1. Lidocaine 2% with vasoconstrictor is infiltrated into the infrazygomatic region with subsequent puncture using a 21G needle to introduce the cannula;
2. Lifting and anchoring of the zygomatic retaining ligament (using the lift technique⁵) with a 22G rigid cannula and supraperiosteal deposition of three 0.1 mL boluses of high G prime HA on each side. Then, the cannula is placed in the SOOF, and 0.2 mL of HA is deposited on each side, totaling 1 ml of filler.
3. The cannula is oriented toward the ala nasi through the superficial fat pads into the same puncture site.
4. The cannula traverses the nasolabial ligament and reaches the pyriform aperture.



FIGURE 2: Proposed treatment



FIGURE 3: Frontal image after the procedure



FIGURE 4: Lateral image after the procedure

5. Intermediate G prime HA was deposited over the levator labii superioris and depressor septi nasi to create a mechanical barrier to their hyperactivity. The volume deposited was 0.3 mL on each side. The filler was infiltrated slowly in microbolus increments of no more than 0.05 mL, to reduce the risk of extrinsic vascular compression. Aspiration of the cannula was always performed before HA deposition.

CAUTION: It is of paramount importance to note that the region of the pyriform aperture is considered to be at high risk of arterial occlusion due to its proximity to the angular artery. We suggest that applications in this region be performed with a 22G cannula, with 8 seconds of aspiration before each slow infiltration of a microbolus (maximum volume 0.05 mL).

6. Immediately after the procedure, there is a noticeable reduction of the gingival display, the elevation of the mouth corners, and improvement of ptosis of the nasal tip while smiling (Figures 3 and 4).

CONCLUSION

Knowledge of anatomical structures and the development of hyaluronic acid-based myomodulation techniques have increased the precision and optimized the outcomes of dermal filler procedures. We believe HA should be considered for correcting the gummy smile in cases where botulinum toxin has yielded unsatisfactory results and when the patient is searching for an immediate, longer-lasting effect. ●

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