



## **CORRECTION OF FACIAL ASYMMETRY OF THE UPPER THIRD OF THE FACE: CASE REPORT**

### **CORREÇÃO DE ASSIMETRIA FACIAL DO TERÇO SUPERIOR DA FACE: RELATO DE CASO**

### **CORRECCIÓN DE LA ASIMETRÍA FACIAL DEL TERCIO SUPERIOR DE LA CARA: REPORTE DE CASO**



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#### **ABSTRACT**

Facial and body aesthetic procedures are becoming increasingly popular due to the pursuit of symmetry and perfection. In this context, botulinum toxin (BTX) has emerged as an effective option for facial rejuvenation and harmonization. Its mechanism of action involves promoting flaccid and transient neuromuscular paralysis through chemical denervation. The objective of this study was to report a clinical case of a patient with facial asymmetry in the upper third of the face, describing its identification, diagnosis, and treatment. Methods: This is a descriptive case report developed at a teaching clinic specializing in Orofacial Harmonization. An alternative treatment using botulinum toxin type A was proposed. After its application, physical benefits, including improved muscle strength and endurance, as well as psychological benefits, were observed, providing improved quality of life, self-esteem, and overall well-being. The study concluded that, as a non-invasive and reversible method, it is a viable alternative for similar cases.

**Keywords:** Botulinum Toxin. Facial Asymmetry. Aesthetics.

#### **RESUMO**

Os procedimentos estéticos faciais e corporais estão se tornando cada vez mais populares devido à busca pela simetria e perfeição. Nesse contexto, a toxina botulínica (TxB) tem se destacado como uma opção eficaz para o rejuvenescimento e harmonização facial. Seu

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mecanismo de ação consiste em promover a paralisia neuromuscular flácida e transitória por meio da denervação química. O objetivo deste estudo foi relatar um caso clínico de paciente com assimetria facial do terço superior da face descrevendo sua identificação, diagnóstico e tratamento. Métodos Trata-se de um relato de caso do tipo descritivo, desenvolvido em uma clínica escola de especialização em Harmonização Orofacial. Foi proposto um tratamento alternativo utilizando Toxina botulínica tipo A, após sua aplicação foi observado benefícios físicos, da força e resistência muscular, bem como benefícios psicológicos, proporcionando melhoria da qualidade de vida, autoestima e bem-estar geral. O estudo concluiu que, por ser um método não invasivo e reversível, mostra-se uma alternativa viável para casos semelhantes.

**Palavras-chave:** Toxina Botulínica. Assimetria Facial. Estética.

## RESUMEN

Los procedimientos estéticos faciales y corporales son cada vez más populares debido a la búsqueda de la simetría y la perfección. En este contexto, la toxina botulínica (BTX) se ha consolidado como una opción eficaz para el rejuvenecimiento y la armonización facial. Su mecanismo de acción consiste en promover la parálisis neuromuscular flácida y transitoria mediante denervación química. El objetivo de este estudio fue reportar el caso clínico de un paciente con asimetría facial en el tercio superior del rostro, describiendo su identificación, diagnóstico y tratamiento. Métodos: Se trata de un reporte descriptivo de caso desarrollado en una clínica docente especializada en Armonización Orofacial. Se propuso un tratamiento alternativo con toxina botulínica tipo A. Tras su aplicación, se observaron beneficios físicos, incluyendo una mayor fuerza y resistencia muscular, así como beneficios psicológicos, que se traducen en una mejor calidad de vida, autoestima y bienestar general. El estudio concluyó que, al ser un método no invasivo y reversible, es una alternativa viable para casos similares.

**Palabras clave:** Toxina Botulínica. Asimetría Facial. Estética.

## 1 INTRODUCTION

Facial and body aesthetic procedures have become increasingly common in various areas of health services, driven by the search for symmetry and perfection. This demand has led a growing number of patients to seek minimally invasive aesthetic treatments that provide effective results in facial rejuvenation and harmonization (Gouveia *et al.*, 2020; Mendonça *et al.*, 2021).

Facial harmony depends on the relationship between function and aesthetics, and symmetry is influenced by muscle tone, controlled by the facial nerve (seventh cranial nerve), responsible for voluntary and involuntary contractions of the facial mimic muscles (KRAUL, 2019).

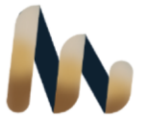
Facial expressions result from the contraction and relaxation of muscles, whose movements are transmitted to the dermis, leading to the appearance of wrinkles with different depths and extensions (FRASSON, 2021). These muscle actions are triggered by nerve impulses that originate in the central nervous system and travel from the motor axon to the muscle fiber, in a region called the neuromuscular junction (BRAGA, 2014; FUJITA, 2018).

The toxin is considered a neuromodulator that blocks the release of acetylcholine at the neuromuscular junction, preventing the communication of the nerve impulse from a neuron to the muscle. This mechanism, within the aesthetic procedure, triggers a local relaxation in the application, inhibiting muscle contraction and managing to soften wrinkles (STEINER; ADDOR, 2014)

Botulinum toxin, a protein produced by the bacterium *Clostridium botulinum* is classified into seven serotypes (A, B, C1, D, E, F and G), has in its type A (TXB-A) form wide aesthetic application. Used in the treatment of dynamic and static wrinkles, TXB-A seeks to improve facial symmetry, smooth imperfections and give the face a less tired and aged appearance, and is considered an effective method in the correction of aesthetic dysfunctions (KIM; HONG; KIM, 2017; FERREIRA *et al.*, 2014).

Botulinum toxin type A (TBA) is widely used in the treatment of facial asymmetries due to its effectiveness in smoothing wrinkles and correcting aesthetic imperfections in areas such as the nose, lips and eyebrows, and is considered one of the main non-surgical aesthetic procedures in the world (SOUZA; CAVALCANTI, 2016).

Thus, the objective of this study was to report a clinical case of facial asymmetry of the upper third of the face and to perform a brief literature review.



## 2 CLINICAL CASE

The 22-year-old female patient sought the Postgraduate School Clinic in Orofacial Harmonization of Teresina-PI with the aesthetic complaint of appearing more attractive and less "angry", wishing to treat expression lines and her facial profile. In the anamnesis, it was found that she was in good general health, without the use of medications, systemic diseases, history of hemophilia, pregnancy or lactation, and without allergies to drugs or components of botulinum toxin.

In the clinical examination, when tracing a vertical line on the patient's face, the action of the Facial Mimic Exercises was requested: 1. Raise the eyebrows; 2. Furrow the brows; 3. Frowning (smelly expression); 4. Close your eyes tightly; 5. Bring the lips closer and compress; 6. Smile showing your teeth; 7. Smile with lips together; 8. Blowing (filling the cheeks); 9. Protrusion of the lower lip; 10. Raise your eyebrows and open your mouth (expression of surprise).

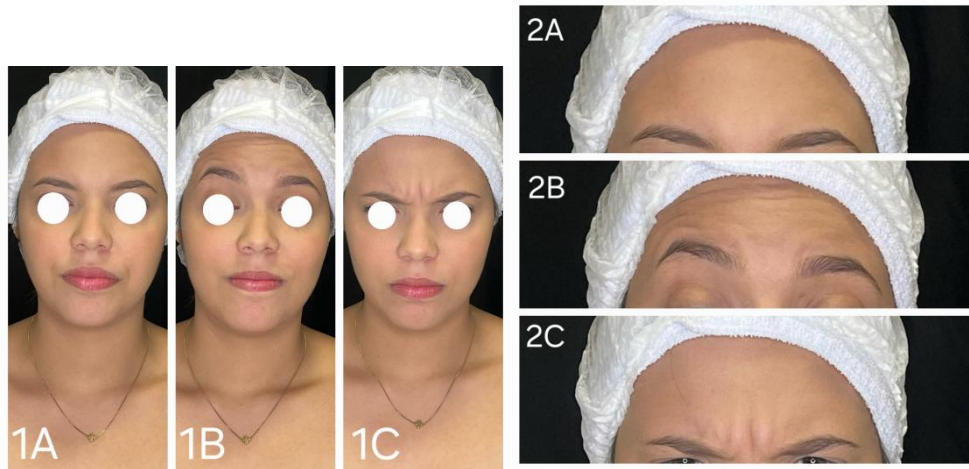
In the result of the facial analysis, a dynamic asymmetry associated with muscle hyperactivity of the Occipitofrontal Muscle (frontal belly of the epicranium muscle) was observed in the eyebrow lift in the left hemiface, generating a wider eye opening compared to the right hemiface.

Photographic records were made of the patient raising her facial expression muscles, muscles, (occipitofrontal) lifting the eyebrows and wrinkling the forehead; (orbicularis oculis) forcible closure of the eye, close to the eyelids; (eyebrow corrugator) pulls the eyebrow medially and inferiorly towards the nose; (procerus) brings the skin closer between its fixations, producing transverse wrinkles between the eyebrows.

According to the diagnosis obtained, a minimally invasive corrective treatment was proposed with the use of botulinum toxin. The patient was previously informed about the procedure to be performed and possible complications that could occur. The patient agreed and signed the Informed Consent Form (ICF) and authorized the use of her images in scientific events and activities.

**Figure 1**

*A) Patient at rest, before application, B) Elevation of the eyebrows, before application and C) Angry face expression before application*



Source: Prepared by the authors.

## 2.1 MATERIALS THAT WERE USED DURING THE PROCEDURE

- DYSPORT® Botulinum Toxin 500U;
- 1 ml syringe (insulin syringe) with 26-gauge needles (for aspiration of the toxin in the plunger) and 0.5-inch 30-gauge needles (for intramuscular injection);
- Sterile 0.9% Sodium Chloride Solution (bacteriostatic/preserved);
- Antisepsis with aqueous solution of 2% chlorhexidine digluconate;
- Sterile gauze and ice pack;
- Topical anesthetic lidocaine 4% (dermomax);
- Marker/pencil in white color.

## 2.2 BOTULINUM TOXIN APPLICATION TECHNIQUE

DYSPORT® 500U toxin was used, with the dry dilution method, in 2 ml of sterile saline solution (0.9%), using a 100 U insulin syringe for application. Asepsis of the region to be treated was performed, followed by markings for the application of botulinum toxin.

A total of 21 units of botulinum toxin were applied, distributed as follows: 7 units in the frontalis muscle, 2 in the procerus muscle and 6 units on each side of the corrugator muscle. The following is the table with the planning of the application.



**Figure 2**

*Botulinum toxin injection point scheme*



Source: Prepared by the authors.

**Table 1**

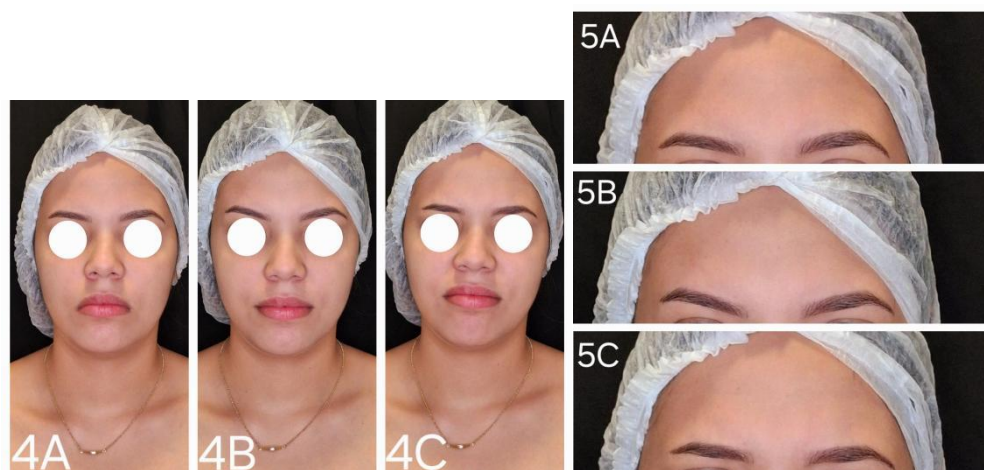
*Facial muscle actions and evaluation criteria*

| MUSCLE GROUP              | SHARE                                                                         | CRITERIA FOR TREATMENT                                                                                              |
|---------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Frontal (occipitofrontal) | Moves the scalp back, lifts the brow and wrinkles the forehead                | Asymmetry in the position of the eyebrows. Frontal wrinkles (horizontal lines on the forehead in motion, bilateral) |
| Eyebrow corrugator        | Pull the eyebrows down and towards the tip of the nose                        | Vertical medial lines in the glabellar region bilaterally. Asymmetry in the eyebrow positioning relationship        |
| Procerus                  | Lowere the skin between the eyebrows and aids in the dilation of the nostrils | Horizontal lines located at the root of the nose                                                                    |

Source: Prepared by the authors.

**Figure 3**

*A) Patient at rest, after application, B) Raising of eyebrows, after application and C) Angry face expression after application*



Source: Prepared by the authors.

### 3 DISCUSSION

The treatment of dynamic asymmetry of the left hemiface with botulinum toxin type A (TxB-A) proved to be effective in promoting facial symmetry during voluntary mimicry, as observed in the results obtained. The choice of BTT-A is justified by the fact that it is a minimally invasive, safe, temporary intervention with significant aesthetic results when applied appropriately.

Botulinum toxin acts by temporarily blocking the release of acetylcholine at neuromuscular junctions, leading to relaxation of overactive muscles (MARCILIANO; SILVA, 2017; SAINTS; QUARESMA, 2018). This mechanism of action provides a reduction in involuntary contractions and improves the balance between the sides of the face, being especially useful in cases of asymmetries such as the one reported.

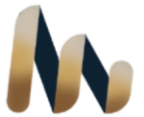
According to Thiesen (2015), facial asymmetries are common, but when noticeable, they can negatively impact the individual's self-esteem and aesthetic perception. The patient's desire to appear less "angry" and more attractive is related to the importance of facial expressions in social communication (LEWIS, 2018), highlighting the functional and aesthetic relevance of the proposed treatment.

Intervention with TxB-A is considered an efficient alternative to aesthetic procedures, as it does not leave scars, has a fast recovery, and has a low rate of side effects (FLÁVIO, 2019). In the case presented here, the patient had good results with the localized application, showing that, when there is precise anatomical knowledge and technical mastery of the professional, the toxin allows effective and safe aesthetic corrections (CARRUTHERS *et al.*, 2010).

In addition, the treatment is reversible, which offers safety for both the professional and the patient. The effect of the toxin begins between 24 and 72 hours after application and can last from six weeks to six months, depending on individual factors, such as sensitivity, metabolism and presence of immunogenicity (DALL'MAGRO, 2015; SILVA, 2018). This feature allows for adjustments and reapplications as needed, which aligns with the personalized aesthetic approach.

In the functional context, TxB-A helps modulate muscles responsible for involuntary and hyperactive actions. Camacho (2024) highlights that, by inhibiting muscles on the unaffected side, it is possible to create symmetry both at rest and during movement, as evidenced in the patient's positive clinical response.

Therefore, the findings of this case corroborate the literature, which recognizes botulinum toxin type A as one of the main therapeutic tools for the management of facial asymmetries, dynamic wrinkles, and local muscle dysfunctions. The success of the treatment



depends on the correct indication, the application technique, the precise dosage, and the individualized evaluation of each patient (SENISE *et al.*, 2015; LEAL, 2019).

#### 4 CONCLUSION

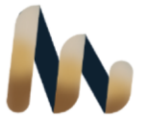
The use of Botulinum Toxin Type A was effective and safe in the treatment of facial asymmetry, providing muscle balance and improvement in facial expression. As it is a non-invasive and reversible method, it is a viable alternative for similar cases.

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