



## Correction of facial asymmetry following fat grafting with the application of fat-dissolving injections

*Correção de assimetria facial após implante de gordura através da aplicação de substâncias injetáveis lipolíticas*

DOI: <http://www.dx.doi.org/10.5935/scd1984-8773.2025170272>

### ABSTRACT

Autologous fat grafting is a common option for the correction of facial asymmetry. Recently, therapies using injectable substances that promote lipolysis have emerged to reduce undesired fat volume, offering an alternative to surgical removal of adipose tissue. We report an experimental case in which fat-dissolving injections were used to correct facial asymmetry following fat grafting, demonstrating satisfactory results with a minimally invasive procedure.

**Keywords:** Facial Asymmetry; Adipose Tissue, Subcutaneous; Mesotherapy.

### RESUMO

O lipoenxerto autólogo é uma opção para correção de assimetria facial. Recentemente, surgiram terapias que utilizam injeções de substâncias que promovem lipólise para reduzir o volume indesejado de gordura, substituindo a necessidade de cirurgia para remoção do tecido adiposo. Relatamos a seguir um caso de tratamento experimental com ativos lipolíticos injetáveis para correção de assimetria facial após cirurgia de transplante de gordura, demonstrando resultado satisfatório com procedimento minimamente invasivo.

**Palavras-chave:** Assimetria Facial; Gordura Subcutânea; Mesoterapia.

## Case report

### Authors:

Andrea Carvalho Souza<sup>1</sup>  
Carlos Roberto Antonio<sup>2</sup>  
Lívia Arroyo Trídico<sup>2</sup>

<sup>1</sup> Dermatology, Salvador (BA), Brazil

<sup>2</sup> Faculdade de Medicina de São Jose do Rio Preto, Dermatology, São Jose do Rio Preto (SP), Brazil

### Correspondence:

Lívia Arroyo Trídico  
E-mail: [latridico@gmail.com](mailto:latridico@gmail.com) /  
[ladermat@gmail.com](mailto:ladermat@gmail.com)

**Funding support:** None.

**Conflicts of interest:** None.

**Submitted on:** 27/06/2023

**Approved on:** 22/10/2024

### How to cite this article:

AC, Antonio CR, Trídico LA. Correction of facial asymmetry following fat grafting with the application of fat-dissolving injections. *Surg Cosmet Dermatol*; 2025;17:e20250272.



## INTRODUCTION

Facial fat grafting is a procedure used to correct congenital and acquired craniofacial anomalies, as well as signs of aging and photodamage. It is a therapeutic option in regenerative, reconstructive, and aesthetic medicine that offers optimal and long-lasting results. In the field of facial reconstruction, fat grafts have been increasingly used for the correction of congenital anomalies, Parry-Romberg syndrome, hemifacial microsomia, post-traumatic deformity, or defects caused by skin cancer surgery. Thus, these grafts play a role not only in restoring anatomical structures but also in addressing the functional aspects of the face.<sup>1</sup>

The success of lipofilling in surgical practice should consider not only fat graft retention but also effective augmentation at the recipient site and its clinical outcomes. In fact, increased soft tissue thickness or fat content due to graft retention is not necessarily accompanied by a symmetric and aesthetically pleasing result. Therefore, surgical treatment may often result in under- or overcorrection.<sup>2</sup>

Injectable agents can be used to reduce moderate fat accumulation by promoting lipolysis, offering a nonsurgical option for facial or body contour treatment. These treatments are commonly referred to as injection lipolysis or mesotherapy.<sup>3,4</sup> The dissolution of subcutaneous fat through injections has become more common over the past decades, and several studies have reported the efficacy of phosphatidylcholine, deoxycholate, L-carnitine, vitamin E, collagenase, hyaluronidase, and isoproterenol, among others.<sup>5</sup>

Considering the therapeutic challenge of achieving facial symmetry with fat grafting, we report, for the first time in the literature, the experimental use of injectable lipolytic agents to improve surgical outcomes and ensure greater patient satisfaction in a case of facial asymmetry.

## CASE REPORT:

A 59-year-old woman with no known comorbidities presented with a history of right hemifacial atrophy affecting the middle and lower thirds of the face, characterized by stable skin and subcutaneous fat atrophy since the age of 27. No defined cause, trauma, or local disease had been diagnosed. Physical and skin examinations were unremarkable, and there was no evidence of bone or neurological abnormalities. The patient had previously undergone facial fat grafting, involving the harvest of abdominal fat and its transfer to the right side of the face, by a plastic surgeon. One year after the procedure, she reported increased volume in the recipient site, resulting in facial asymmetry.

Magnetic resonance imaging (MRI) of the face revealed adipose tissue accumulation in the mental region of the right side of the face, extending to the mandibular and lower eyelid regions. The findings also showed thin intervening septa, with no evidence of expansive formations. The left side of the face appeared normal (Figure 1).



**Figure 1:** Magnetic resonance imaging of the face. Asymmetric increase in subcutaneous fatty tissue in the right side, extending to the maxillary region

To address the surgical overcorrection, a combination of lipolytic and antioxidant agents was administered to reduce fat volume in the right side of the face. The product used was Toskani Silhouette Cocktail®, a solution containing lipolytic agents (caffeine and L-carnitine) and antioxidants (extracts of *Centella asiatica*, artichoke, pineapple, and green tea). It has been approved by the Brazilian Health Regulatory Agency for topical use (registration number 25351.147646/2023-03), but in this case, it was administered subcutaneously in an off-label manner as part of an experimental treatment.

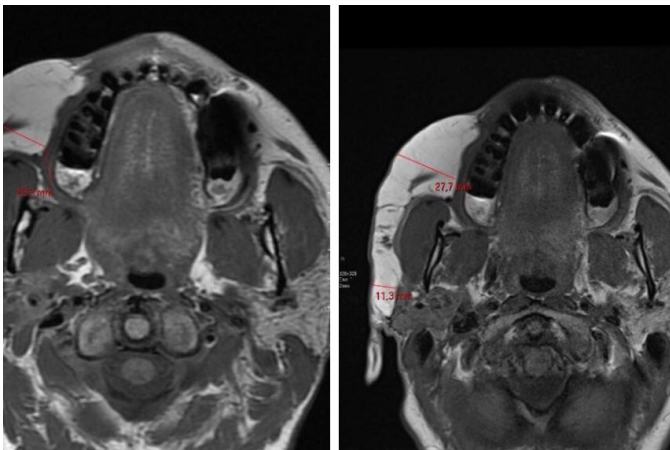
The treatment consisted of 9 sessions conducted at 15-day intervals. In the first four sessions, 3.2 mL of the solution was administered, with 0.1 mL injected per point at 1 cm intervals using a 30 G needle (0.30 mm × 13 mm). The injections were performed at a depth of 4–6 mm and at a 45° angle to target the subcutaneous plane. After the fourth session, two vials of hyaluronic acid were strategically injected at target areas using the Delta V Lifting® technique.<sup>6</sup> The remaining five sessions involved administering 2.5 mL of the solution, with injections distributed at the same volume and spacing (0.1 mL per injection at 1 cm intervals).

Treatment resulted in a marked reduction of the surgical overcorrection, with noticeable improvements in fat volume and a smoother texture upon palpation (Figure 2). Follow-up MRI revealed reduced adipose tissue accumulation compared to the previous exam and a more symmetrical fat distribution (Figure 3). Enhanced facial symmetry was noticeable, and the patient reported high satisfaction with the outcomes. Results were maintained during a 12-month follow-up period, with no adverse effects observed.

The patient provided informed consent for the proposed experimental treatment. No fees were charged for the procedure. The study was submitted to and approved by the Research Ethics Committee.



**FIGURE 2:** Before (left) and after (right) treatment. There is visible improvement in fat volume in the right side of the face



**FIGURE 3:** Magnetic resonance imaging performed before (left) and after (right) treatment. There is visible reduction in the thickness of the graft in its anterior portion, along with a more symmetrical distribution. Signs of hyaluronic acid filler in the subcutaneous tissue of the anterior and lateral regions of the face bilaterally

## DISCUSSION:

Perfect bilateral symmetry rarely exists in human faces, as certain degrees of asymmetry and deviations are considered normal.<sup>7</sup> When facial asymmetry is clinically evident, successfully restoring facial contour symmetry is particularly challenging.<sup>8,9</sup>

Fat grafting is one of the therapeutic options for correcting facial asymmetry. It is a labor-intensive procedure that has revolutionized reconstructive and aesthetic surgery since its first description in 1893.<sup>1,10,11</sup> Denadai et al. (2020) followed 167

patients who underwent fat grafting to correct unilateral facial asymmetry and showed that despite significant improvement in facial symmetry and contour, a substantial subset of patients required additional procedures.<sup>2</sup>

Recently, injectable treatments have emerged as nonsurgical options to reduce undesired facial or body fat.<sup>3</sup> Subcutaneous injections capable of reducing modest adipose tissue accumulation are known as lipolysis injections or mesotherapy.<sup>12,13</sup>

The Toskani Silhouette Cocktail® used in this study contains two lipolytic agents, caffeine, and L-carnitine, which mobilize accumulated fat for metabolic breakdown. Caffeine promotes lipolysis by increasing cyclic adenosine monophosphate levels through phosphodiesterase inhibition, in addition to increasing catecholamine (epinephrine) release via the sympathetic nervous system. L-carnitine is an amino acid essential for fatty acid metabolism, reducing triglycerides and cholesterol, increasing lipid oxidation, and facilitating the deliver of long-chain free fatty acids for mitochondrial oxidation.<sup>14,15</sup> The other components of the Toskani Silhouette Cocktail®, such as Centella asiatica, artichoke, pineapple, and green tea extracts, act as antioxidants, enhancing the effects of the lipolytic agents and assisting in fat elimination.<sup>15</sup>

The use of lipolytic agents, also referred to as “emptiers,” is well-documented in the literature, primarily for body fat treatment.<sup>16</sup> Although there are studies on their use for facial fat reduction, this case report is the first to describe the application of lipolytic agents in a facial fat graft. Toskani Silhouette Cocktail® allowed the correction of a surgical procedure in a less invasive and safer manner, yielding satisfactory results.<sup>15,17</sup>


## CONCLUSION:


The injection of lipolytic agents to correct facial asymmetry following fat grafting, as described in this experimental case report, demonstrated satisfactory results with the use of a minimally invasive procedure. Although the use of facial fat “emptiers” is relatively new, this study also demonstrated their applicability in reconstructive facial procedures with excellent outcomes. ●


## REFERENCES:

1. Egro FM, Coleman SR. Facial fat grafting: the past, present, and future. *Clin Plast Surg*. 2020;47(1):1-6.
2. Denadai R, Buzzo CL, Raposo-Amaral CA, Raposo-Amaral CE. Facial contour symmetry outcomes after site-specific facial fat compartment augmentation with fat grafting in facial deformities. *Plast Reconstr Surg*. 2019;143(2):544-556.
3. Rotunda, AM. Injectable treatments for adipose tissue: terminology, mechanism, and tissue interaction. *Lasers Surg Med*. 2019;41:714-720
4. Matarasso A, Pfeifer TM. Mesotherapy and injection lipolysis. *Clin Plast Surg* 2009;36:181-192.
5. Thomas MK, D'Silva JA, Borole AJ. Injection lipolysis: a systematic review of literature and our experience with a combination of phosphatidylcholine and deoxycholate over a period of 14 years in 1269 patients of Indian and South East Asian origin. *J Cutan Aesthet Surg*. 2018;11(4):222-228.
6. Antonio CR, Trídico LA, Esteves ALV. Nova técnica de rejuvenescimento facial com ácido hialurônico: delta V lifting. *Surg Cosmet Dermatol*. 2019;11(3):211-215.
7. Lu SM, Bartlett SP. On facial asymmetry and self-perception. *Plast Reconstr Surg*. 2014;133:873e-881e
8. Mulliken JB. The molders of this plastic surgeon and his quest for symmetry. *J Craniofac Surg*. 2004;15:898-908.
9. Cheong YW, Lo LJ. Facial asymmetry: etiology, evaluation, and management. *Chang Gung Med J*. 2011;34:341-351
10. Neuber GA. Fettransplantation. *Chir Kongr Verhandl Dsch Gesellch fur Chir*. 1893;22:66.
11. Saha S. Enxerto de gordura composta para correção de distrofia facial em caso de esclerodermia localizada. *Surg Cosmet Dermatol*. 2023;15:e20230181.
12. Matarasso A, Pfeifer TM. Mesotherapy and injection lipolysis. *Clin Plast Surg* 2009;36:181-192.
13. Duncan D, Rubin JP, Golitz L, Badyak S, Kesel L, Freund J, et al. Refinement of technique in injection lipolysis based on scientific studies and clinical evaluation. *Clin Plast Surg* 2009;36:195-209.
14. Kutlubay Z. Evaluation of mesotherapeutic injections of three different combinations of lipolytic agents for body contouring. *J Cosmet Laser Ther*. 2011;13(4):142-53.
15. Antonio CR, Trídico LA. Drug injection to reduce facial fat. *J Clin Dermatol Ther*. 2021;7:082.
16. Rittes PG. The use of phosphatidylcholine for correction of localized fat deposits. *Aesthetic Plast Surg*. 2003;27:315-8.
17. Talathi A, Talathi P. Fat busters: lipolysis for face and neck. *J Cutan Aesthet Surg*. 2018;11(2):67-72.

## AUTHOR'S CONTRIBUTION:

**Andrea Carvalho Souza**  ORCID 0009-0000-0973-0024  
Intellectual participation in propaedeutic and/or therapeutic conduct of studied cases.

**Carlos Roberto Antonio**  ORCID 0000-0001-9243-8293  
Study design and planning, effective participation in research guidance, intellectual participation in propaedeutic and/or therapeutic conduct of studied cases, critical review of the manuscript.

**Lívia Arroyo Trídico**  ORCID 0000-0002-7743-4195  
Study design and planning, preparation and writing of the manuscript, critical review of the literature, critical review of the manuscript.