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TREATMENT PROTOCOL FOR TISSUE NECROSIS CAUSED BY FILLING WITH HYALURONIC ACID

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Abstract: The objective of this article was to present a treatment protocol for tissue necrosis caused by filling with hyaluronic acid, developed in a 50-year-old patient, due to aesthetic therapy in the nasolabial fold region. A clinical and ultrasound diagnosis was made. As a therapy, emergency treatment with Hyaluronidase 2000 UTR was initially used, guided by ultrasound, flooding the entire filled region until vascularization was reestablished, prescription of oral medications, starting on an emergency basis with Sublingual Isordil 5 mg, Ciprofloxacin 500 mg 12 /12 hrs for 28 days, Metronidazole 250 mgr every 8/8 hrs for 10 days, and Predsin 20 mgr every 8/8 hrs for 3 days and on days 4 and 5 of 12/12 hours and Aspirin (acetylsalicylic acid) 500 mgr 12/12 hrs for 5 days. IV Low Level Lasertherapy daily for 7 days (6J per cm°). Indicated massages and hot compresses with Diprogenta ointment 3x a day interspersed with Ozonized Sunflower Oil. Auricular and Perilesional Ozone Therapy was performed once a week for 3 weeks and 8 hyperbaric chamber sessions. After 07 days, a significant improvement in the clinical condition was observed due to the adoption of the protocol, which resulted in success as a proposed therapy.

INTRODUCTION

The number of minimally invasive facial aesthetic procedures performed annually continues to increase worldwide. [1]

In 2017, more than 8.5 million non-surgical injection procedures were performed globally, an increase of nearly 850,000 from 2015, and these numbers are growing each year. [two]

Along with botulinum toxin, tissue fillers remain the most commonly performed minimally invasive cosmetic procedures. [3] However, their use presupposes some criteria such as technical knowledge, correct selection of material and mastery of the anatomy of the tissues into which they are injected. [4]

Carrying out aesthetic work on the face involves selecting the appropriate filler to obtain satisfactory, predictable and sustainable results. [5]

Fillers used in minimally invasive cosmetic procedures on the face include hyaluronic acid (HA), calcium hydroxyapatite, collagen-based products, and poly-L-lactic acid. [6]

HA fillers are considered safe, effective and reproducible, which, when used correctly, do not present a large percentage of adverse events. [4.7]

They can be used for furrow correction, lip augmentation, correction of depressed scars, facial contour correction, among others. [8]

Although HA injections are considered safe, some adverse events can occur. Undesirable effects in patients treated with AH may include immediate reactions such as swelling and erythema, paraesthesia, pain and bruising. Nodules and the Tyndall effect at the injection site can also be included. Rarely, more serious complications have been described, such as late-onset nodules, vascular occlusion with resultant tissue necrosis, intravascular blindness, and stroke. [7]

One of the most serious intercurrences that can be reported is the accidental intra-arterial injection of HA, which can result in significant tissue damage. When they occur, typical immediate clinical findings include blanching of the skin, vasospastic response with livedo reticularis, edema, erythema, paraesthesia, pain, bruising, and dark blue-red discoloration. Delayed clinical response may include blistering, tissue sloughing, late-onset nodule, and tissue necrosis. Depending on the affected area , more serious complications may occur, such as late-onset nodules, vascular occlusion with distant tissue necrosis, intravascular blindness and stroke. [9, 10, 11, 12, 13]

These adverse events and intercurrences can be minimized through proper indication

of the material, knowledge of anatomy, injection training and proper technique, correct diagnosis and planning, counseling and postoperative care.

The literature recommends that, in the obvious occurrence of a vascular obliteration process, emergency procedures are emphasized, since early intervention will tend to significantly reduce the morbidity of the process. This is followed by emergency treatment by local application of hyaluronidase (mainly in the places where the injections were made), immediate administration of oral acetylsalicylic acid, warm compresses and vigorous local massage. Secondary lines of intervention may involve ozone therapy, hyperbaric oxygen therapy and auxiliary vasodilator agents such as prostaglandin E1. [14, 15, 16, 17, 18]

The clinical case described proposes a form of emergency treatment of a patient with tissue necrosis diagnosed and occurred due to vascular obliteration by injection of HA for correction of the Nasolabial folds.

CASE DESCRIPTION

Female patient, 50 years old, came to our clinic with symptoms of Vascular obstruction of the Facial Artery caused by filling with Hyaluronic Acid in the region of the nasolabial folds. Vascular obstruction caused an evident picture of the beginning of tissue necrosis involving the Nasolabial folds, nose, Glabella and part of the Frontal region (Figure 1).

After the diagnostic, planning and treatment planning procedures, clinical interventions were carried out in order to control the condition and treat the problem. Briefly, after completing the relevant forms and documents, photographic images and ultrasound of the affected sites were taken. In this examination, it was found that the region of the nasolabial fold was compromised, which presented vascular obliteration (Figure 2).

In the same session, after careful local asepsis, local anesthesia was performed with Mepivalem 3% Without Vasoconstrictor (DLA Pharmaceutical LTDA - Catanduva /SP- Brazil) and 1 vial with 5 ml of Hyaluronidase 2000 UTR (Biometil - São Bento do Sul/ SC-Brasil) in the area Filled in a guided manner with Ultrasound (Saevo EVUS 5 /Brasil). After this procedure, IV Low Power Lasertherapy 6J per cm^{o} was performed and Sublingual Isordil 5 mgr was administered.

Once these first steps were concluded, the use of Ciprofloxacin 500 mg 12/12 hrs for 28 days was prescribed, Metronidazole 250 mgr 8/8 hrs for 10 days, Predsin 20 mgr 8/8 hrs for 3 days and on the 4th and 5 of 12/12 hours, and Aspirin (acetylsalicylic acid) 500 mgr 12/12 hrs for 5 days, and as *Home Care* indicated massages and hot compresses with Diprogenta ointment 3x a day interspersed with Ozonated Sunflower Oil. Auricular and Perilesional Ozone Therapy was performed once a week, for 3 weeks and 8 Hyperbaric Chamber sessions.

For seven days, the patient returned daily to our clinic for reassessment of the clinical condition, in addition to having received professional follow-up by telephone. After a week of follow-up, the patient returned every three days, with daily professional follow-up by telephone. Fourteen days after the start of the interventions, there was a significant improvement in the clinical picture (Figure 4). The patient had no signs or symptoms at the start of treatment, and no new complications inherent to the procedures adopted were observed.

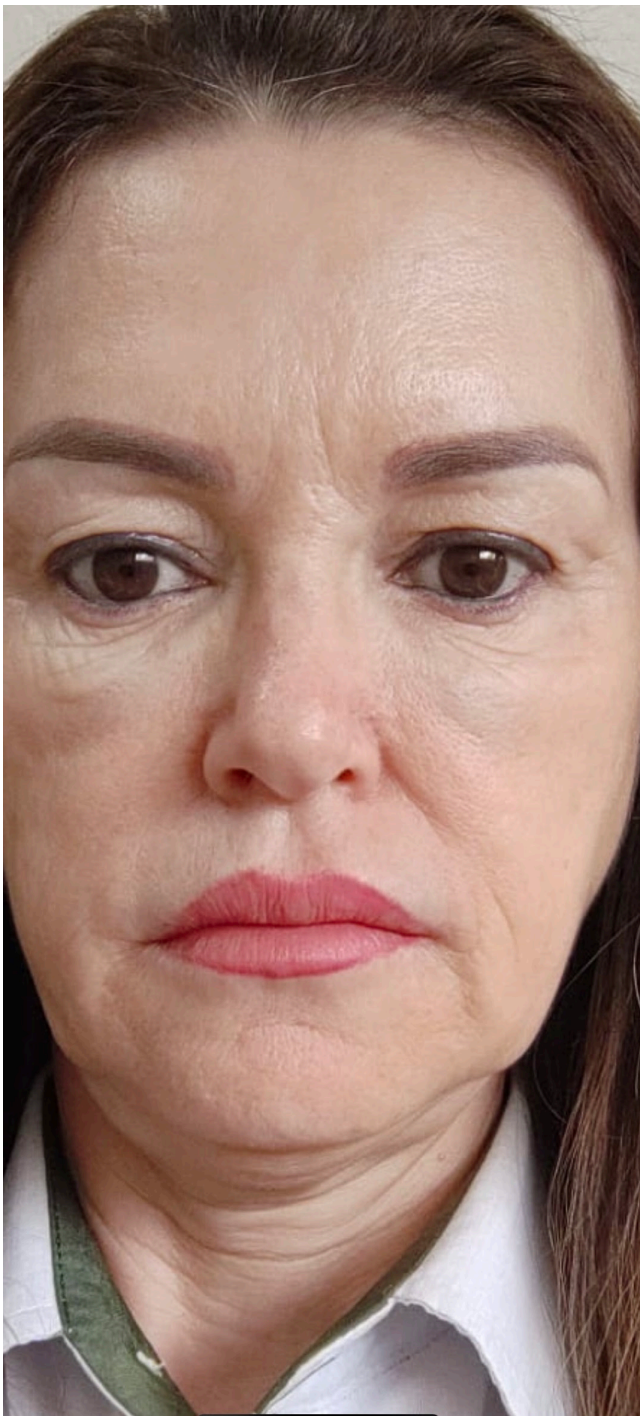
3 Days of Completion and Start of Treatment. Note vascular obliteration with pustules.

5 days in treatment

14 days in treatment

1 Month - Control

45 Days - Control. No tissue loss. Little stain on the skin. Indication of daily sunscreen and patient discharge.



1 year after completed treatment. No spots in the affected region.

DISCUSSION

Intercurrences with the use of HA on the face had a relative increase since the beginning of its use as a material for minimally invasive procedures with the purpose of aesthetic corrections.

This is probably due to the increase in these procedures that have been observed in the last decade. A greater number of professionals have been using fillers as the material of choice for aesthetic use on the face, and this certainly increases the number of complications.

Anatomy knowledge, correct indication of the material according to the areas to be applied, the properties of the materials, knowledge of the consequences of its application in areas not indicated, skill and technical training, can represent differentials between developing or not a due intercurrence to its inappropriate use. Our team has demonstrated, in recent experiments, that properties such as viscosity, elasticity and storage temperature can interfere with the properties of HA, and, as a consequence, alter its quality as a filler material.

Studies show that the procedures to be adopted for the correction of tissue necrosis range from emergency procedures, immediately after checking the first signs of local symptoms [14,15], to more significant procedures, when the condition is more advanced [17]

Early diagnosis can be essential to resolve an important and more compromising clinical condition. For this, ultrasound examination of the affected regions can prevent serious consequences, as well as guide the procedures to be adopted. [5]

In the clinical case described, ultrasound was used to guide the diagnosis and the procedures that were adopted. In this case, there was evident vascular obliteration, which suggested that hyaluronidase must be immediately treated as an emergency and that vasodilator, antimicrobial and anti-inflammatory drugs be used, as a factor to prevent and reverse the initial necrosis.

The observed improvement was gradual and progressive, where immediately after the beginning of the interventions there were already signs of vascularization recovery through the mechanism of local digital tightening and the ultrasound images showing local revascularization, and day after day the bubbles dried up and the color faded. becoming less reddish.

It is considered important that the patient's daily follow-up during this critical phase is essential for successful treatment. In the returns, it is possible to observe and monitor, in real time, the entire process of action of the procedures adopted, and the need for any correction or implementation that may be necessary.

After 14 days there was a complete recovery of the tissues, which showed the importance of the diagnosis as well as the correct adoption of the procedures. This is corroborated by different studies that refer to the control and treatment of intercurrences resulting from minimally invasive aesthetic procedures on the face. [4.7]

It is possible to foresee that new studies can guide professionals regarding their competence in indicating and performing aesthetic procedures using HA, since these, in general, are safe and admit good results.

Thus, it is considered that more blind, controlled and randomized clinical studies comparing materials, techniques and procedures must be carried out in order to guide health professionals regarding the use of HA, since it is a material in increasing development.

CONCLUSION

The treatment protocol for tissue necrosis caused by filling with hyaluronic acid on

the face admitted success in controlling the process of signs and symptoms inherent to vascular obliteration. However, for success, agility and association of procedures is essential so that the reversal of obliteration and tissue recovery is immediate.

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