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EFFICIENCY OF HYALURONIDASE IN REDUCING POSTOPERATIVE ECCHYMOSIS IN CERVICOFACIAL LIPOSCULPTURE SURGERY

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ABSTRACT:

Background: Ecchymosis is frequently present in the postoperative cervicofacial liposculpture surgery, but patients often wish for a way to minimize bruising so that other people do not notice the cosmetic intervention. **Objectives:** This case report has the objective to stimulate further studies about the use of hyaluronidase in reducing postoperative ecchymosis. **Article design and setting:** In this article we show two case reports of patients that had cervicofacial liposculpture surgery and the satisfactory outcome of using hyaluronidase. **Results and conclusion:** Hyaluronidase seems to be efficient in the case report, in agreement with reports in the literature regarding the use of hyaluronidase as means of promoting the reabsorption of subcutaneous hematomas.

Key words: hyaluronidase; ecchymosis; cervicofacial liposculpture; case report.

INTRODUCTION

Among facial aesthetic treatments, cervicofacial liposculpture is a popular procedure, which removes and infiltrates autologous adipose tissue[3,4]. This technique removes excess fat from certain regions and uses it as fillers in other regions of the face, such as furrows and depressions, restructuring the tissue surface, and, consequently, improving the definition of facial contours and providing rejuvenation to the patient[3,4].

It is important to emphasize that in 1985, Dr. Jeffrey A. Klein revolutionized liposuction surgery by developing the tumescent technique, which allows liposuction to be performed under local anesthesia with minimal blood loss, eliminating many medical and cosmetic problems associated with liposuction procedure[5,13]. This technique involves subcutaneous infiltration of a large volume solution containing low concentrations of lidocaine, epinephrine and sodium bicarbonate, providing anesthesia and hemostasis for the tissue[16].

The surgical technique of liposculpture is performed under local anesthesia, in which small incisions are made in the skin for the introduction of hollow cannulas, that aspirate the subcutaneous adipose tissue cells by negative pressure, sculpting unwanted deposits of fat in the face and neck[3,1].

The occurrence of ecchymosis in the postoperative period of surgeries, including cervicofacial liposculpture, is very frequent, and may occur due to the mechanical trauma suffered by the tissues during the procedure[9].

Trauma in the tissue can often be caused by the mechanical action of the cannula, resulting in a bruise close to the skin, which manifests as a bluish/purple mark in the tissue around the injection point. The introduction of cannulas has reduced this occurrence, but it can still be prevalent regardless of the use of needles or cannulas[10]. Ecchymosis occurs when extravasated blood accumulates in the tissue, usually when trauma causes vessel rupture and there is blood hemorrhage in the interstitial tissue[10,11].

Although this complication does not represent danger to the treatment, the procedure gets visibly evident, which ends up creating a type of “social downtime” for the patient, since patients often want to minimize bruising so that other people do not notice the cosmetic intervention[17,10, 19].

Hyaluronidase belongs to a family of enzymes known to degrade hyaluronic acid. This enzyme has the ability to increase vascular permeability and temporarily break the extracellular matrix, promoting the diffusion of substances through the tissues. It is an endoglycosidase that temporarily and reversibly depolymerizes hyaluronic acid into monosaccharides, cleaving their glycosidic bonds. Furthermore, to some extent, it also breaks down other acidic mucopolysaccharides in the connective tissue, this creates microchannels in the interstitial matrix that allow fluids to flow, thus temporarily reducing the viscosity of this tissue and making it more permeable to the diffusion of liquids[6,12].

There are already reports in the literature regarding the use of hyaluronidase as a means of promoting the reabsorption of subcutaneous hematomas[7,8,17]. This can occur because hyaluronidase has the ability to break down hyaluronic acid, which is the fundamental substance of connective tissue, separating the 1,4-glucosaminidase bond between C1 and the glucosamine and C4 portion of glucuronic acid 37, facilitating the absorption of hematomas and edemas by peripheral lymphatic channels and capillaries, while increasing local intercellular permeability[14, 15].

CASE REPORT

Two patients with indications for cervical liposuction surgery were operated on the same day, both without systemic complications. The first was a male patient, with a severe degree of fat accumulation (figure 1) and the second one was a female patient with a moderate degree of fat accumulation in the cervical region (figure 2).



Figure 1 - pre-operative of the male patient



Figure 2 - pre-operative of the female patient

Both patients went through the negative low-pressure liposuction surgery, with cannulas and a vacuum syringe, using tumescent anesthesia with Klein's solution (100 ml saline solution 9%, 1 ml Adrenaline, 10 ml sodium bicarbonate 8.4%, 20 ml Lidocaine without vasoconstrictor).

Unlike the male patient that had the adipose tissue easily removed, the female patient presented rigidity of the adipose tissue, therefore a bigger surgical trauma was caused, so she received an injection at the surgical space with a solution of 4000 Utr of Hyaluronidase for 10 ml of diluent, using the klein cannula.

Both patients were prescribed cephalexin, dexamethasone and dipyrone as postoperative medication and received general orientations about the procedure.



Figure 3 - immediate postoperative of the female patient that received hyaluronidase



Figure 4 - immediate postoperative of the male patient

Three days after the procedure, it was observed that in the female patient that received hyaluronidase, the postoperative ecchymosis regressed very quickly and did not evolve to color changes as normally expected in this kind of surgery (figure 5). Even in the presence of the male patient's beard, the bruises in the submandibular region were evident in comparison with the female patient that did not have any bruises (figure 6).



Figure 5 - three postoperative days of the female patient



Figure 6 - three postoperative days of the male patient

DISCUSSION

Nowadays, the surgical technique of cervicofacial liposculpture has become a popular procedure among facial aesthetic treatments, as described by Valente S. M. D. M. and Flores et al [3,4]. The technique applied in the presented cases, were performed under local anesthesia using Klein's solution, with small incisions in the skin for the introduction of hollow cannulas that removed adipose tissue by negative pressure, as reported by Garcia V. R. P. et al and Valente S. M. D. M. [1,3].

The tumescent technique of anesthesia using Klein's solution were used in the presented cases and proved to be efficient, reducing heat and friction between the tissue and the cannula during the suction movements, also preventing a decrease in the pH of the region, in according with Habbema L. and Klein J.A.[5, 13, 16].

Despite the use of Klein's solution associated with the correct surgical technique, the occurrence of postoperative ecchymosis is still frequent after this kind of procedure due to the mechanical trauma suffered by the tissues usually due to vessel rupture and blood hemorrhage in the interstitial tissue, like described by Langsdon P.R. and Schroeder R.J. and Narurkar V. and Karen J.K. et al[9, 10, 11].

Aiming to decrease the “social downtime” of patients from their activities, one of the patients received an injection of Hyaluronidase, since studies already reported its use in reducing postoperative hematoma, as described by Sharma D.S.C. and Lahini M.A. and Rzany B. et al[6, 12].

Therefore, in these presented cases it was observed that hyaluronidase was efficient in reducing postoperative ecchymosis in cervicofacial liposculpture surgery in a short period of time, since after three postoperative days it was visible the difference between the patient that received hyaluronidase and the patient that did not. The female patient that received the injection did not have any visible ecchymosis, which was essential for the satisfaction of the patient with the procedure.

CONCLUSION

Evaluating the surgical results obtained in these two cases, the use of hyaluronidase seems to be efficient in the faster reduction of postoperative ecchymosis, when compared to the result obtained in the patient that did not get the hyaluronidase injection.

However, more future research with larger samples is needed to prove the effectiveness of hyaluronidase as a means of reducing postoperative ecchymosis.

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