Surgical pearl

Fractional electrocoagulation in the rejuvenation of the inferior orbital region

Eletrocoagulação fracionada para o rejuvenescimento da região orbital inferior

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ABSTRACT

Diverse techniques for rejuvenating the skin of the inferior periorbital region – ranging from chemical peels to more modern technologies, such as lasers – have been described in the literature. Although countless advances have been made, the results are not always satisfactory. We describe a new technique for rejuvenating this area: punctual electrocoagulation of the superficial layers of the skin.

Keywords: skin; orbit; rejuvenation.

RESUMO

Diferentes técnicas têm sido descritas na literatura para o rejuvenescimento da pele na região periorbital inferior, incluindo desde os peelings químicos até tecnologias mais atuais, como os Lasers. Inúmeros avanços têm sido obtidos, porém nem sempre os resultados são satisfatórios.

Descrevemos nova técnica para o rejuvenescimento da região orbital inferior através da eletrocoagulação puntual das camadas superficiais da pele.

Palavras-chave: *pele; órbita; rejuvenescimento.*

INTRODUÇÃO

The treatment of the inferior orbital area has always occupied an important place among procedures aimed at rejuvenating the face. Techniques such as 88% phenol or 35% trichloroacetic acid peels, laser resurfacing (CO_2, erbium), bipolar radiofrequency, cutaneous fillings, the application of botulinum toxin, dermabrasion and micropuncture 1-15 are used isolated or combined as blepharoplasty adjuvants. Nevertheless, satisfactory results are not always obtained in the treatment of that area.

After observing that the perilesional skin contracts when treating inferior eyelid lesions with electrocoagulation, we proposed performing the procedure on the entire inferior orbital region in order to rejuvenate this area.

MATERIALS AND METHODS

After evaluating the face and photographing the patient standing up, the area to be treated was marked. The patient was reclined 30° and 2% lidocaine with vasoconstrictor was infiltrated in the marked area. Before starting the procedure, a digital pressure was applied on the site for some minutes in order to decrease the edema caused by the anesthetic solution.

We held the electrocautery's (Hyfrecator®, ConMed,NY,USA) handpiece with one hand, and the 1 ml

Received on: 14/06/2010
Approved on: 01/09/2010

This study was conducted at a private clinic.

Financial support: None
Conflict of interests: None

syringe with a 30G 1/2 needle with the other. The needle was placed in contact with the skin without perforating it, and then, touching the electrocautery's electrode on the needle, the electrocoagulation took place at that point, using the High 2 or High 3 strength (Figure 1). At that moment it was possible to observe the formation of a small orifice, approximately 1 mm deep (with a diameter ranging from 0.05 to 1 mm at the point of contact with the skin), with an important retraction of the circular adjacent area. New application points were made at intervals of 2 to 3 mm.

The small burns are initially made on the inferior portion of the marked area, following a pattern of semicircular concentric lines, which are progressively laid out up to the inferior ciliary border (Figure 2).

Patients were instructed to avoid physical activities and exposure to high temperatures for 72 hours after the procedure. Cold saline solution compresses and fusidic acid cream (Verutex®, Lab Roche, SP, Brazil) were used in the treated area for 7-10 days. We recommended the use of sunscreens from 48 hours after the procedure, however direct exposure to the sun should be avoided until the complete healing.

RESULTS

So far, 40 female patients have been treated with this technique. All presented improvement in the cutaneous sagging and appearance of the skin, with a decrease of rhytids.

In the treated area, small papules topped with microcrusts were formed on all points where the electrocoagulation was performed. Erythema and local edema can persist for some days. Symptoms usually disappear in up to one week. Some patients, especially those with higher phototypes, experienced sustained erythema and hyperchromia in the area, and were advised to use whitening substances 15 days after the procedure. In all patients who used whitening treatment, the regression of those effects took place over a period of two months (Figure 3).

Four patients underwent a second electrocoagulation 60 days after the first, with similar results (Figure 4).

DISCUSSION

Diverse techniques for the aesthetic improvement of the inferior orbital region have been described, from peels to modern technologies such as lasers. Having observed the occurrence of retraction in perilesional skin when treating lesions in the

Figure 1- Electrocautery's electrode in contact with the 30G 1/2 needle

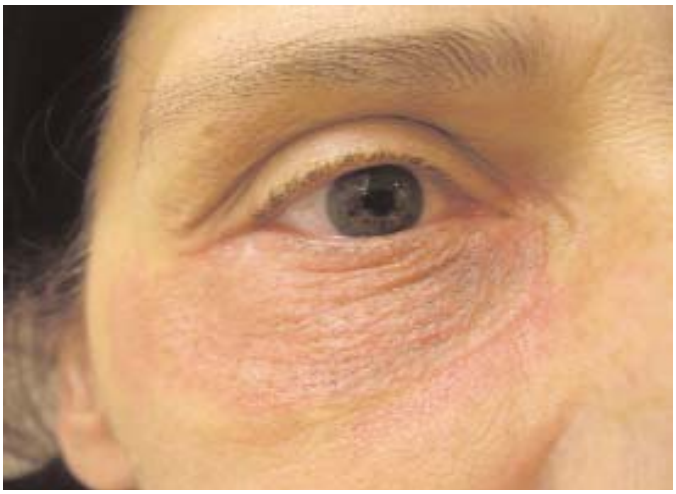

Figure 2 - Immediately after the procedure

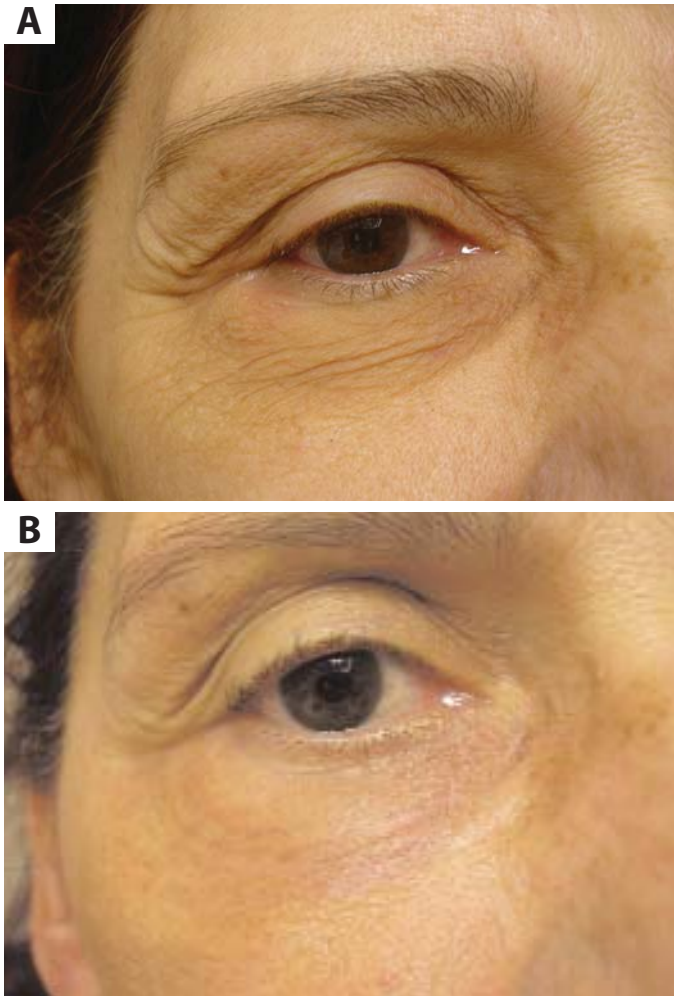

Figure 3 - A. Patient 1: before;
B - Patient 1: 30 days after the procedure

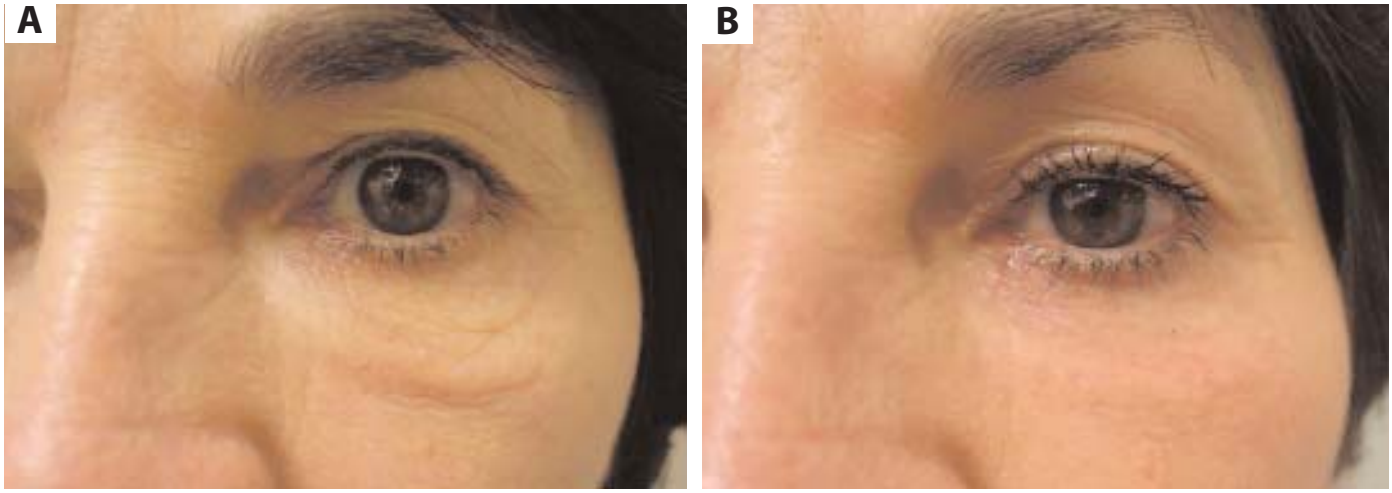

Figure 4 - A. Patient 2: before; **B.** Patient 2: 30 days after the procedure

inferior eyelids – such as xanthelasmas and syringomas – with electrosurgery, we proposed electrocoagulation over the whole area as a cutaneous rejuvenation method. The results were promising, with an important decrease of cutaneous sagging and rhytids in the region, probably resulting from the retraction of the skin caused by the tissular trauma.

Electrosurgery is part of the dermatologic surgery therapeutic armamentarium, which removes or destroys tissues with the use of electric energy, 16 and promotes the cut, hemostasis, and superficial or deep ablations in the tissue. In electrosurgery, after the cleanup of the destroyed tissues, the presence of a light pink color on the bottom of the wound means that the papillary dermis has been reached; a white color means a lesion in the superior reticular dermis; and yellow corresponds to the deep reticular dermis, meaning the possibility of scarring. 17 In this study we observed varying colors – from white to light pink – on the bottom of the lesions.

Infiltrative anesthesia was essential for treating this area. It provided greater comfort to the patient, and was important for the physician as well: due to the proximity of the needle to the eye, it is critical that the patient remains calm and does not blink involuntarily during the procedure.

Performing the procedure in lines resembling semicircles, aligned with the direction of the fibers of the orbicularis muscle, resulted in lower mechanical tension in the site, facilitating the healing process and the cutaneous retraction.

In addition, we alternated areas of normal skin (2 to 3 mm) with the points of electrocoagulation application, following the current trend of fractional procedures,14,15 so that the preserved portion of the skin promotes faster healing and reduces the risk of local complications, such as persistent hyperchromias, scars and ectropion.

This technique has the advantages of low cost, straightforward application, fast recovery and expressive aesthetic results.

CONCLUSION

We have described a new technique for rejuvenating the inferior orbital region through the fractional electrocoagulation of the local skin in semicircles. We believe that this description may serve as a starting point for future histological studies and a better understanding and quantification of results obtained using this method. ●

Acknowledgement

We would like to thank Dr. Paula Cury Chicralla for the excellent bibliographic review of the various techniques of rejuvenating the periorbital region.

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