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Chemical Peeling and Dermoabrasion

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Keywords

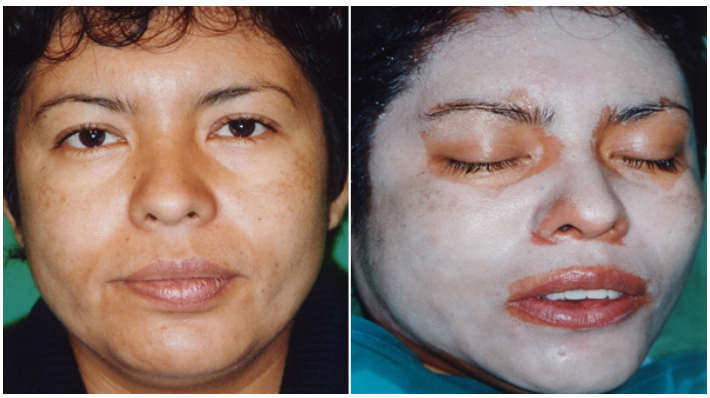
Dermatologists, Plastic Surgeons, Dermoabrasion.

There are various procedures that Dermatologists and Plastic Surgeons must correct defects and imperfections at the superficial level of the skin [1-3]. The injuries we most frequently treat are post-acne, post-traumatic, post-surgical and chickenpox scars; as well as hyperkeratosis and fine facial wrinkles, especially in young patients who do not yet have flaccid tissues, or in post-rhytidectomy patients [4,5]. Some Hyperchromic spots called Melasma Chloasma, or freckles can be treated with this methodology.

In this work, we will refer to the techniques most frequently used in our daily practice such as chemical exfoliation and dermabrasion of the face. There are precise indications for each of the techniques, so in our experience we will mention which one is ideal for the treatment of the entities.

Chemical Exfoliation

Chemical PEELING can be applied to the entire face or located in a specific area, the most common being the lower eyelids, upper and lower lips, and between the eyebrows. We use 50% TCA (trichloroacetic acid) and 70% glycolic acid undiluted (Figure 1). Due to the acid component of the products, once applied to the skin, it penetrates and is absorbed into the dermis, producing changes in the dermal collagen. It also produces coagulation of proteins, forming a barrier that prevents subsequent absorption and the danger of poisoning. Using these formulas, it is unlikely to find toxicity. Its use is recommended on the entire face, emphasizing its application in defined areas, giving breaks between each brush stroke when applying it. It is important to continuously monitor the patient's pulse, pressure, and oxygenation during the procedure since in case of alteration of these it is recommended to suspend the treatment.



1. There is homogenization of the collagen architecture, which is accompanied by an increase in the density of fibroblasts. These variants that remain for a long time are the basic factors for the success of the treatment.
2. We want to highlight that such changes in collagen do not occur when mechanical peeling or dermabrasion is performed, which would explain the ineffectiveness of this technique in the treatment of fine wrinkles.
3. After applying the chemical it is common to find a decrease in the number of melanocytes in the basal layer of the epidermis, for this reason it is important to properly choose the patient since if we perform a deep Peeling on a patient with a dark complexion it is possible the possibility of hypochromia of the skin consequently.
4. The amount of elastin in the dermis increases, therefore we can macroscopically observe the changes caused in the dermis. As is an improvement in the tone, texture, and brightness of the skin.

Technique

In the operating room, the patient is channeled with 250cc physiological solution, to be able to intravenously inject 2ml of diluted alfentanil, which will allow us to apply the chemical or perform the dermabrasion without any discomfort for the patient. We clean the skin with an antiseptic to remove any grease or makeup residue that accumulates on the skin.

We use swabs or cotton swabs to apply the formula by wetting the tip with cotton in the chemical and brushing the entire surface of the face, taking special care when applying it around the eyes and mouth. Generally, we begin the application on the forehead, descending towards the lower limit of the face, taking care to ensure that it ends diffusely.

Once the entire face has been brushed, we apply hydrocortisone cream, repeating its topical application every 4 hours for a period of 48 to 72 hours. The patient is discharged two hours later [6].

The treated area will present a grayish white color that evolves into a blackish tone over the course of the next 10 hours, due to the skin burn produced by the chemical agent. This skin comes off spontaneously over the course of the next 72 hours, leaving the treated area erythematous. Subsequently applying a sunscreen in the morning and a moisturizing and softening cream in the afternoon and evening for the next 3 weeks.

Patients who have been treated with chemical peels must be careful not to expose themselves to sunlight or ultraviolet light for a period of 6 weeks, since due to the procedure the melanic pigment of the basal layer of the epidermis is diminished, leaving them unprotected. Which can cause changes in skin color, due to this the patient must use a sunscreen for 6 or 8 weeks.

Dermoabrasion

Cosmetic surgery has another type of abrasive surgical peeling that is used to smooth scars and reduce irregularities on the skin surface, resulting in a loss of the epidermis and superficial part of the dermis. Highlighting the property that the skin must quickly regenerate a new but smoother skin cover (Figure 2).

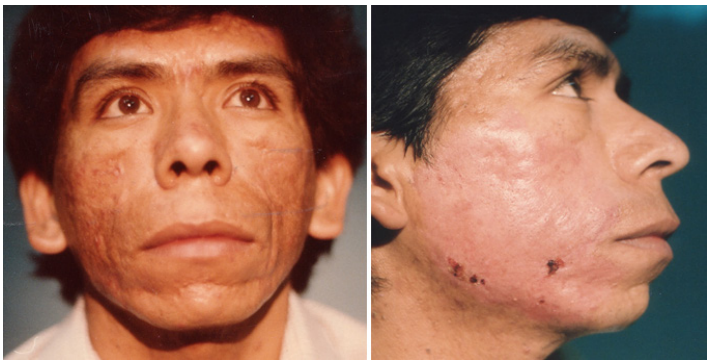


Figure 2: Before and After Dermoabrasion Procedure.

The basis of this technique is to eliminate the high points so that the lower areas appear to have less depth. The effect is like that of Chemical Peeling however dermabrasion is more frequently used on acne scars, chickenpox, and other unsightly depressed scars, while the former is more effective in the treatment of fine wrinkles and pigmentation of the face. Dermabrasion is also used in patients who suffer from macular nevi, rhinophyma and tattoos in different areas of the body and face.

It is important to mention that in acne scars both treatments provide the patient with a favorable change but that sometimes they do not satisfy the same, since often a single intervention is not enough to correct the deepest imperfections of the skin, and the treatment must be repeated. Procedure on various occasions until improvement in the area and patient satisfaction is achieved. It is advisable to repeat it dermabrasion 5 months after the first intervention and so on.

This technique dates to 1905 when KROMAYER reported his experience with the use of cylindrical knives equipped with a dental motor, sanding the skin, and smoothing unsightly scars. Currently there are instruments that rotate at high speed, which is controlled by a pedal. Attached to the rotating cable is a metal handle to which steel or ground milling cutters are attached. These cylinders have different shapes and measurements depending on the size of the area to be polished, the largest ones for large surfaces and the smallest ones for narrow or periorificial areas. Anesthesia and skin preparation are performed the same as in Chemical Peeling. Once the surgical fields are placed, the dermabrasion of the face begins to be carried out in segments. The depth of the abrasion is very important since if we go too deep and reach the cellular tissue, visible scars can be left. It is preferable to repeat the polishing later and not have subsequent problems.

As the sanding progresses, the epidermis gently detaches and small hemorrhagic spots appear, indicating that we have reached the dermal papillae, at which point progress towards depth must be made. The abrasive drum should always be parallel to the skin surface and slowly move it across the entire face. Hemostasis is controlled with the application of dressings soaked in a solution with epinephrine, or by means of electrofulguration, sweeping over the hemorrhagic area, being careful not to go deeper. Once the entire operation is completed, the face is covered with microporous fabric. In the following hours the patient will add serosity, which will partially wet the microporous fabric. We must recommend drying the secretion delicately. The fabric is removed after 48 hours. Just pulling it gently without having to moisten it, revealing the new skin [7-9].

Progressively a scab will form that will surprise itself. In both chemical peeling and dermabrasion, daily washing with neutral soap and the application of topical hydrocortisone for the next 72 hours is recommended, continuing with sunscreen and moisturizing cream as mentioned before. It is important to insist to the patient that they should not expose themselves to the sun's rays since there is a danger of hyperpigmentation of the face since the formation of melanin pigment occurs between the third or fourth week. In some patients with acne sequelae, we perform dermabrasion in the first

instance and depending on the improvement obtained, we alternate it with chemical peeling on various occasions, achieving excellent results.

Complications

Among the most frequent complications that we have seen, we find sensitivity to sunlight, especially in very white and thin skin or with a tendency to suffer from actinodermatitis, Milium cysts, hypertrophic scars, and pigmentation alterations such as hyperpigmentation and hypopigmentation [10]. Fortunately, these types of alterations are rare if the patient takes the care, and the procedure is performed by an experienced specialist.

Conclusion

These similar procedures have precise indications and the histological changes that appear are different in each of them. Therefore, the correct diagnosis and study of the patient is necessary before performing the procedure. In some patients we use the topical application of hydroquinone and retinoic acid simultaneously 2 weeks after having undergone the chemical peel or mechanical peel, allowing us to achieve greater thinning of the skin with the retinoic acid and avoiding early pigmentation of the area with hydroquinone. We must be careful with the use of this type of products since they can cause irreversible alterations.

Currently there are new methods such as subcision, laser and new chemicals (Figure 3) to perform these procedures [11-14]. Therefore, it is important to determine which of them is ideal for the patient, considering the skin tone, the improvement desired and the recovery period they are willing to carry out, since perhaps they want a procedure where it does not require recovery period.

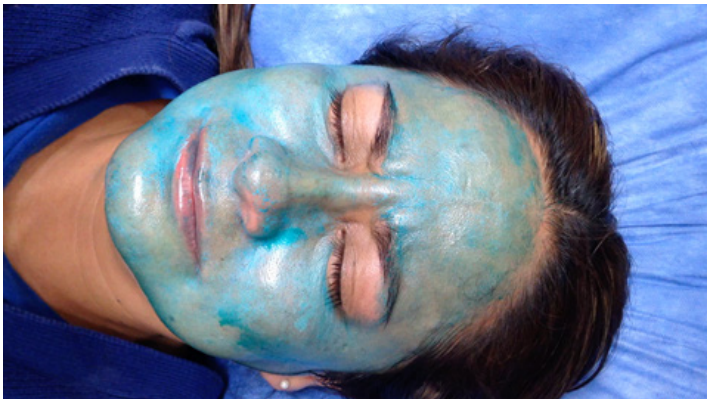


Figure 3: Obaggi Blue Peel.

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