Chapter 9

Chemical Peels and Other Rejuvenation Methods for the Face

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9.1 Introduction

A chemical peel leads to regeneration of new cells at a faster rate than they would regenerate naturally. The treatment causes the surface of the skin to exfoliate or flake, which leaves the skin with a fresher and smoother appearance and texture. This freshens the skin, removes some sunspots and rough scaly patches, and reduces freckles and irregular pigmentation. It also reduces fine wrinkles. A chemical peel may be used prior to facelifts to maintain or preserve facial skin tone. It is safest and most effective on the face. Hands can be peeled but the risk of scarring is higher and the results are less predictable. Sometimes the results are dramatic and satisfying and a facelift can be avoided altogether. There are several types of peels in use today, and each has its own area of clinical use.

9.2 Types of Peels

9.2.1 Phenol Peel

Phenol, also known under the old name carbolic acid, is a colorless crystalline solid with a typical sweet tarry odor. Its chemical formula is C₆H₅OH and its structure is that of a hydroxyl group (–OH) bonded to a phenyl ring; it is thus an aromatic compound. The Baker–Gordon formula is 3 ml 88% phenol USP, 2 ml tap water, three drops of croton oil, and three drops of hexachlorophene soap (Septisol).

9.2.1.1 Technique

A full-face deep chemical peel takes 1–2 h to perform. A more limited procedure (such as treatment of wrinkling above the lip) will generally take less than 0.5 h. A solution is applied to the area to be treated (avoiding the eyes, brows, and lips). There is a slight burning sensation, but it is minimal since the solution also acts as an anesthetic. After the peel solution has worked on the skin, it is neutralized with water. Approximately 1 h later, a thick coating of petroleum jelly is layered over the patient’s face, covering the protective crust which develops rapidly over the area. This stays in place for 1–2 days. In an alternative technique, the patient’s face is covered by a “mask,” composed of strips of adhesive tape, with openings for the eyes and mouth (this is particularly effective in cases of severe wrinkling).

Fig. 9.1 a Before phenol peel. b After phenol peel
9.2.1.2 Complications

The toxic oral dose of phenol for adults is 8–15 g, which is usually fatal within 24 h. Blood levels of phenol resulting from a total facial peel are well below the toxic range. Although reports of systemic toxicity are rare, myocardial changes such as premature ventricular contractions are not uncommon; therefore, all phenol peels are monitored by ECG with slow application of the phenol and an intravenous line in place to treat any cardiac arrhythmias.

9.2.1.3 Results

Since peeling with phenol results in a peel at a deep dermal level, it may be anticipated that the end result is skin lightening. However, since the deeper rhytids of the face (perioral and orbital) respond well to this technique, judicious use of phenol in these areas is often combined with dermabrasion and or trichloroacetic acid (TCA) without the use of taping. The bleaching effect is therefore minimized and healing time is shortened (Fig. 9.1).

9.2.2 Trichloroacetic Acid Peel

TCA is the other commonly used peeling agent that was reintroduced as a skin rejuvenator. The present formulation for phenol peels was published in 1961 [1]. TCA also denatures protein and is used in concentrations ranging from 20 to 50%. Although the depth of peeling that may be achieved with 50% TCA is comparable to that with 50% phenol, the risk of scarring is greater with TCA in this higher concentration.

9.2.2.1 Dilution

For a 12% solution, mix 1 part 25% TCA with 1 part water (equal amounts). For variations between 25 and 12%, just add a little more or less water. A 25% solution will result in a medium peel, whereas a 12% solution will give a lighter “lunchtime” peel, comparable to that from a 30% glycolic acid treatment.

9.2.2.2 Technique

Pretreatment cream (Retin-A or other desquamating agents) must be applied 4–6 weeks prior to treatment. This provides a more uniform skin peel. The face is cleansed thoroughly and degreased with acetone. As with phenol, degreasing the skin with acetone or absolute alcohol enhances penetration of the peel chemical. Jessner’s solution is then be applied to one area of the face at a time. The solution is left on the skin for several minutes. The skin will burn and tingle. Next, 35% TCA