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Research Article

Eyelid Phenol Peel: An Essential to Blepharoplasty

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Abstract

The lower eyelid skin will retain its pigmentation and wrinkles after a routine lower blepharoplasty. Phenol peeling with croton oil combinations produces a complementary lightening of the skin and an improvement of the wrinkling. Deep peeling with phenol and croton oil has been controversial because of the hypo-pigmentation that generally results. This report explains the technique used by the author to improve his blepharoplasty results over the past thirty years.

Keywords: *Eyelid; Blepharoplasty; Phenol; Croton Oil*

Introduction

Pigmentation and fine wrinkling of the eyelid skin is minimally improved with standard lower blepharoplasty. Little attention has been paid to improving these common characteristics of the aging face when blepharoplasty is discussed. The purpose of this report is to share the author's thirty-year experience with a modified phenol and croton oil solution used to improve the pigmentation and wrinkling of the skin surrounding the upper and lower eyelids.

Materials

Eyelid skin peeling was offered as a beneficial technique to patients who had expressed an interest in improving their eyelid appearance when either wrinkling or hyper-pigmentation was present. Lower blepharoplasty was explained as addressing the fullness or puffiness of the lower eyelid area but as limited in its ability to improve the skin quality and skin pigmentation.

The peeling procedure was represented as an import secondary part of the lower blepharoplasty. The eyelid peel was said to be a complement to the blepharoplasty and no extra cost or financial charge was attached. A fee was associated with eyelid peels for patients who had not undergone previous lower eyelid surgery by the author.

Photographs of eyelid peeling results were shown to patients as a way to demonstrate the injury, healing phases and beneficial characteristics of the phenol peel. The photographs revealed the crusting and redness during the first two weeks after the peel as well as the short- and long-term results of the eyelid areas.

Generally, a minimum of six weeks from lower eyelid surgery was necessary before the peel was performed. An occasional patient underwent the peel as close as three weeks after the surgery because of peculiarities in their personal schedule. Peeling was not done when eyelid incision contraction, eye dryness or mild ectropion were present. Scleral show was not an absolute contraindication in this early post-operative period. However, the eyes needed to be well adjusted and comfortable, without a need for constant eye lubrication.

The majority of patients did not require sedation or local anesthesia for the procedure. If the patient was apprehensive about the procedure and requested an element of relaxation, mild oral sedation was used.

Alprazalam (0.5 or 1 mg) was sufficient to improve the anxiety of the patient and facilitate the short peel procedure. Patients were not allowed to drive an automobile from the office after the peel whether oral sedation was used or not. It was explained that narcotics may be needed during the first few days because of soreness. Most patients had residual pain medication from their surgery and separate prescriptions were generally not required. However, narcotic prescriptions were given to those patients who were not in possession of pain medication.

A procedure permit was obtained and complications unique to the chemical peel were discussed. Prolonged redness and temporary hyperpigmentation were the two associated complications always discussed with the patients.

No monitoring was employed for the standard peel because of the small skin involved. However, those patients who utilized the oral sedation were monitored. All Caucasian skin types were appropriate for the peeling procedure (Fitzpatrick Skin Classification I to IV). Darker-skinned individuals were able to obtain the peel if they were accepting of the possibility of a prolonged hyperpigmentation phase in the healing. Test peel spots behind the ear were frequently used to help predict the difficulty with pigmentation and redness in the post-peel period.

Light-skinned black, Latino and Asian (Fitzpatrick V) patients were offered the peel if they exhibited eyelid skin conditions that could be helped. Post-peel pigmentation problems are expected to be more troublesome for these patients, so test spots were generally used to evaluate their skin healing. Dark skinned individuals (Fitzpatrick VI) were not judged to be appropriate candidates for the peel procedure.

Methods

The solution used for the peeling was a 50% dilution of the phenol product obtained from a pharmacy supply (Medisca, Inc, Plattsburgh, NY). The phenol solution was replaced at least every two years to maintain potency.

The mixture was comprised of 1mL of the phenol solution and 1 ml of tap water. A single drop of liquid soap (no preference as to manufacturer) was always added to the solution. Croton oil was usually added to deepen the peel. When minimal skin wrinkling was present, croton oil was not added.

The croton oil was added by dipping the wooden end of a cotton swab into the croton oil and then dipping and mixing the solution with the wooden end. This dip of croton oil on the wooden end of the swab is considerably less than a single drop that would be dispensed with an eyedropper.

This modified solution is more dilute than many of the phenol solutions that have been described by other authors. This diluted solution has been found to be safe and effective for the more delicate eyelid skin. When the skin is judged to be more delicate (Fitzpatrick I, II) croton oil is not utilized. For the thicker, deeply wrinkled skin occasionally seen in the lateral periorbital areas, croton oil is always added.

Patients are seated in a reclined position, with their heads slightly elevated. The skin of the lower eyelid and cheek is cleansed of makeup and skin oil with tap water on a cotton sponge. Fanning of the face after solution application is very helpful in reducing the sting of the application. An assistant is made ready with a paper fan to begin the fanning as soon as the chemical peel is begun.

The modified phenol solution is applied with a cotton swab. The swab is dipped into the solution and the initial sweep on the skin is started medially and moved laterally in a constant motion across the eyelid skin. The edge of the swab is brought to within a few millimeters of the eyelashes. Multiple passes across the lower eyelid skin is required to cover the entire lid. Re-dipping of the swab into the solution is required. At the margins of the peel, the swab is allowed to become less saturated as a way of tapering the peel. The skin area covered extends down to the mid-cheek and across laterally in a triangular pattern to the temporal skin (Figure 1). Deep wrinkles are retreated with multiple swab passes.

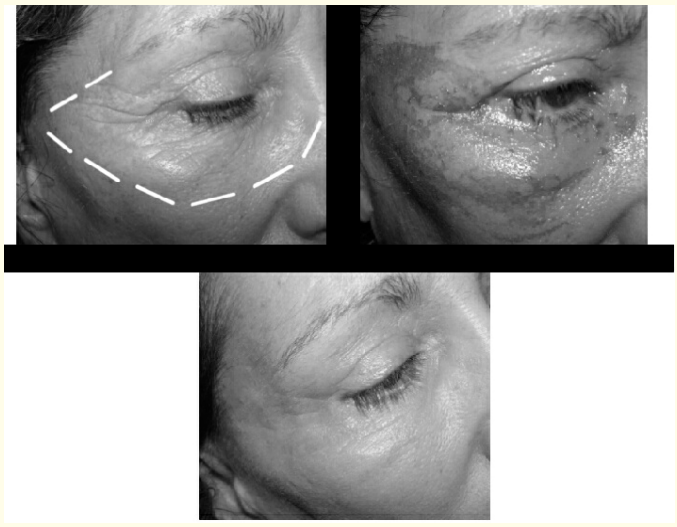

Figure 1: *The typical limits of the eyelid peel are demonstrated. Early healing after 5 days is depicted and the healed area after 6 months.*

The skin develops a white color initially. This 'frosting' of the skin is most pronounced in those areas with the deepest penetration of the phenol. In those areas of tapering at the periphery of the peel, less frosting is seen. The white color of the skin gives way to redness, or erythema, within minutes.

After the peel is complete, the affected skin is covered with a thin layer of petrolatum ointment. The ointment is applied with another swab and care is taken to avoid eye contact.

Patients are given written instructions detailing how to care for the eyelid peel. Cold compresses are encouraged for the first few days. Ointment application of at least four times a day is suggested. After the peeled areas re-epithelialize (within the first 7 to 10 days), application of skin moisturizers and makeup are possible. Petrolatum is thick and becomes annoying to the patients. They are instructed to switch to aqueous lanolin (Aquphor) after a few days as an alternative to the petrolatum.

Patients are asked to return to the office for an evaluation at one week and are usually seen again after one month. At the one month visit, patients are given a prescription for hydroquinone (4%) cream and instructed to use it twice a day should a transient hyperpigmentation develop. Hyperpigmentation generally is self-limited after four weeks. Antiviral medication is generally not used unless there is a history of frequent outbreaks.

When isolated skin pigmentation lesions are presented ("sun spots", "age spots", "liver spots"), the phenol solution was spotted over the lesions with a cotton swab. Patients readily accepted this opportunity to have their facial blemishes improved.

Patients with scleral show after their blepharoplasty were treated with a canthoplasty before the peel was performed. The eyelid phenol peel would worsen the scleral show and eye discomfort would increase. Early intervention with an office canthoplasty procedure to correct the scleral show or mild ectropion was important in keeping the lower blepharoplasty patients comfortable. Dry eye symptoms were avoided by early surgical intervention.

Repeat peels after at least six months are offered to patients if they wish to attempt increased improvement, especially with the heavily wrinkled skin. Patients are told that the skin may develop a darker skin under the eyes in their future. They are given an open invitation to return in the future for repeat eyelid peels at no charge. This approach has engendered a loyalty in the patients and reinforced a commitment to deliver a long-lasting, quality result for their eyelid surgery.

The exact number of eyelid peels performed during the last 30 years is not known. However, a modest estimate is one thousand when considering the number of lower blepharoplasty procedures performed. Approximately 80% of lower eyelid patients will eventually undergo the peel. The peel is presented as a necessary completion of the eyelid surgery.

Results

Healing of the surface skin is generally complete by 7 days. Occasionally, crusting or cracking of the surface skin is seen at the lateral eyelid where movement is most pronounced. Ointment application to these areas allows for healing within the next few days. The thick moisturizing with the petrolatum is annoying so patients readily switch to moisturizing with a bland moisturizer or to continue the aqueous lanolin for a few weeks.

All eyelid peels healed without serious complication. Eyelid cellulitis was seen in an occasional patient who experienced mild trauma to the delicate skin of the healing eyelid. This was seen in the first month after the peel and was precipitated by small abrasions. The cellulitis responded quickly to oral antibiotics.

All patients felt a general soreness across the eyelid during the first month after the peel. Pressure to the eyelid elicited this soreness. Many patients expressed a "tired feeling" of their eyes during this first month. An anti-inflammatory such as ibuprofen was helpful in reducing the discomfort. The soreness was self-limiting and generally gone when normal color returned to the skin.

A noticeable improvement in the wrinkling and pigmentation of the periorbital skin was appreciated after the skin healed from the peel. A general lightening of the lower eyelid skin was observed after the phenol peel. The lightening of the skin generally blended with the skin of the malar area (Figures 2-5). Occasionally, a noticeable line of demarcation was present across the cheek skin. Makeup application was helpful in the early post-peel period. If the line persisted after a few months, a secondary lighter peel of 25% solution was applied across the cheek line to help blend the pigmentation. An irregular application with the swab helped with the blending.

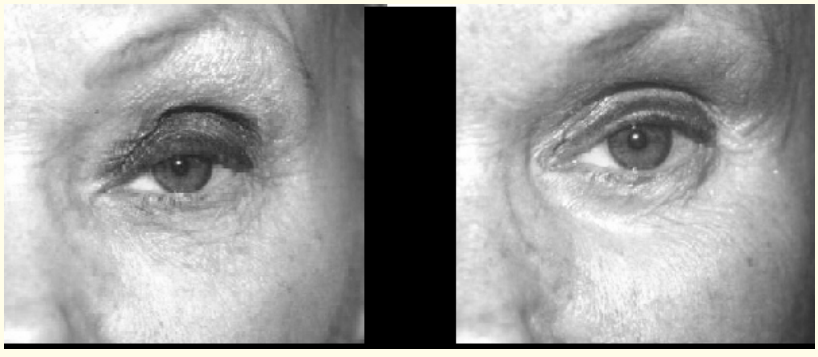

Figure 2: *Left, Presurgery eyelid of a 57-year old woman (Fitzpatrick II). Right, after upper and lower blepharoplasty and 6 months after eyelid peel.*

Figure 3: *Left, 60-year old woman of Indian descent (Fitzpatrick V) before peel. Right, eyelid area 6 months after peel alone.*

Figure 4: *Left, Presurgery eyelid of a 53-year old woman (Fitzpatrick II). Right, Eyelid area after secondary upper blepharoplasty and 6 months after peel.*

Figure 5: *Upper, 54-year old woman (Fitzpatrict II) 8 years after upper and lower blepharoplasty. Lower, eyelid area 4 years after phenol peel.*

Deep wrinkles were less amenable to the peel as the thick, heavy skin was resistant to the partial thickness exfoliation. Men appeared to receive less a benefit from the peel, especially when they possessed thick corrugations laterally. The dermal injury produced by the phenol and croton oil was not always sufficient to produce a dramatic change. While some improvement occurred, many patients with deep wrinkles and thick skin believed there was minimal improvement. Repeat peels were offered and some improvement was observed in these patients. Laser resurfacing was offered as an option and improvement was generally recognized.

Patients often expressed a disappointment that the tightness of the eyelid skin, usually seen after the initial 3 to 6 months, was not permanent. As the peeled skin matured and the skin returned to normal, some wrinkling returned. However, most patients agreed there was a permanent improvement in the overall appearance of their eyes after the phenol peel procedure.

The healed skin stays delicate for the first few weeks. The lower eyelid skin immediately beneath the margin would continue to slough surface epithelium for many weeks. This represented a deeper dermal injury that required a longer period of healing. These areas eventually healed. The deeper peels produced greater wrinkle improvement and a lighter skin.

No full thickness injury was produced with this phenol solution. No scarring of the eyelid resulted from the peel. No ectropion or permanent eyelid distortions were produced. Scleral show often occurred in the first few months but this was short lived. Gentle massage was effective in improving the scleral show as the skin relaxed over the weeks following the peel.

Patients who had not had their lower blepharoplasty performed by the author were appreciative of the improvement in their eye appearance obtained with the phenol peel. Often, patients would contact friends and family, who had their eyelid surgery performed by other surgeons, and induce them to undergo the phenol peel. Many patients remarked that their surgeons had told them that there was little that could be done to remove the dark circles and wrinkling that remained after their blepharoplasty.

The hypopigmentation produced in the eyelid and upper cheek areas were a complementary improvement to facial appearance. Patients appreciated the reduction in the apparent shadowing or "dark circles" that were present before the peel. Fine wrinkling was permanently improved in the peel areas. The lighter and tighter skin that resulted from the phenol peel greatly improved the lower blepharoplasty result.

Discussion

Phenol peels have become less common as alternative acid peels and laser techniques of skin ablation have gained in popularity. While phenol solutions were a requisite aid in offices of plastic surgeons and dermatologists in the 1970s and 1980s, most physicians have discarded phenol as a peeling agent. The skin changes associated with phenol have negatively influenced doctors' opinions about its usefulness in resurfacing aged and damaged skin. The chemical has all but been abandoned.

The author has had a thirty-year experience with phenol peeling isolated to the lower eyelid and lateral cheek skin areas. Few problems have resulted in the use of phenol peeling to these isolated areas. Significant improvement in the overall result of the lower blepharoplasty has been experienced.

The innovators who have done the majority of the initial work with phenol have remained positive about its utility [1-3]. Baker [4] and Linton [5] have continued to produce excellent results with phenol peeling through the "modern age" of skin resurfacing where lasers and alternative acids were touted. In their discussions with Hetter, printed in 1999, both admit to use of other modalities for facial peeling besides phenol. In their experience, more complications were seen with these other modalities.

Hetter [6-9] reviewed the history of skin peeling and his experimentation with phenol in a 4-part series in 1999. The significance of croton oil in the phenol solution was confirmed. A deeper peel is effected with the croton oil as an additive. He also demonstrated excellent results with phenol peeling in his own practice.

The lower eyelid skin in Caucasians is generally lighter than the rest of the face. This is especially evident in children. With age and sun exposure, a darkening of the lower eyelid skin and entire face usually occurs. Patients often develop a deep darkening of their lower eyelid skin, possibly as an evolutionary protection of their eyesight. Less sun reflection of the darker skin lends some protection of the eyes.

Cosmetics application for women is usually directed at lightening the skin of the lower eyelid and the malar prominence. Shadowing or darkening of the upper lid is considered important to accent the eye, but darkening of the lower eyelid is not complimentary to a person's appearance. "Dark circles" under the eye are not attractive.

The hypopigmentation produced by phenol can be used to improve the appearance of the lower eyelid. The depigmentation or lightening produced with a phenol peel will produce a complimentary improvement in the skin around the eyes.

Wrinkling of the eyelid skin is also improved with the phenol and croton oil peel. Certainly, the presence of croton oil in the phenol solution deepens the burn, and it is important in improving the wrinkling. Deep wrinkles may not be totally erased as deep dermal penetration is not possible with this technique. Other techniques exist to safely penetrate deeper and affect a greater improvement.

The technique of phenol peeling is simple, improvement in skin appearance is predictable and complications are few [1-3]. The combination of wrinkle improvement and skin lightening makes phenol peeling ideal for the lower eyelid area. Phenol peeling of the lower eyelid should be considered a safe, effective procedure that improves the final result of the lower blepharoplasty.

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