

# The Laser That Helps Keep Wrinkles Away

by Amiya Prasad, MD, FACS

The Erbium  
laser can be  
used to reduce  
the appearance  
of fine lines  
and wrinkles  
before or after  
blepharoplasty.

**B**lepharoplasty is one of the most frequently requested and satisfying procedures in plastic surgery. Each surgeon has his or her own style in performing this procedure, which, when done well, can yield a dramatic improvement in the patient's appearance. As an oculoplastic surgeon with a practice focus on cosmetic eyelid surgery, I realized that many of my patients wanted to go on to the "next step" in improving the appearance around their eyes after their blepharoplasty. This usually meant improving the appearance of the fine lines and wrinkles around the eyes. The management of skin in the periocular region has become a significant aspect of my practice, especially the use of resurfacing technology.

The choices we have in the arena of periocular skin care include topical creams, chemical peels and laser resurfacing. Gauging the patient's ultimate desire as well as their tolerance for discomfort are the key points that determine what I recommend.

Our patients want rapid healing, which often means returning to most of their normal activities – particularly work – in approximately one week. People are generally not patient with prolonged erythema as we have learned in many cases with the CO<sub>2</sub> laser. I have found that the use of various anti-wrinkle creams have helped my patients

with mild to moderate periocular rhytidosis. Adjunct procedures such as the use of Botox® injections have also been beneficial in maximizing the effects of these anti-wrinkle creams. In my experience, the benefits of many anti-wrinkle creams generally plateau after six months of treatment. Although I treat many

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**60-year-old male with periocular rhytids six months after blepharoplasty and erbium laser resurfacing.**

patients with this cream, I have found considerable variability in compliance and the patient's perceptions of improvement.

In my opinion, the ideal compromise between the prolonged erythema and possible complications of the CO<sub>2</sub> laser and the subtle improvements from the long-term use of anti-wrinkle creams is the Erbium laser. There is currently considerable discussion in the dermatology and plastic surgery community regarding the true effectiveness of the Erbium laser and the mechanism of its action.

In my experience, choosing patients correctly and discussing the final outcome generally results in patients being satisfied with the results.

The Erbium laser is effectively absorbed by water with essentially no thermal effect. The 2,940 nm emission wavelength matches the peak of water absorption. With a collimated beam and a depth of approximately 10 um per pass, the precision in which it may be used is excellent. As with other resurfacing procedures, depth should be limited to the papillary dermis. Resurfacing may be done before the blepharoplasty procedure or immediately after the completion of the procedure. If the Erbium laser is to be used at a later date, I usually wait at least three months after the blepharoplasty to

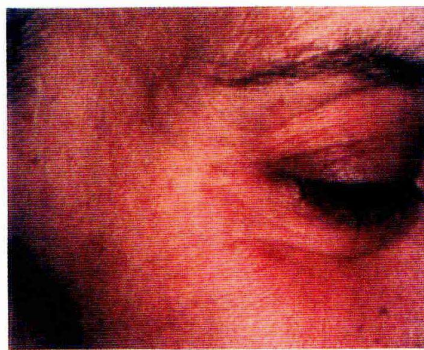


**42-year-old female with a long history of sun exposure two months after blepharoplasty and full face superficial resurfacing (rhytids in after photo are accentuated by her smiling).**

on the timing of the desired procedure, preconditioning of the skin with topical retinoids and microdermabrasion can be useful in the healing process.

When I first began using the Erbium laser, I was performing the resurfacing with topical anesthetics such as EMLA cream or four percent tetracaine gel. I have found that most people did not respond well to topical anesthetic only, even if the creams were supplemented with tetracaine spray during the procedure. It is for this reason, I now inject a small amount of lidocaine one percent with epinephrine 1:100:000 into the submuscular plane and wait at least 15 minutes before proceeding. If I am resurfacing other areas of the face at the same

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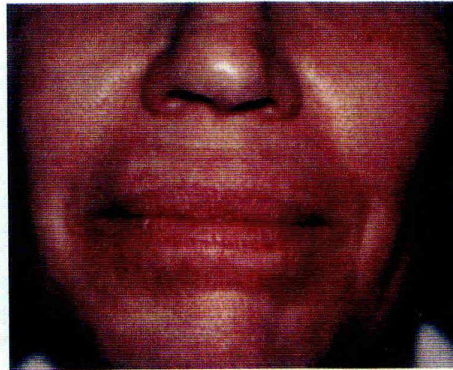
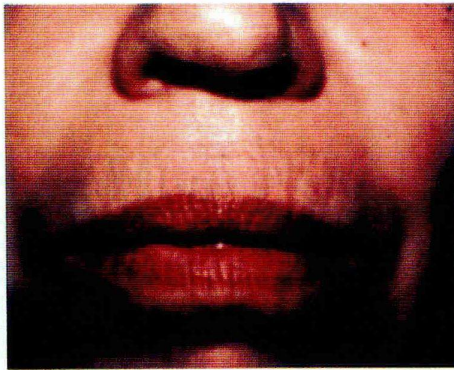
**50-year-old female with improvement in the depth of her “crow's feet” lines three months after.**

allow for some natural skin contraction.

My preoperative preparation is consistent with general standards of preparation prior to resurfacing. This includes the use of hydroquinones in anticipation of possible hyperpigmentation afterward. I also advise people to avoid excess sun exposure and to avoid tanning.

Antiviral medications are prescribed if resurfacing is done in the perioral area regardless of previous history of herpes simplex. Depending

time, I combine limited local infiltration with regional nerve blocks. The laser itself creates a significant amount of noise, as does my smoke evacuator, so I wait until the last moment before performing the resurfacing. Most of these surgeries are performed under straight local anesthesia or local anesthesia with sedation. Although the areas are well anesthetized, the patient is advised to expect to be aware of the “pops” as the spots are vaporized. The evacuator, is essential as the procedure generates a fair amount of vapor (not heat).



*50-year-old female with improvement of perioral rhytids six months after erbium laser resurfacing.*

I use a 5 mm spot size at a rate of four spots per second. In larger areas such as the cheek, I increase the rate to eight spots per second. The spots may be overlapped and it is fairly easy to blend the treated area with the surrounding skin to avoid obvious lines of demarcation. The depth of the treatment can be customized. I find that I need to do significantly more passes to bring down the "shoulders" of a perioral rhytid compared to a periocular rhytid. In the eyelid area, I follow the limits of the eye aesthetic unit and treat up to the eye-

lashes. Since there is no thermal effect from the laser, there are pinpoint areas of bleeding. These areas respond well to local vasoconstrictors applied with a cotton tip applicator. At the completion of the procedure, topical dressings are applied. The patient is advised to keep the resurfaced areas moist and not to pick any of the areas of crusting. Re-epithelialization is fairly rapid. In the eyelid area, it takes five to 10 days depending on the depth of ablation. Erythema subsides within three months of the procedure. The patient is advised to protect the area from

sun exposure and to wear sunblock once adequate healing has occurred. The process of healing is marked by the first few days of the treated areas feeling "hot." Use of cold compresses has been adequate for this sensation.

The quality of resurfaced skin is perceived by most people as having a healthy luster. Rhytids are diminished and the net result of the cosmetic blepharoplasty is further enhanced. In addition to its use in blepharoplasty, I have found the Erbium laser to be very effective in treating superficial melanosis from sun damage in most skin types including Asian skin. The laser has also been very useful in treating scars and lesions such as syringomas. To further enhance the effect of the laser, I have combined it with Botox injections either two to three days prior to the procedure or on the day of the procedure. In my opinion, the lack of contracture of the orbicularis oculi muscle further allows the skin to heal in a more even plane.

The versatility and safety profile of the Erbium laser has added a significant added benefit to my aesthetic practice and has been very useful in the periocular area. ■

#### **About the Author**

Amiya Prasad, MD, is an oculoplastic surgeon certified by the American Society of Ophthalmic Plastic and Reconstructive Surgery, an exclusive professional society of less than 400 members worldwide. He graduated from Mt. Sinai School of Medicine, completed a residency in eye microsurgery at Brookdale University Hospital and then pursued a highly prestigious fellowship at the University of Texas in Houston. Dr. Prasad also studied Facial Plastic Surgery at Baylor College of Medicine.