



Precision Points

CO₂ laser blepharoplasty provides unparalleled accuracy, several surgeons say

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The precision and virtually bloodless nature of CO₂ laser blepharoplasty more than compensate for the laser's cost and learning curve, says Marc S. Cohen, M.D. "There is pretty good evidence showing that the laser results in less postsurgical bruising and shorter operating times," compared with conventional techniques, he says.

Despite these advantages, however, many physicians are not compelled to abandon the steel scalpels or scissors with which they're comfortable. "Blepharoplasty comes out very well without the laser. Because of that, there's little incentive for doctors to try something different — they're not having obvious problems" with conventional techniques, he says. "The Bard-Parker blade (BD) is tried and true, simple and cheap. In comparison, the laser can feel cumbersome and complicated." Dr. Cohen is an ophthalmic plastic surgeon in private practice and a member of the teaching staff at Wills Eye Institute of Thomas Jefferson University Hospital, Philadelphia.



Dr. Niamtu

Dr. Cohen says he is sold on the benefits laser blepharoplasty provides. "I wouldn't dream of doing a blepharoplasty without my laser — not because it gives me less postoperative bruising and shorter surgical times, but because it improves intraoperative control," he says. "And in blepharoplasty, intraoperative control is invaluable."

Better surgical control allows one to make better surgical decisions, which lead to better, more predictable results, he says.

Adds Joseph Niamtu III, D.M.D., F.A.A.C.S., “Laser blepharoplasty has revolutionized my experience with blepharoplasty. The perioral tissue is some of the most vascular tissue in the entire body. Anybody who’s ever done a blepharoplasty with a blade or scissors knows that it can be an extremely bloody procedure.” Dr. Niamtu is a board-certified oral and maxillofacial surgeon with a practice limited to cosmetic facial surgery in Virginia.

However, Dr. Niamtu says that when he uses a CO₂ laser (Encore UltraPulse, Lumenis), “I can measure the patient’s blood loss from four eyelids on a Q-tip. It’s essentially a bloodless procedure. When you have a bloodless field, the surgeon can do better surgery.” Less bleeding also produces less bruising, pain and swelling and a faster recovery, he says.

BATTLING BLEEDS In the quest for surgical control, “Bleeding is the enemy,” Dr. Cohen says. Unlike a scalpel, the laser seals blood vessels as it cuts. This reduces intraoperative bleeding, thereby eliminating small subcutaneous and intramuscular hematomas that can make it tough to determine how much tissue to remove with a conventional scalpel, he says.

Nancy G. Swartz, M.S., M.D., agrees. “Bleeding causes bruising and swelling, which distorts the tissues. This distortion makes it difficult to make subtle decisions during surgery. By controlling bleeding, it’s easier to make accurate judgments of contour — to avoid taking out too much or too little fat.” Dr. Swartz is Dr. Cohen’s partner and director of the Facial Rejuvenation Program at the Myrna Brind Center of Integrative Medicine at Thomas Jefferson University Hospital. She also serves on the teaching staff of Wills Eye Institute.

During conventional surgery, Dr. Cohen says, it’s helpful to cauterize bleeders. “Unfortunately,



A typical result after incising the orbicularis and opening the septum with electrocautery. (Photos credit: Marc S. Cohen, M.D.)

cautery itself can make surgical decisions more difficult,” he says. If there’s a hematoma on the eyelid platform, cauterization causes the platform to contract and move downward.

To create a smooth upper eyelid-platform with a well-defined eyelid crease, Dr. Swartz says the suprataral fixation sutures must be placed accurately. “But if the upper eyelid incision is cauterized and these tissues are distorted, this compromises your ability to judge the placement of the suprataral fixation sutures,” she says.

These sutures connect the subcutaneous tissue of the platform to the levator muscle, Dr. Cohen says. “This is very helpful in female blepharoplasty and essential in Asian blepharoplasty. The problem is that this is a very unforgiving area, and you must place the sutures precisely to get a natural and symmetric crease.” This is easier to do with the CO₂ laser, which eliminates the need for cautery, he says.

“Additionally,” Dr. Cohen says, “show me a bleeding eyelid, and I’ll show you a surgeon with an increased heart rate. There’s no way that you can be at your best during a case if you’re just trying to get the job done before the lid starts to bleed again.”

COMPARING THE DIFFERENCES

Procedurally, the differences between standard blepharoplasty and laser blepharoplasty are minor, Dr. Cohen says. For starters, laser blepharoplasty requires the use of metal corneal shields placed under the patient’s eyelid. Surgeons also must wear protective goggles.

Physicians also must take precautions to reduce fire risk. This requires turning off any oxygen in the operating room (as is done during any surgery), because it could ignite in the presence of a laser, Dr. Cohen says. “The patient is under conscious sedation,” he says, “and the surgical drapes around the (eyelid) are moistened.” Dr. Niamtu also recommends the use of a smoke evacuator.

Regarding adverse events, laser blepharoplasty’s



A typical incision with a CO₂ laser.

rate is very low, just like that of conventional blepharoplasty, Dr. Cohen says.

“Theoretically,” Dr. Swartz says, “because the laser seals the vessels and a blade or scissors do not, patients may be less likely to have bleeding

issues and retrobulbar hemorrhages with a laser.

“With blade surgery, the sutures usually need to stay in about six days. With the CO₂ laser, we usually keep them in 10 days,” she says. However, Dr. Niamtu says he only leaves sutures in for five days, “same as any other blepharoplasty. I have not found any problems with laser and five-day suture removal,” he says.

Regarding the CO₂ laser’s cost, Dr. Cohen says it can range from \$20,000 for a used model to more than \$100,000 for new equipment. He says that he and Dr. Swartz prefer the LX-20 (Luxar; now Lumenis) because its fiber-optic cable makes the handpiece easier to maneuver for delicate surgery than the stiffer articulated arm used by most other CO₂ lasers.

SAVING TIME Dr. Niamtu reminds cosmetic surgeons not to overlook the time savings laser blepharoplasty provides. In his hands, he says, using a CO₂ laser for all blepharoplasty incisions has cut his procedure time in half.

“On the upper lid,” he says, “I use a relatively standard procedure where I mark the excess tissue. I take care to leave at least 20 mm of skin intact so the patient has enough skin for function and to close his or her eye. I remove the pre-determined the skin ellipse, which with the laser is like peeling a grape. I then remove a smaller strip of orbicularis oculi muscle, which again is bloodless with the laser. I incise the orbital septum and conservatively reduce and recontour the excess fat, then close the incision.”

With the laser, he says, the procedure takes less than six minutes per eyelid. “It takes me longer to close the incisions than to do the procedure with the laser on the upper eyelids,” he says.

For the lower eyelid, “I use a transconjunctival approach for several reasons. First, it creates no external scar. Second, it is a retroseptal approach, so I am not violating the lower orbital septum,” Dr. Niamtu says. “Because of that, there’s a much lower incidence of lower eyelid retraction, which is a common complication from external approaches.”

Dr. Niamtu says he first incises through the conjunctiva and the capsulopalpebral fascia then bluntly dissects into the three lower fat pads to reduce and re-contour them. For this dissection, he says he uses the laser in the defocused mode. “Holding the laser back several inches from the surgical site increases the spot size and provides a hemostatic mechanism to control bleeding,” he says. This incision needs no sutures, he adds. ◀

Disclosures:

Dr. Cohen and Swartz report no relevant financial interests. Dr. Niamtu is a preceptor and lecturer for Ellman and Lumenis.