

Lateral Access Recontouring Blepharoplasty for Rejuvenation of the Lower Lids

Grady B. Core, M.D.

Birmingham, Ala.



Background: Effective lower eyelid blepharoplasty is possible in a virtually closed fashion without either an anterior subciliary skin incision or a transconjunctival incision, both of which put the patient at risk for lower lid retraction.

Methods: Over a 6-year period, the author performed lower lid rejuvenation with only a lateral incision in 89 consecutive cases in 86 women and three men ranging in age from 42 to 65 years. Patients with lower lid laxity, prior surgery, trauma, significant excess skin, or festoons were excluded. Grading the aged eyelid in stages 1 to 3, with 3 being advanced, this procedure is indicated for stage 1 and 2 patients, characterized by deep nasojugal grooves, herniated lower lid compartment fat, mild to moderate rhytides, and increased lower lid height. The technique uses a lateral incision with dissection under the orbicularis and anterior to the orbital septum with release of the orbitomalar ligament. Loupe magnification is used. The nasal orbicularis fibers are released and the fat compartments are released and sewn to the midface fat using 6-0 transcutaneous sutures. An orbicularis muscle lift is performed for support and a lateral retinacular suspension is performed if necessary.

Results: Follow-up ranged from 3 months to 6 years, and there have been no major complications. All patients have been satisfied with the results.

Conclusions: Lateral incision-only lower lid blepharoplasty allows all necessary structures to be addressed for rejuvenation by recontouring in selected patients without anterior or posterior incisions into the central part of the lid. (*Plast. Reconstr. Surg.* 132: 835, 2013.)

CLINICAL QUESTION/LEVEL OF EVIDENCE: Therapeutic, IV.

Lower lid blepharoplasty continues to challenge plastic surgeons in terms of results and complications. The primary source of complications is the lower lid retraction from cicatrix formation in the central lamellar structures of the lid, resulting in lid retraction with scleral show.¹ Ideally, it would be efficacious if steps to lower lid rejuvenation could be performed without making incisions in the central portion of the lower lid such that the surgeon is not transgressing across functional structures to any significant degree. The author has developed a technique to accomplish this goal that demonstrates the possibility of effective lower eyelid rejuvenation in a virtually closed fashion without either an anterior

subciliary skin or muscle incision or a transconjunctival incision, all of which put the patient at risk for lower lid retraction. This innovation represents a new technique of lower lid rejuvenation that omits both anterior and posterior incisions and keeps the orbicularis muscle completely intact across the majority of the lower lid anteriorly and prevents injury to the lid retractors and capsulopalpebral fascia posteriorly.

Disclosure: The author has no financial interest to declare in relation to the content of this article.

Supplemental digital content is available for this article. Direct URL citations appear in the text; simply type the URL address into any Web browser to access this content. Clickable links to the material are provided in the HTML text of this article on the Journal's Web site (www.PRSJournal.com).

From the University of Alabama–Birmingham.

Received for publication April 23, 2012; accepted April 26, 2013.

Presented in part at the Annual Meeting of the American Society of Plastic Surgeons, in Boston, Massachusetts, May 6 through 11, 2011.

Copyright © 2013 by the American Society of Plastic Surgeons

DOI: 10.1097/PRS.0b013e3182a05516

PATIENTS AND METHODS

Over a 6-year period, the author has performed lower lid rejuvenation in selected patients with only a lateral incision for access to lower lid structures. This series represents 89 consecutive cases in 86 women and three men with ages ranging from 42 to 65 years. This group is a subset of the author's overall blepharoplasty practice in 520 patients, and includes open (full length subciliary) incisions, transconjunctival incisions, and the newer minimal access incisions. All patients with advanced lower lid laxity, prior surgery, previous trauma, or significant excess skin or festoons were excluded. Grading the aged eyelid in stages 1 to 3 (with 3 being advanced), this procedure has been reserved for stage 1 and most stage 2 patients, but is not currently recommended for stage 3 patients. The author's grading scale for aging lower eyelids is as follows:

Stage 1. Early signs of periorbital aging: mild rhytides, early visibility of lower lid fat compartments, nasojugal grooves becoming visible, lower lid with good tone, and no canthal laxity.

Stage 2. Obvious signs of periorbital aging: rhytides increasing, fat compartment herniation easily visible, deep nasojugal grooves, and lower lid tone normal or with mild laxity.

Stage 3. Advanced signs of periorbital aging: extensive rhytides with excess skin, bulging lower lid fat obvious, deep and long nasojugal grooves, canthal laxity with medial displacement, lower lid laxity, and if present, festoons.

My rationale for selecting only stage 1 and early stage 2 patients is that the technique does not excise any skin except a small lateral section; thus, I initially elected to restrict it to patients with no excess skin issues. Ancillary techniques for excess skin issues in stage 3 patients are beyond the scope of this initial report.

Technique

A lateral incision is created with a no. 15C blade beginning 2 to 4 mm medial to the lateral canthus in the subciliary incision line and extending laterally and slightly downward for a total incision length of 10 to 15 mm (Fig. 1). The extent of the planned dissection is shown in Figure 2. Blunt dissection is then carried out with tenotomy scissors under the orbicularis from lateral to medial, separating it from the orbital septum in a bloodless plane with a spreading technique. Loupe magnification with 4.5× lenses or a 5-mm, 30-degree endoscope is used to visualize the newly dissected



Fig. 1. (Above) Planned incision. (Below) Excised skin and muscle.

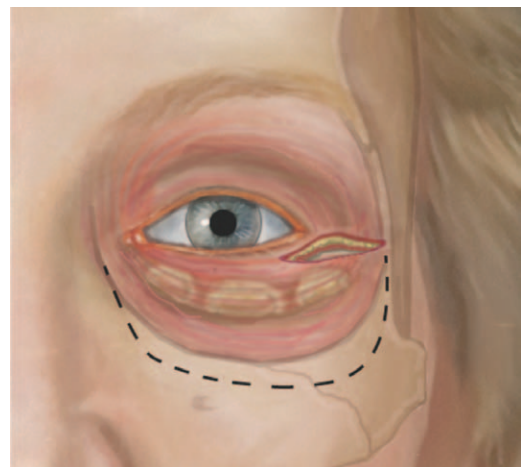


Fig. 2. Extent of dissection.

optic cavity through the small lateral incision. In more recent cases, the loupes have proven to be more efficacious because the endoscope takes up too much room in the small space under the orbicularis. The orbicularis is retracted anteriorly with a Senn retractor initially and, as the pocket deepens, transitioning to an Aufricht retractor to assist with visualization medially (Fig. 3). After the orbital septum is visualized all the way to the nasal area, the dissection is then carried into the

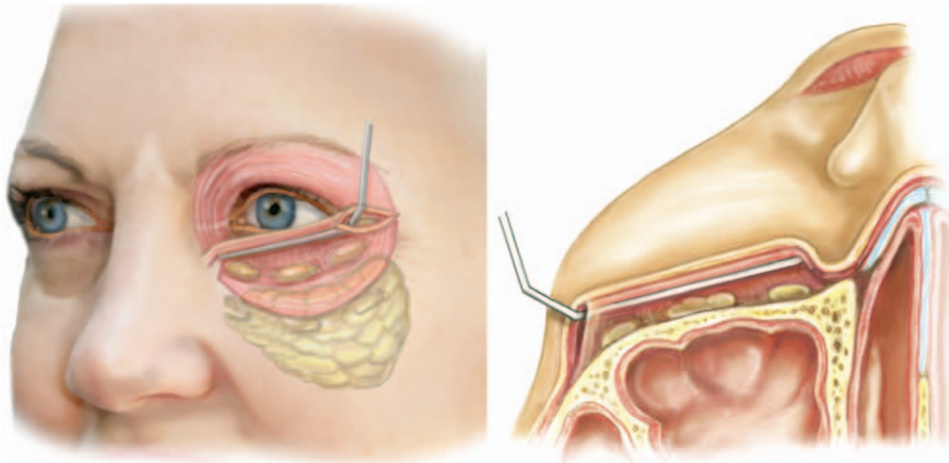


Fig. 3. (Left) Retractor in place in the submuscular space. (Right) Coronal view (below orbital rim) of the retractor in place in the submuscular space.

midface anterior to the muscles of facial expression with scissors tip spreading, which effectively releases the orbicularis retaining ligament and exposes the midface fat caudally. The medial nasal attachments of the orbicularis are released (Fig. 4) and then the fat is released from the lower orbital septum medial and central compartments by creating small perforations in the lower portions of the orbital septum using scissors tip spreading. This fat is then teased into the suborbicularis space after the Loeb/Hamra concept and sewn under the orbicularis to the midface fat caudally using 6-0 nylon transcutaneous sutures held externally with a bolster, thus effectively transposing the lower lid fat into the now released and open space beneath the nasojugal groove, augmenting the upper malar region and filling the nasojugal groove (Fig. 5). In some cases, a 6-0 Vicryl suture (Ethicon, Inc., Somerville, N.J.) has been used internally for this instead of transcutaneous

sutures, but both seem to work well. In two cases, I have added pearl grafts of fat, but I prefer vascularized pedicled fat over pearl grafts because of the inconsistency of revascularization of the pearl grafts. The lateral compartment fat can either be excised or transposed, depending on the need for fill. After the fat transposition, a medially based orbicularis muscle sling at the lateral aspect is sewn to the temporalis fascia lateral to the orbital rim, thus completing a muscle lift of the entire region (Fig. 6). A suspension technique is also added as needed at the lateral canthus if there is any degree of canthal laxity or decreased lower lid tone; otherwise, canthal suspension is unnecessary. If used, a 6-0 polydioxanone suture is used to attach the lateral canthus to the lateral orbital rim periosteum. Only a small ellipse of redundant lateral skin excess (3 mm) is excised. All suspension techniques are performed through the lateralmost aspect of an upper lid blepharoplasty incision, or a small incision in that location is created for better access to the lateral orbital rim and the temporalis fascia. The lower lid incision is then closed with interrupted 6-0 nylon lateral to the canthus and fast absorbing 6-0 gut medially. The incision in the upper lid is closed with 6-0 nylon. (See Video, Supplemental Digital Content 1, which shows the technique of lateral access recontouring of the lower lid, available in the “Related Videos” section of the full-text article on PRSJournal.com and at <http://links.lww.com/PRS/A842>.)

RESULTS

Follow-up ranged from 3 months to 6 years, with an average follow-up of 1.5 years, and there have been no major complications and two minor

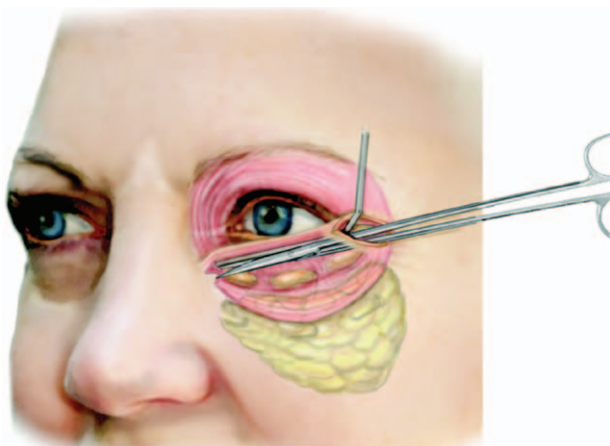


Fig. 4. Division of the medial orbicularis attachments.

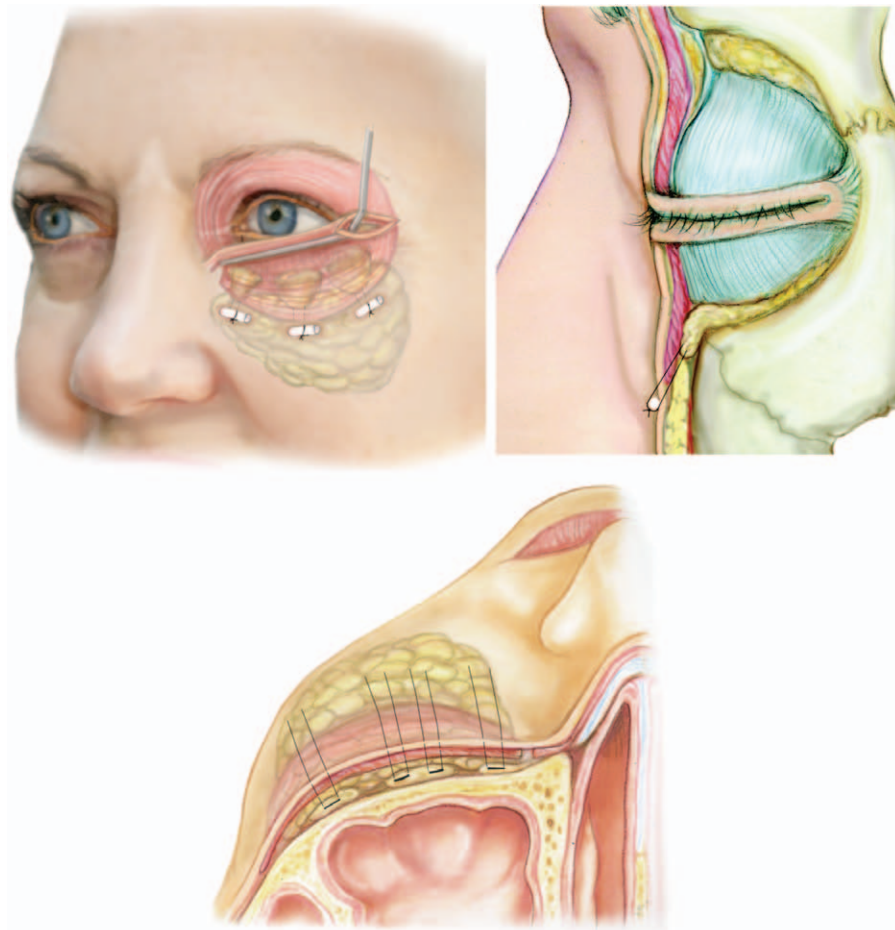


Fig. 5. (Above, left) Transcutaneous sutures holding transposed fat in position. (Above, right) Sagittal view: transposed fat blended with midface fat. (Below) Coronal view

complications, which included one patient who requested excision of a palpable polydioxanone suture and one who requested a minor scar revision. All patients have been satisfied with the results as noted by either simple questioning or spontaneous patient expression and in the absence of any complaints beyond 4 weeks. There have been no reoperations for recurrence of aging issues and no scleral show issues.

CASE REPORTS

Case 1

A 52-year-old woman presented with stage 1 changes to the lower lid region. Lateral access recontouring of the lower lid with fat transposition and orbicularis muscle lift was performed. She also underwent endoscopic lateral brow lift, upper blepharoplasty, and superficial musculoaponeurotic system rhytidectomy. Photographs were taken at 3 months postoperatively (Fig. 7).

Case 2

A 47-year-old woman presented with stage 2 changes to the lower lids. Lateral access recontouring of the lower lids with

orbicularis muscle lift, fat transposition, and release of medial orbicularis muscle fibers were performed. She also underwent endoscopic lateral brow lift with no upper lid surgery and malar augmentation. Photographs were taken at 3½ months postoperatively (Fig. 8).

Case 3

A 51-year-old woman presented with stage 1 changes. Lateral access lower lid recontouring of the lower lids was performed, with fat transposition orbicularis muscle release and muscle lift with endoscopic brow lift and mini-face lift. Photographs were taken at 5½ months postoperatively (Fig. 9).

DISCUSSION

Lower lid procedures have progressed over the years, from procedures that removed only fat, skin, and possibly muscle,^{2,3} to procedures that included suspension of midface structures, orbicularis muscle, and/or lateral canthal support⁴⁻⁸ and later fat preservation instead of removal.⁹ However, recontouring of the region of the lower lid and cheek has now been shown to be three-dimensionally preferable to lifting alone with



Fig. 6. Medially based orbicularis muscle flap.



Video 1. Supplemental Digital Content 1, showing the technique of lateral access recontouring of the lower lid, is available in the "Related Videos" section of the full-text article on PRSJournal.com and at <http://links.lww.com/PRS/A842>.

tissue removal.¹⁰ With the advent of excellent laser technology, skin rhytides and excess skin now can be managed nonoperatively in some cases.¹¹ However, most procedures for lower lid rejuvenation are still performed with either an anterior subciliary incision or a posterior transconjunctival incision, both of which put the middle lamellar structures at risk for cicatrix and subsequent retraction, causing scleral show.^{12–14} Although it has been noted that transconjunctival techniques have a much lower degree of postoperative lid retraction compared with the anterior approach, the transconjunctival approach still puts a traumatic dissection through the lower lid retractors and, consequently, scarring in this area can still be a cause of lower lid retraction.^{7,15} In addition, transconjunctival techniques or any technique

performed in close juxtaposition to the globe puts the globe at increased risk, in addition to the lid margin, which is a very delicate anatomical structure. I personally have experienced two lower lid injuries to the lid margin during transconjunctival blepharoplasty and, though rare, they are exceedingly difficult to repair (Fig. 10). In addition, I have performed the Loeb/Hamra method of fat transposition through a transconjunctival incision, and it is far more difficult because of the anterior restriction of the lid margin, which limits manipulation of the fat into the midface. Both open techniques and the lower lateral access approach allow more space through which to perform this maneuver.

Recently, Rohrich has published five maneuvers he feels are critical to the rejuvenation of the lower lid based on multiple prior contributions of others in the literature over the years and his own extensive experience. These steps include augmentation of the deep malar fat compartment, preservation of the orbicularis muscle with minimal fat removal, selective release of the orbicularis retaining ligament, lateral canthal support, and minimal skin removal.¹⁶

The lateral access blepharoplasty technique described in this article accomplishes all those criteria and adds another fundamental step I consider critical to rejuvenation, which is the lifting and tightening of the orbicularis muscle. The two minor differences I would have with regard to Rohrich's five steps would be, first, indications for lateral support. The combination of minimal dissection technique with totally retained intact orbicularis muscle with the laterally based muscle flap giving support means that it is rarely necessary to add canthal support (as is done routinely in open lower lid blepharoplasty by this author). Only in cases where canthal laxity already exists in advanced stage 2 patients is it usually necessary, and I have used the tarsal tuck and lateral retinacular suspension and find that they both are effective. Second, I feel that release of the orbicularis retaining ligament further laterally in addition to malar tissues is necessary in all cases to allow better release, elevation, and redraping of malar tissues and is used by this author in all cases of lower lid blepharoplasty, open and closed, as there is also little, if any, downside to this release. However, I would caution that caudal and medial dissection in the midface that is too extensive can interrupt the medial innervation to the orbicularis, even with the orbicularis muscle fully intact along the lid margin superiorly. This can also interfere with upper lid innervation as well.



Fig. 7. Case 1. (*Left*) Preoperative anteroposterior and oblique views. (*Right*) Postoperative anteroposterior and oblique views.

I also feel that one of the fundamental and most significant steps contributing to the overall rejuvenation effect is the lower lid muscle

lifting and support as first suggested by Hinderer.⁴ I feel that muscle lifting is a basic step in all lower lid cases¹⁷ and significantly recontours



Fig. 8. Case 2. (*Left*) Preoperative anteroposterior and oblique views. (*Right*) Postoperative anteroposterior and oblique views.



Fig. 9. Case 3. (Left) Preoperative anteroposterior and oblique views. (Right) Postoperative anteroposterior and oblique views.

the region, with marked improvement in aesthetics. Thus, the muscle lifting alone creates a significant change in lid shape and height and can even be adjusted based on the level of the muscle from which the laterally based flap is created. This shape-changing potential depending on the origin of pull has been alluded to in previous reports, such as the study by Byrd and Andochick,¹⁸ where lifting sutures are placed in the preseptal orbicularis by means of temporal endoscopic procedures. Although the innervation of the orbicularis has been shown not to be

divided during skin muscle flap surgery,¹⁹ I feel that the total muscle preservation of this technique reduces the risk of clinical muscle dysfunction, which is known to possibly occur despite preservation of innervation.²⁰

CONCLUSIONS

The lateral access recontouring of the lower lid/cheek junction noted in this article incorporates all modern elements of lower lid rejuvenation¹⁴ but omits the incisions in the central



Fig. 10. Lid margin injury from transconjunctival blepharoplasty.

lid area, moving it laterally and accessing the anterior submuscular space through an avascular plane, which reduces risks associated with incisions through the central portion of the lid from both anterior and posterior approaches. Proper patient selection is critical, as patients with true skin excess may still require excision. Also, those patients with significant lower lid laxity will likely require other more aggressive maneuvers as well.¹⁷ Results of the technique allow for correction of tear trough deformity, blending of the lid/cheek junction, overlying skin retraction with a decrease of rhytides and a decrease in lid height and lower lid reshaping, all of which work together to create a harmonious rejuvenated appearance and thus far without the risk of ectropion present with both transconjunctival and skin muscle flap techniques.

This report demonstrates that, in selected patients, skin resection is unnecessary and central lid invasive surgery can be avoided along with lid malposition. I feel this initial report indicates that further study on a larger patient population is indicated and is in progress, with extended indications and adjuvant techniques on early stage 3 patients.

Grady B. Core, M.D.

2100 16th Avenue South, Suite 111
Birmingham, Ala. 35205
gradycore@gmail.com

PATIENT CONSENT

Patients provided written consent for use of their images.

REFERENCES

1. McGraw BL, Adamson PA. Postblepharoplasty ectropion: Prevention and management. *Arch Otolaryngol Head Neck Surg.* 1991;117:852–856.
2. Castanares S. Blepharoplasty for herniated intraorbital fat: Anatomic basis for a new approach. *Plast Reconstr Surg.* 1951;8:46–58.
3. Parkes M, Fein W, Brennan HG. *Pinch Technique for Repair of Cosmetic Eyelid Deformity.* Vol 3, 1st ed. Boston: Little Brown; 1994.
4. Hinderer UT. Additional procedures in aesthetic eyelid surgery. In: Ohmori S, ed. *Transactions of the IX ISAPS Instructional Course.* Tokyo: Colomar; 1977:365–370.
5. Flowers RS. Canthopexy as a routine blepharoplasty component. *Clin Plast Surg.* 1993;20:351–365.
6. McCord CD. Lower lid blepharoplasty. In: McCord CD, Codner MA, eds. *Eyelid Surgery.* Philadelphia: Lippincott-Raven; 1995.
7. Fagien S. Algorithm for canthoplasty: The lateral retinacular suspension. A simplified suture canthopexy. *Plast Reconstr Surg.* 1999;103:2042–2053; discussion 2054.
8. Codner MA, McCord CD, Hester TR. The lateral canthoplasty. *Oper Tech Plast Reconstr Surg.* 1998;5:90–98.
9. Loeb R. Fat pad sliding and fat grafting for leveling lid depressions. *Clin Plast Surg.* 1981;8:757–776.
10. Hamra ST. Arcus marginalis release and orbital fat preservation in midface rejuvenation. *Plast Reconstr Surg.* 1995;96:354–362.
11. Pozner J. Personal communication, 2012.
12. Baylis HI, Long JA, Groth MJ. Transconjunctival lower eyelid blepharoplasty: Technique and complications. *Ophthalmology.* 1989;96:1027–1032.
13. Jelks GW, Glat PM, Jelks EB, Longaker MT. The inferior retinacular lateral canthoplasty: A new technique. *Plast Reconstr Surg.* 1997;100:1262–1270; discussion 1271.
14. Patipa M. Transblepharoplasty lower eyelid and midface rejuvenation: Part 1. Avoiding complications by utilizing lessons learned from the treatment of complications. *Plast Reconstr Surg.* 2004;113:1459–1468; discussion 1475–1477.
15. Jordan DR, Anderson RL. The tarsal tuck procedure: Avoiding eyelid retraction after lower blepharoplasty. *Plast Reconstr Surg.* 1990;85:22–28.
16. Rorhich RJ. The five-step lower blepharoplasty: Blending the eyelid cheek junction. *Plast Reconstr Surg.* 2011;128:775–783.
17. Core GB. Progressive indications for lower lid muscle lifting: A 15 year experience. Paper presented at: Annual Meeting of American Society of Plastic Surgeons; May 6–11, 2011; Boston, Mass.
18. Byrd HS, Andochick SE. The deep temporal lift: A multiplanar, lateral brow, temporal, and upper face lift. *Plast Reconstr Surg.* 1996;97:928–937.
19. Maffi TR, Chang S, Freidland JA. Traditional lower lid blepharoplasty: Is additional support necessary? A 30 year review. *Plast Reconstr Surg.* 2011;128:265–273.
20. DiFrancesco LM, Anjema CM, Codner MA, McCord CD, English J. Evaluation of conventional subciliary incision used in blepharoplasty: Preoperative and postoperative videography and electromyography findings. *Plast Reconstr Surg.* 2005;116:632–639.