

Lower Eyelid Retraction Following Blepharoplasty

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Summary: Thirty consecutive patients with lower eyelid retraction after blepharoplasty were treated surgically with varying degrees of success. Successful outcome depended on various anatomic and pathologic factors, including the time elapsed since blepharoplasty, the prominence of the globe and its effect on eyelid contour, and the degree of septal or skin involvement. Satisfactory results were also dependent on surgical techniques used. We discuss several surgical techniques and offer advice concerning the selection of a surgical procedure in light of various pathologic parameters. **Key Words:** Blepharoplasty—Lower eyelid retraction—Scleral show.

Of 30 patients who underwent repair of postblepharoplasty lower eyelid retraction, the degree of success achieved by each patient was found to depend on several anatomic and pathologic factors. Methods of correction included lysis of middle lamellar scar tissue and retractors with or without ear cartilage spacer grafting, suspension of lower eyelid orbicularis to the frontal process of the zygomatic bone, and full-thickness skin grafting (1,2).

Lower eyelid retraction and scleral show are well-known complications of transcutaneous lower eyelid blepharoplasty. The pathophysiologic basis of retraction after blepharoplasty is multifaceted; the degree of damage varies according to the patient's underlying anatomy and the type of original surgery. The purpose of this study is to provide a detailed analysis of 30 consecutive patients who presented with postblepharoplasty lower eyelid retraction and to make recommendations regarding the selection of surgical techniques based on the underlying pathologic factors.

ANATOMY

Eyelid retraction may result from pathologic changes at a number of anatomic sites. Vertical shortening of skin has long been recognized as a

potential cause of retraction after blepharoplasty (3). Another source of lower eyelid retraction is postoperative scarring and contracture of tissue in the plane of the orbital septum (1,4). In our experience, scarring in the plane of the orbital septum is the most common cause of postblepharoplasty eyelid retraction. This scarring may be demonstrated in the patient by applying upward traction to the eyelid and observing tethering at the mid-lamellar level without evidence of skin shortage. It is further substantiated by the occurrence of retraction after transcutaneous approaches to the orbital floor, where retraction may occur without any removal of skin.

Another anatomic consideration in the postblepharoplasty lower eyelid retraction patient is the prominence of the globe and its effect on lower eyelid contour. In many patients, the relationship of the globe to the medial and lateral canthi is such that simple tightening of the inferior limb of the lateral canthal tendon may result in a lowering of the already retracted eyelid margin.

METHODS

We reviewed the charts of 30 consecutive patients with postblepharoplasty lower eyelid retraction. All patients were photographed pre- and postoperatively and were followed for at least 6 months (average follow-up, 1 year). All cases were operated on by one surgeon (H.I.B.).

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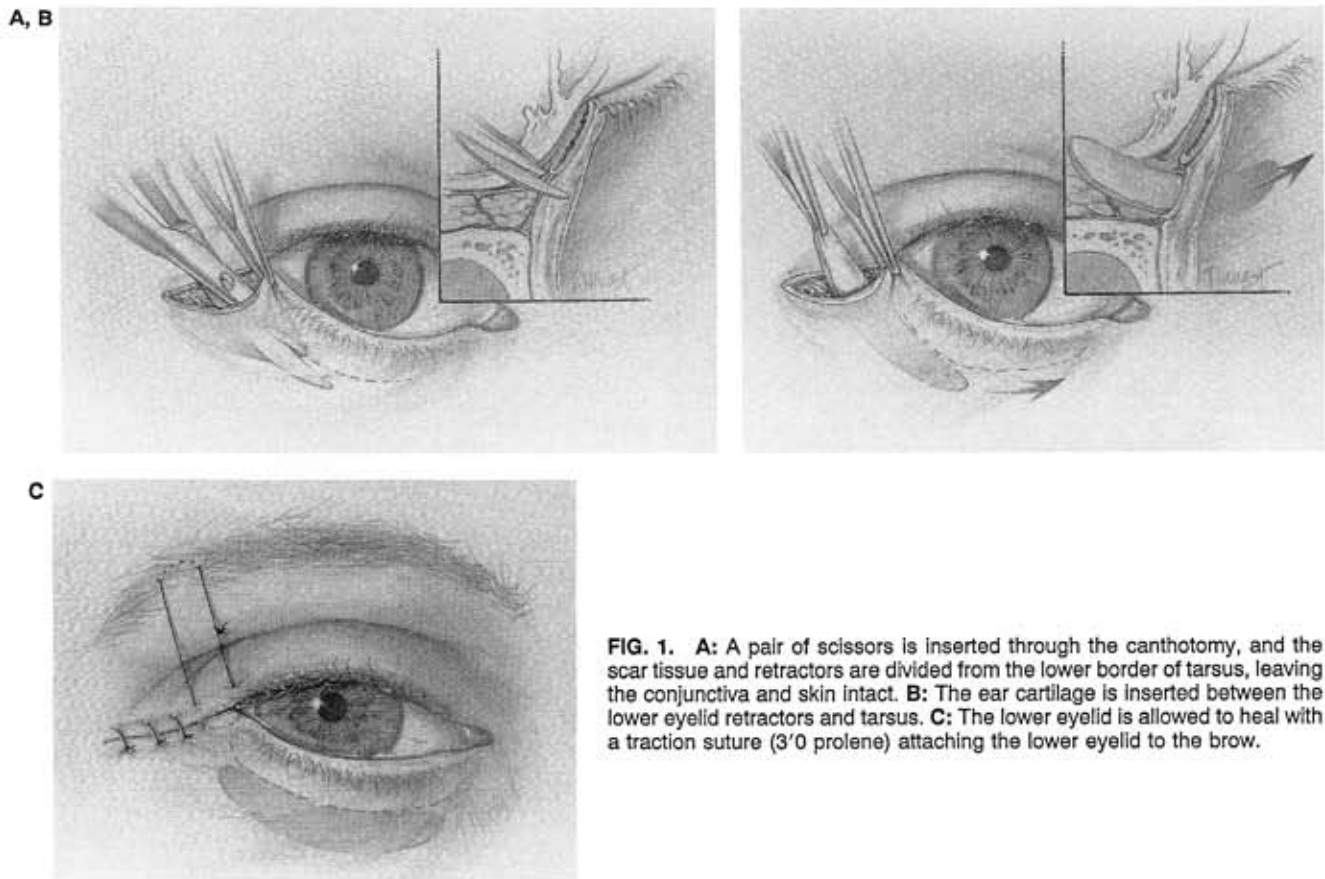


FIG. 1. **A:** A pair of scissors is inserted through the canthotomy, and the scar tissue and retractors are divided from the lower border of tarsus, leaving the conjunctiva and skin intact. **B:** The ear cartilage is inserted between the lower eyelid retractors and tarsus. **C:** The lower eyelid is allowed to heal with a traction suture (3/0 prolene) attaching the lower eyelid to the brow.

PREOPERATIVE EVALUATION

We evaluated all 30 patients for anatomic and pathologic features that would determine the surgical approach and the prognosis for satisfactory cosmetic and functional results. The lower eyelid distraction test was performed to assess the relative contributions of vertical skin shortening or scarring in the plane of the septum. This test was performed by applying upward traction to the eyelid and looking for tethering at the mid-lamellar level before the skin was pulled taut. The prominence of the globe relative to the lower eyelid and canthi was assessed. The time elapsed since blepharoplasty was taken into consideration. Retraction that was managed promptly was more likely to respond to simple lysis of scar tissue and retractors with a temporary traction suture to the brow.

SURGICAL TECHNIQUE

Patients who presented with lower eyelid retraction within 6 months of blepharoplasty were man-

aged with division of scar tissue and lower eyelid retractors through a lateral canthotomy. A pair of scissors was inserted through the canthotomy, and the scar tissue and retractors were divided from the lower border of tarsus, leaving the conjunctiva and skin intact (Fig. 1A). The lateral canthal tendon was then reattached to the orbital rim. The lower eyelid was then suspended from the brow with a 4/0 prolene suture. Patients frequently did not require spacer grafting if the retraction was managed early, the condition was mild to moderate in severity, and there was no globe prominence.

In our series, spacer grafting was reserved for patients who had longstanding lower eyelid retraction after blepharoplasty or recurrence of retraction after failure of simple scar and retractor division. Ear cartilage is a source of fresh autogenous material that is easily included in the surgical field and can be harvested by methods that have been outlined previously (5,6). A lateral canthotomy was performed, and the scar and lower eyelid retractors were divided from the inferior border of tarsus as

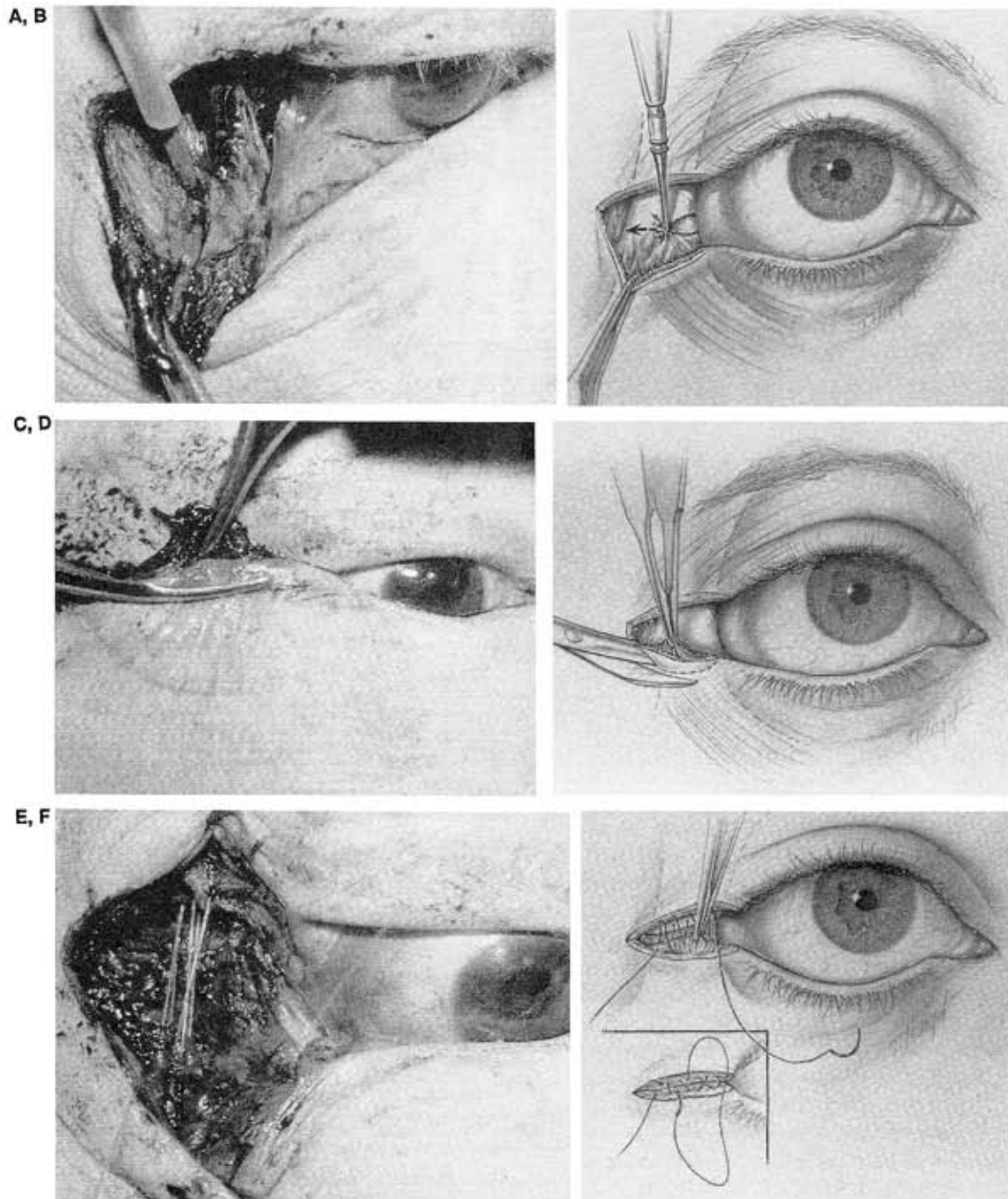


FIG. 2. **A and B:** Cutting cautery is used to divide attachments of orbicularis from the underlying zygoma. **C and D:** A segment of skin and orbicularis is resected from the inferior margin of the lateral canthal incision to avoid bunching of tissue when the orbicularis is suspended from the zygoma. **E and F:** A 4/0 prolene suture is used in a whipstitch fashion to attach the undersurface of the orbicularis flap to the periosteum and muscle along the superior margin of the lateral canthal incision.

TABLE 1. Summary of results

Surgical procedure	Eyelids requiring reoperation	Eyelids not requiring reoperation	Percentage requiring reoperation
Scar and retractor division (n = 60)	35	25	58%
Spacer graft (n = 22)	10	12	45%
Orbicularis suspension (n = 19)	4	15	21%

previously described. The ear cartilage was inserted between the lower eyelid retractors and tarsus (Fig. 1B). The lateral canthal tendon was reattached to the orbital rim and the lower eyelid suspended from the brow as described previously (Fig. 1C). Insertion of the cartilage through a lateral canthal incision avoided a subciliary incision, which may result in a more prominent scar. The only complication of ear cartilage grafting in our series was torsion of the graft material, resulting in a subcutaneous bulge in four of 13 cases. This was easily revised in all cases by trimming the redundant cartilage through a lateral canthotomy. Both lateral and medial bulges were approached through a lateral canthal incision.

For patients with prominent eyes and in cases of marked lower eyelid retraction long after the primary surgery, we used a technique that involved creation of a muscle flap in the lateral canthal incision, which was shortened and fixed to the frontal process of the zygoma. A canthotomy incision was extended laterally over the frontal process of the zygomatic bone, down to the level of periosteum, and then through the periosteum with cutting cautery. The inferior limb of the lateral canthal tendon and its expansion were divided from the orbital rim. Cutting cautery was used to divide attachments of orbicularis from the underlying zygoma (Fig. 2A

and B). The lateral third of the lower eyelid orbicularis was fully mobilized and pulled superolaterally. A segment of skin and orbicularis was resected from the inferior margin of the lateral canthal incision to avoid bunching of tissue when the orbicularis was fixed to the zygoma (Fig. 2C and D). A 4'0 prolene suture was then used in a whipstitch fashion to attach the undersurface of the orbicularis flap to the periosteum and muscle along the superior margin of the lateral canthal incision (Fig. 2E and F). The multiple throws of the whipstitch ensured that the lower eyelid was supported uniformly across the lateral canthal incision, minimizing distortion of the lateral canthus. This tightened the lower eyelid and cheek musculature and is analogous to the technique used in rhytidectomy, where the subcutaneous aponeurotic system (SMAS) is tightened as the most important part of a face-lift (7).

Vertical shortening of skin frequently did not require a skin graft. Fixation of orbicularis as we described often circumvented the need for skin grafting. When skin shortage was severe, full-thickness skin grafting was often performed in conjunction with fixation of the orbicularis. An infra-ciliary incision was made along the entire length of the lower eyelid. Using a 4'0 prolene suture, the lower eyelid was put on traction through the tarsus and suspended from the lateral brow. The traction suture, which ensured a large, stable recipient bed for maximal vertical augmentation of skin, was left in place for several days. A full-thickness graft was sutured into the bed, and the graft was held in place with a pressure bandage.

RESULTS

Our study focuses on 30 consecutive patients with lower eyelid retraction after transcutaneous lower lid blepharoplasty. The median elapsed time between original blepharoplasty and retraction repair was 2 years, but it varied from 3 weeks to 15 years. Five patients had undergone two previous lower eyelid blepharoplasties. Eight patients were successfully managed with division of lower eyelid retractors and lateral canthal resuspension with traction suture placement. Thirteen patients required vertical lengthening of the middle lamella with ear cartilage grafting. Four of the ear cartilage graft patients required trimming of the cartilage graft in one eyelid. Eleven patients underwent fixation of the lower eyelid orbicularis to the frontal process of the zyg-

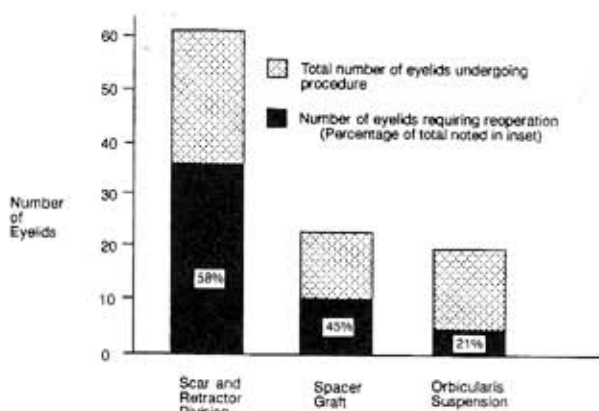


FIG. 3. Reoperation rates.

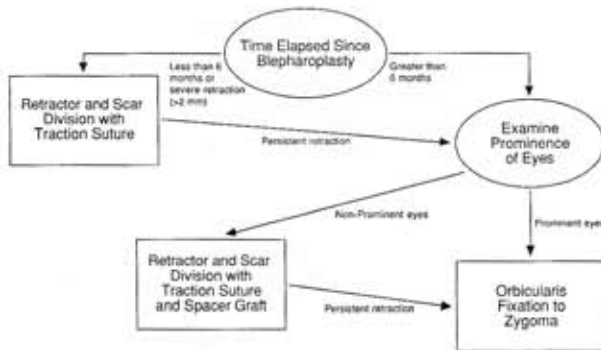


FIG. 4. "Stepped" approach to repair of lower eyelid retraction after blepharoplasty.

oma. Five patients had vertical shortening of lower eyelid skin and underwent postauricular full-thickness skin grafts.

Nine patients were satisfactorily corrected with one surgery. Seven patients required four or more surgeries for optimal correction. Of the 13 eyelids that were managed with fixation of orbicularis to the zygoma, four (21%) required additional surgery for lower eyelid retraction (Table 1). This compares with rates of 45% (10 of 22 eyelids) for spacer grafting and 58% (35 of 60 eyelids) for lysis of scar tissue and retractors without spacer grafts (Fig. 3).

DISCUSSION

Lower eyelid retraction is a well-recognized complication of transcutaneous lower eyelid blepharoplasty. In our series, some patients presented with exposure complaints (dry eyes, irritation, etc.), but many others complained of the cosmetic defect of inferior scleral show. Five patients in this series had lower eyelid retraction after having undergone two or more previous blepharoplasties; repeated transcutaneous lower eyelid blepharoplasties may be particularly prone to this complication.

We analyzed the outcome of treatment for 30 consecutive patients who underwent repair of post-blepharoplasty lower eyelid retraction. Patients whose lower eyelid orbicularis was fixed to the zygoma were less likely to require additional surgery for optimal results (21%) than other patients in the series (Fig. 3). Patients undergoing ear cartilage grafting or simple lysis of scar and retractors had higher reoperation rates (45% and 58% respectively) than the zygoma fixation group.

We do not suggest that zygoma fixation is therefore superior to other methods of retraction repair. Patients who had successful repair of retraction with



FIG. 5. A: Patient with moderate lower eyelid retraction after blepharoplasty. B: Improved lower eyelid position 9 months after division of scar and lower eyelid retractors with temporary traction suture.

simple lysis of retractors and scar tissue avoided the larger canthotomy and transient horizontal skin-folding in the lateral canthal area that is sometimes associated with fixation of orbicularis to the zygoma. They also avoided the potential complications of spacer graft torsion, which occurred in 31% of the ear cartilage graft group (four of 13 cases). For this very appearance-conscious group of postbleph-



FIG. 6. A: Patient with severe lower eyelid retraction after blepharoplasty. B: Improved lower eyelid position 6 months after division of scar and lower eyelid retractors combined with ear cartilage spacer graft in the right lower eyelid.

aroplasty patients, avoidance of such complications justifies the risk of reoperation.

Patients with mild lower eyelid retraction may be approached in a "stepped" manner (Fig. 4). Adequate lower eyelid position may often be achieved in retraction of short duration (<6 months) with lysis of scar tissue and lower eyelid retractors, re-suspension of the lateral canthus, and a temporary traction suture. Spacer augmentation of the middle lamella is usually reserved for longstanding, mild lower eyelid retraction. Orbicularis fixation is particularly useful in patients with prominent eyes and can be used in patients whose previous attempts at retraction repair have failed. Alternative methods of suspending the lower eyelid and cheek musculature to the zygoma have been described (2,8).

Lower eyelid retraction after transcutaneous blepharoplasty is amenable to surgical correction (Figs. 5, 6). However, patients should be advised that correction may require more than one operation. Ideally, this difficult problem should be avoided. It is notable that none of the patients in this series had undergone transconjunctival blepharoplasty. No information was available as to whether patients had excessive skin removed. However, in

our experience, transcutaneous blepharoplasty of the lower eyelid may result in lid retraction even when a minimal amount or no skin is removed.

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