

Revisiting Lateral Tarsal Strip Procedure for Correction of Late Lower Eyelid Malposition Following Lower Blepharoplasty

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ABSTRACT

Background: Lower eyelid malposition is a common complication that is seen after lower eye lid blepharoplasty. Many options are available although, none is perfect. Many techniques tried to solve each lamellar defect separately. Others tried to recruit mid face skin through mid-face lifting to relieve any tension over the lower eyelid. Skin grafting may solve skin deficiency while tarsal plate deficiency may need cartilage graft or resuspension.

Patients and Methods: Twelve patients suffering from lower eyelid malposition after lower blepharoplasty underwent lateral tarsal strip blepharoplasty with resuspension of the middle lamella of the lower eye lid to the periosteum of the lateral orbital wall and adheso-lysis of the lower eyelid.

Results: Ten female and two male patients, with age range from 43 to 72 years, had ectropion four or more months after blepharoplasty. Full correction of the ectropion with long follow-up after lateral tarsal strip procedure. All the patients' problem were solved with early disappearance of eye irritation manifestation. All patients didn't suffer any relapse or scleral malposition or asymmetry after correction except for one patient who needed additional procedure.

Conclusion: Lateral tarsal plate canthopexy is still a valuable option for correction of moderate to severe lower lid malposition following lower blepharoplasty. Offering more suspension, no need for skin graft.

Key Words: *Lower eyelid malposition – Ectropion – Lateral tarsal strip.*

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INTRODUCTION

Blepharoplasty remains among one of the most common aesthetic facial procedures and is performed by a variety of specialists including plastic surgeons and ophthalmologists. Although being a safe procedure there are many undesirable effects and also serious complications can occur. Complications and undesirable effects can be divided into

three categories [1-12] according to their time of occurrence.

By far, the most common reported complication after lower eyelid blepharoplasty is lower lid malposition, that may appear after one week following blepharoplasty. It may range from mild inferior scleral show up to severe cicatricial ectropion that is seen in one percent of cases in aesthetic lower blepharoplasty [13]. Mild lower eyelid retraction can often be managed only with topical steroid ointment and frequent massage superiorly in the medial or lateral one-third of the eyelid. Moderate retraction be treated by sutures removal and the wound gapped. Nevertheless, surgical correction is postponed to the late postoperative period. For treatment of the anterior lamella; skin grafting may be sufficient. Furthermore, A combined lateral canthal tightening is appropriate if concomitant horizontal laxity is present. Likewise, Tarsal suspension may be performed alone as an indirect secondary procedure in patients who aren't convinced by skin grafting [14]. Adheso-lysis may be successful, however, lateral tarsal suspension as lateral tarsal strip procedure is applicable [15,16] Cheek or mid face-lifting may be required. Posterior lamellar deficiency usually presents as entropion (Fig. 1).

PATIENTS AND METHODS

This study was commenced after ethical and board committee approval from May of 2019 to December of 2020. Twelve (ten females and two males) patients suffering from post-blepharoplasty, lower lid malposition. The ectropion was confirmed by excessive lacrimation and also eversion of the eyelid with exposure of the conjunctiva, palpating the lower eye lid showed tough cicatricial eyelid. Snap back test was done also to assess lid laxity.

Evaluation of the eyelid tightness by upward elevation of the eyelid was done to evaluate skin deficiency. All patients were followed-up for four months post blepharoplasty, with frequent massage, corticosteroid creams to the lower eyelids and eye moisturizing agents. Unfortunately, the lower eye lid didn't resolve. All patients underwent correction of the lower eyelid malposition by lateral tarsal plate procedure for lower eye lid suspension. After correction all patients were re-evaluated for the correction of lower lid malposition and laxity if present.

Surgical procedure: Under local anesthesia, a lateral canthal incision is made through skin and orbicularis at the most lateral part of the lid margin. Then, a lateral canthotomy is performed. A full thickness lower eyelid incision (from the skin to the conjunctiva layers) is thus made at the junction of the tarsal plate and the lateral canthus. Exposure

of the tarsal strip of the tarsus is developed by de-epithelializing 6mm of the tarsus from the conjunctiva and dissect orbicularis anteriorly to divide the adhesions. Thus, a strip from the tarsus is free from the skin-muscle layer anteriorly and the conjunctiva posteriorly. The tarsus is then anchored to the periosteum just inside the orbital rim at a level above the canthal line from inside to outside fashion using proline 5-0 sutures. Thus tightening of the lid margin is done. Release of the orbito-malar ligament is done to aid the skin upward mobility if needed [18] (Fig. 2).

The outcome of the procedure is evaluated by absence of lid eversion, absence of conjunctival irritation symptoms as excessive lacrimation and the lid margin lies at the level of the lower edge of the pupil when patient looks forwards. Absence of exposed conjunctiva when the patient closes his eyelid gently.

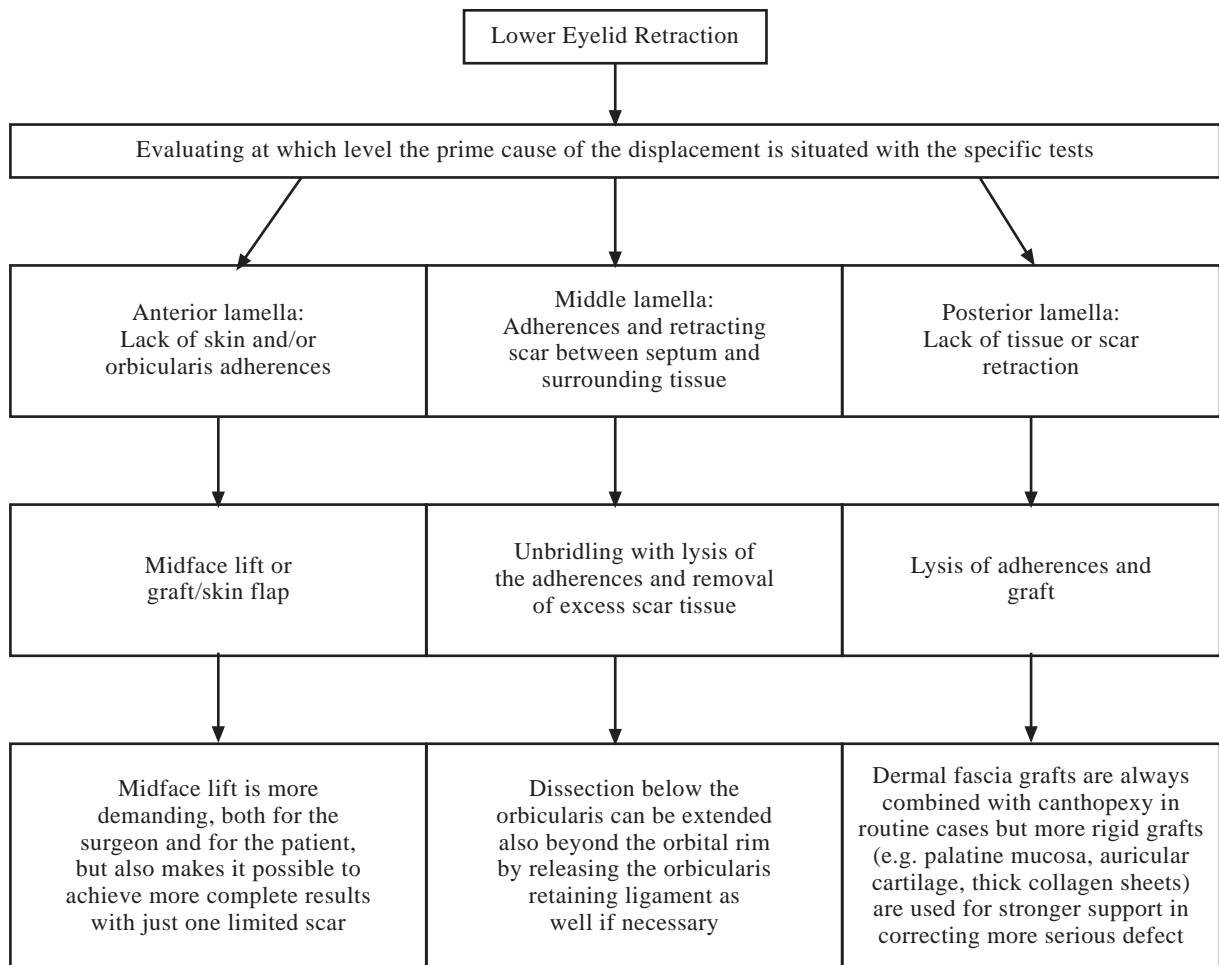


Fig. (1): Algorithm for treatment of post-operative lower lid malposition [17].

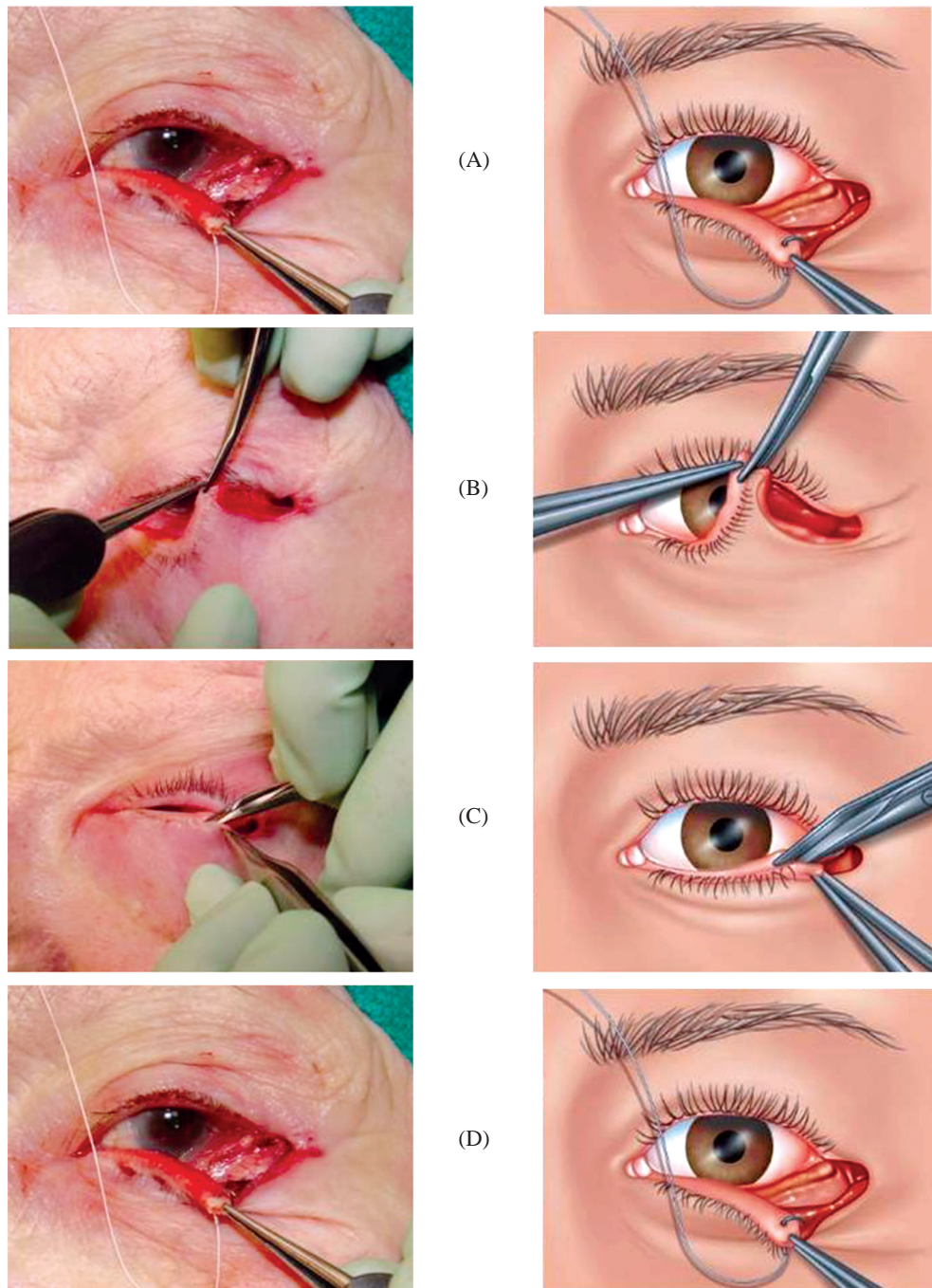


Fig. (2): (A) Full freeing of all the layers of the eyelid and cantholysis, (B) Formation of a tongue like flap formed of the skin and tarsus, (C) Release of the skin from the tarsus, (D) Anchoring of the lateral tarsal strip to the bone.

RESULTS

Ten female and two male patients suffering from post-lower blepharoplasty, eyelid malposition (Fig. 3) underwent lateral tarsal strip procedure. The age group ranging from 43 to 72 years. All patients underwent lower blepharoplasty through sub-ciliary incisions. Five patients underwent retro-

septal fat excision during their operations. two patients suffered from the malposition on both sides. Post-operatively patients were followed for five weeks. All patients' dryness symptoms improved dramatically from the first week except for one patient that required further operation and release of the cicatricial eyelid with full thickness skin graft.

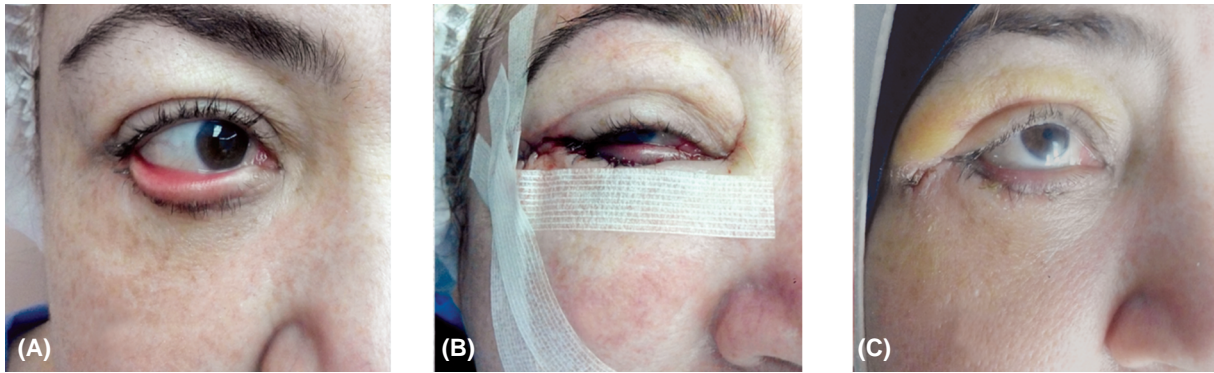


Fig. (3): (A) 52 years old female suffering from unilateral post blepharoplasty lower eyelid malposition (ectropion form). (B) Immediate. (C) Early post-operative.



Fig. (4): Shows the late post-operative 7 months after correction of lower eyelid malposition (ectropion form) with lateral tarsal strip procedure.



Fig. (5): (A) 60 years old female suffering from unilateral post blepharoplasty lower eyelid malposition (ectropion form). (B) Immediate postop after lateral tarsal strip procedure. (C) 3 months post-operatively with complete correction of the ectropion.

Table (1): Shows the patients demographics, date of presentation and unilateral or bilateral.

| Case number | Age | Gender | Date of presentation after blepharoplasty | Unilateral or bilateral |
|-------------|-----|--------|---|-------------------------|
| 1 | 52 | Female | One month | Unilateral |
| 2 | 60 | Female | One and half months | Unilateral |
| 3 | 49 | Female | Two months | Unilateral |
| 4 | 54 | Female | Two months | Unilateral |
| 5 | 51 | Female | One month | Unilateral |
| 6 | 62 | Female | Two and half months | Unilateral |
| 7 | 50 | Female | One month | Unilateral |
| 8 | 72 | Male | Two months | Unilateral |
| 9 | 43 | Female | One month | Unilateral |
| 10 | 71 | Male | One month | Unilateral |
| 11 | 66 | Female | One and half months | Unilateral |
| 12 | 65 | Female | One month | Unilateral |

DISCUSSION

Post lower blepharoplasty, eyelid malposition is considered one of the common complications especially if not resolved by time. Most seen cases seeking treatment are those suffering from severe form that is ectropion which occurs mainly due lack of support and injudicious skin excision to achieve best results. One cause that may also lead is lack of lower lid suspension at the end of the procedure. Many techniques were developed to treat the anterior lamellar deficiency as skin grafting, resuspension of skin, muscle flap or lateral tarsal trip cantho-plasty with resuspension of the middle lamella with adheso-lysis between the skin

muscle flap anteriorly and tarsus septum layer posteriorly.

The lateral tarsal plate procedure offers limited dissection, so it can be done under local anesthesia. Moreover, it adds suspension and corrects tarsal laxity and allows for resuspension of muscle skin flap to the lateral canthus adding strengthening for the lower lid. Besides it obviates the need for skin grafting that may be distressing to the patient. The drawback was minimal narrowing of the horizontal width of the palpebral fissure in average one or two mms that was not noticed by the patients. Nevertheless it is technically demanding requiring expertise and magnification.

Conclusion:

Lateral tarsal plate canthopexy is still a valuable option for correction of moderate to severe lower lid malposition following lower blepharoplasty. Offering more suspension, no need for skin graft.

REFERENCES

- 1- Lelli Gary J. Jr. M.D. and Lisman Richard D. M.D.: Blepharoplasty Complications, Plastic and Reconstructive Surgery: March - Volume 125 - Issue 3 - p 1007-1017 doi: 10.1097/PRS.0b013e3181ce17e8, 2010.
- 2- DeMere M., Wood T. and Austin W.: Eye complications with blepharoplasty or other eyelid surgery. *Plast. Reconstr. Surg.*, 53: 634-637, 1974.
- 3- Darlington J.K., Lee W.B. and Schwab I.R.: Corneal perforation during laser blepharoplasty. *Ophthalmic Surg. Lasers Imaging*, 37: 327-329, 2006.
- 4- Good C.D., Cassidy L.M., Moseley I.F. and Sanders M.D.: Posterior optic nerve infarction after lower lid blepharoplasty. *J. Neuroophthalmol.*, 19: 176-179, 1999.
- 5- Campbell J.P. and Lisman R.: Complications of blepharoplasty. *Facial Plast. Surg. Clin. North Am.*, 8: 303-327, 2000.
- 6- Lowry J.C. and Bartley G.B.: Complications of blepharoplasty. *Surv. Ophthalmol.*, 38: 327-350, 1994.
- 7- Korn B.S., Kikkawa D.O. and Schanzlin D.J.: Blepharoplasty in the post-laser in situ keratomileusis patient: Preoperative considerations to avoid dry eye syndrome. *Plast. Reconstr. Surg.*, 119: 2232-2239, 2007.
- 8- McGraw B.L. and Adamson P.A.: Postblepharoplasty ectropion: Prevention and management. *Arch. Otolaryngol. Head Neck Surg.*, 117: 852-856, 1991.
- 9- Glatt P.M., Jelks G.W., Jelks E.B., Wood M., Gadangi P. and Longake M.T.: Evolution of the lateral canthoplasty: Techniques and indications. *Plast. Reconstr. Surg.*, 100: 1396-1405, 1997.
- 10- Syniuta L.A., Goldberg R.A., Thacker N.M. and Rosenbaum A.L.: Acquired strabismus following cosmetic blepharoplasty. *Plast. Reconstr. Surg.*, 111: 2053-2059, 2003.
- 11- Ghabrial R., Lisman R.D., Kane M.A., Milite J. and Richards R.: Diplopia following transconjunctival blepharoplasty. *Plast. Reconstr. Surg.*, 102: 1219-1225, 1998. Lisman R.D., Hyde K., Smith B. Complications of blepharoplasty. *Clin. Plast. Surg.*, 15: 309-335, 1988.
- 12- Stevenson D., Tauber J. and Reis B.L.: Efficacy and safety of cyclosporin A ophthalmic emulsion in the treatment of moderate to severe dry eye disease: A dose-ranging randomized trial. *Ophthalmology*, 107: 967-974, 2000.
- 13- Baylis H.I., Long J.A. and Groth M.J.: Transconjunctival lower eyelid blepharoplasty: Technique and complications. *Ophthalmology*, 96: 1027-1032, 1989.
- 14- Demirci H., Hassan A.S., Reck S.D., Frueh B.R. and Elner V.M.: Graded full-thickness anterior blepharotomy for correction of upper eyelid retraction not associated with thyroid eye disease. *Ophthal. Plast. Reconstr. Surg.*, 23: 39-45, 2007.
- 15- Shorr N. and Fallor M.K.: "Madame butterfly" procedure: Combined cheek and lateral canthal suspension procedure for post-blepharoplasty, "round eye," and lower eyelid retraction. *Ophthal. Plast. Reconstr. Surg.*, 1: 229-235, 1985.
- 16- Ordan D.R. and Anderson R.L.: The lateral tarsal strip revisited: The enhanced tarsal strip. *Arch. Ophthalmol.*, 107: 604, 1989.
- 17- Pascali M., Botti C., Cervelli V. and Botti G.: Vertical Midface Lifting with Periorbital Anchoring in the Management of Lower Eyelid Retraction: A 10-Year Clinical-Retrospective Study. *Plast. Reconstr. Surg.*, Jul. 140 (1): 33-45. doi:10.1097/PRS.0000000000003452. PMID: 28338588, 2017.
- 18- Anderson R.L. and Gordy D.D.: The tarsal strip procedure. *Arch. Ophthalmol.*, 97: 2192-2196, 1979.