

## Lower Eyelid Position After Transconjunctival Lower Blepharoplasty With Versus Without A Skin Pinch

Mehryar Taban, M.D., Mehran Taban, M.D., and Julian D. Perry, M.D.

*Cole Eye Institute, Cleveland Clinic Foundation, Cleveland, Ohio, U.S.A.*

---

**Purpose:** To evaluate the effect of transconjunctival lower blepharoplasty with or without a skin pinch on lower eyelid position.

**Methods:** Retrospective analysis of patients undergoing bilateral lower blepharoplasty using a transconjunctival approach with or without a skin pinch. Patients undergoing other surgical procedures that could affect lower eyelid position were excluded. Twenty-five patients (50 eyes) underwent transconjunctival blepharoplasty without skin pinch and 20 patients (40 eyes) underwent transconjunctival blepharoplasty with a skin-pinch technique. Preoperative and postoperative photographs were measured for the horizontal corneal diameter and distance from light reflex to lower eyelid margin (MRD<sub>2</sub>). The ratio of MRD<sub>2</sub> to corneal diameter was multiplied by 11 to standardize to a corneal diameter of 11 mm. Student *t* test was used for statistical analysis.

**Results:** There were 8 male and 37 female patients. Average follow-up was 4 months. Mean preoperative standardized MRD<sub>2</sub> was 4.68 mm and 4.65 mm for transconjunctival blepharoplasty without and with skin pinch, respectively. Mean postoperative standardized MRD<sub>2</sub> was 4.73 mm and 4.70 mm for transconjunctival blepharoplasty without and with skin pinch, respectively. The mean change in lower eyelid position was 0.05 mm after each technique. The change in lower eyelid position was not statistically significant for either group (*p* > 0.5). There was no significant difference in lower eyelid position change between the 2 groups (*p* > 0.99).

**Conclusions:** Transconjunctival lower blepharoplasty with or without a skin pinch yields a stable postoperative lower eyelid position.

---

Transcutaneous lower blepharoplasty addresses excess skin, muscle, and fat through an infraciliary cutaneous incision. This approach offers excellent exposure to the fat pads; however, violation of the orbital septum may result in postoperative lower eyelid malposition in 15% to 20% of cases.<sup>1-4</sup> Postoperative lower eyelid retraction may cause aesthetic disfigurement and exposure keratoconjunctivitis. Transconjunctival approach lower blepharoplasty avoids violation of the orbital septum, which may produce less postoperative eyelid retraction.<sup>5-7</sup> Zarem and Resnick found no cases of prolonged lower eyelid retraction in a series of 104 patients; however, the authors did not provide measurements of lower eyelid position.<sup>5-7</sup>

Although transconjunctival lower blepharoplasty may reduce the chance of postoperative eyelid malposition, it does not address redundant anterior lamella tissues. Cu-

taneous redundancy can be addressed through excision using sharp dissection, resurfacing, or by a pinch technique.<sup>8</sup> Parkes et al.<sup>9</sup> suggested the pinch technique as a separate procedure in 1973. In 1992, Dinner et al.<sup>10</sup> described the combination of a skin pinch with the transconjunctival approach in the “no flap” technique. Others have reported success with transconjunctival lower blepharoplasty in combination with skin pinch.<sup>11</sup>

To our knowledge, direct measurements of postoperative lower eyelid position after transconjunctival lower blepharoplasty have not been reported. We aimed to evaluate the effect of transconjunctival lower blepharoplasty, with or without a skin pinch, on lower eyelid position.

### METHODS

The charts of all patients undergoing transconjunctival lower blepharoplasty with or without a skin pinch by one surgeon (J.D.P.) at the Cole Eye Institute between 2000 and 2005 were reviewed. Both surgical procedures were performed according to previously published techniques.<sup>6,7,11</sup> Patients undergoing other concomitant surgical procedures, including fat repositioning, midface lift, eyelid malposition repair, or canthoplasty were excluded. Patients without digital preoperative and postoperative photographs for review were excluded. Institutional Review Board approval was obtained for this study.

---

Accepted for publication June 4, 2007.

Address correspondence and reprint requests to Julian D. Perry, Cole Eye Institute, Cleveland Clinic Foundation, 9500 Euclid Avenue, i32, Cleveland, OH 44195. E-mail: perryj1@ccf.org

Presented at the 2006 ASOPRS Fall Meeting, November 16-17, Las Vegas, NV.

The authors have no financial or proprietary interest in any product or device mentioned in this report.

DOI: 10.1097/IOP.0b013e318160f3a0



**FIG. 1.** External photograph illustrates measurement technique. Distance (pixels) from the light reflex to lower eyelid margin ( $MRD_2$ , yellow line) and the corneal diameter (green line) were recorded.  $MRD_2$  was standardized to an arbitrary horizontal corneal diameter of 11 mm by multiplying the ratio of  $MRD_2$  to corneal diameter in pixels by 11.

Preoperative and postoperative photographs at the longest follow-up visit were analyzed. All photographs were obtained using a Nikon 990 camera under identical lighting conditions, with the patient in a sitting position and with the eyes in primary gaze. ImageJ software (National Institutes of Health, USA) was used to measure the distance (pixels) from the center of pupil to lower eyelid margin ( $MRD_2$ ) and the corneal diameter (Fig. 1). We standardized the  $MRD_2$  to an arbitrary horizontal corneal diameter of 11 mm by multiplying the ratio of  $MRD_2$  to corneal diameter in pixels by 11. Student *t* test was used for all the statistical analysis.

## RESULTS

Analysis included 90 procedures (eyes) on 45 patients (8 males and 37 females). Twenty-five patients (50 eyes) underwent transconjunctival lower blepharoplasty without skin pinch and 20 patients (40 eyes) underwent transconjunctival lower blepharoplasty with a skin pinch. Mean patient age was 63 years (range, 33–89 years). Mean follow-up after surgery was 4 months (range, 2–16 months). The mean preoperative standardized  $MRD_2$  was 4.68 mm and 4.65 mm for transconjunctival blepharoplasty without and with skin pinch techniques, respectively (Table). The mean postoperative standardized  $MRD_2$  was 4.73 mm and 4.70 mm for transconjunctival blepharoplasty without and with skin pinch techniques, respectively. The mean change in lower eyelid position was 0.05 mm after each technique. There was no significant difference in lower eyelid position after either technique ( $p > 0.5$ ). There was no significant difference in lower eyelid position change between the 2 techniques ( $p > 0.99$ ). Figures 2 and 3 demonstrate eyelid position after each technique. We found no complications of lower eyelid retraction, ectropion, hematoma, infection, or

### Preoperative vs. postoperative lower eyelid positions

	Skin pinch (mm)	No skin pinch (mm)
Preoperative	4.65	4.68
Postoperative	4.70	4.73
Change	0.05*	0.05*

\* $p > 0.5$  between preoperative and postoperative points for either skin pinch or no skin pinch techniques.  $p > 0.99$  between skin pinch vs. no skin pinch mean position changes.



**FIG. 2.** Preoperative (A) and 6 months postoperative (B) photographs of a patient who underwent bilateral lower blepharoplasty using a transconjunctival approach with skin pinch. Upper blepharoplasty was also performed. Note stable postoperative lower eyelid position.

untoward external scarring. No patient underwent re-operation for any reason.

## DISCUSSION

Transcutaneous lower blepharoplasty violates the orbital septum and may result in vertical contracture, with lateral canthal dystopia, scleral show, and ectropion.<sup>2,12,13</sup> The transconjunctival approach offers several possible advantages, including faster recovery, less risk of eyelid retraction, avoidance of external scars, minimized hypopigmentation, and it allows for easier revision or secondary removal/repositioning of residual fat.<sup>1,14</sup> Transcutaneous blepharoplasty offers excellent results, especially for patients with orbicularis oculi hypertrophy who require muscle excision.<sup>15,16</sup>

After removal of herniated orbital fat via transconjunctival lower blepharoplasty, cutaneous redundancy may persist. In such patients, concomitant skin excision through a pinch technique allows for preservation of the orbital septum. It also avoids significant subcutaneous dissection, which minimizes bleeding. This combined approach allows for safe and efficient skin resection. The pinch technique preserves underlying orbicularis muscle



**FIG. 3.** Preoperative (A) and 1-year postoperative (B) photographs of a patient who underwent bilateral lower blepharoplasty using a transconjunctival approach with skin pinch. Upper blepharoplasty was also performed. Note stable postoperative lower eyelid position.

and orbital septum, and minimizes the risk of postoperative eyelid malposition.

Although we found no significant change in standardized MRD<sub>2</sub> after the pinch technique, excessive skin removal from any technique, including the pinch technique, could increase MRD<sub>2</sub>. Our technique included several maneuvers to ensure removal of only redundant skin. During the pinch, the patient was instructed to look up while opening the mouth as the assistant applied mild posterior digital pressure to the upper eyelid. These maneuvers placed the lower eyelid anterior lamellar tissue under vertical tension to ensure that the pinch captured only redundant skin. The excess skin was then pinched using Brown-Adson forceps with care to avoid any inferior movement of the lower eyelid margin. Caution of the lower eyelid orbicularis muscle, when needed, was performed sparingly. We avoided using the pinch technique in cases of severe dermatochalasis or excessive lower eyelid laxity and in patients with previous anterior lamellar scarring. We studied only patients who underwent skin pinch excision without simultaneous canthoplasty or canthopexy to eliminate confounding variables

that could affect lower eyelid position. In our experience, lower blepharoplasty in the setting of lower eyelid laxity that requires concomitant canthoplasty or canthopexy can be performed using the pinch technique. Our low patient numbers reflect the high number of excluded patients who underwent simultaneous canthoplasty, fat repositioning, cheeklifting, resurfacing, or other concomitant lower eyelid surgeries. Few patients require only skin and fat excision during lower blepharoplasty.

It seems that incision of the lower eyelid retractors to access the fat pads without suture approximation of the wounds does not produce “reverse ptosis,” or elevation of the lower eyelids. Transconjunctival lower blepharoplasty with or without a skin pinch yields excellent, stable lower eyelid position. The pinch method of skin excision minimizes the risk of postoperative eyelid malposition by avoiding violation of orbital septum and orbicularis muscle. In the uncommon case when lower blepharoplasty requires both fat and skin excision, the skin pinch technique with transconjunctival fat excision allows for stable postoperative lower eyelid position.

## REFERENCES

1. Kikkawa DO, Kim JW. Lower-eyelid blepharoplasty. *Int Ophthalmol Clin* 1997;37:163–78.
2. Seiff SR. Complications of upper and lower blepharoplasty. *Int Ophthalmol Clin* 1992;32:67–77.
3. Baylis HI, Nelson ER, Goldberg RA. Lower eyelid retraction following blepharoplasty. *Ophthalm Plast Reconstr Surg* 1992;8:170–5.
4. Carraway JH, Mellow CG. The prevention and treatment of lower lid ectropion following blepharoplasty. *Plast Reconstr Surg* 1990;85:971–81.
5. Zarem HA, Resnick JI. Minimizing deformity in lower blepharoplasty. The transconjunctival approach. *Clin Plast Surg* 1993;20:317–21.
6. Zarem HA, Resnick JI. Operative technique for transconjunctival lower blepharoplasty. *Clin Plast Surg* 1992;19:351–6.
7. Zarem HA, Resnick JI. Expanded applications for transconjunctival lower lid blepharoplasty. *Plast Reconstr Surg* 1991;88:215–20.
8. Carter SR, Seiff SR, Choo PH, Vallabhanath P. Lower eyelid CO(2) laser rejuvenation: a randomized, prospective clinical study. *Ophthalmology* 2001;108:437–41.
9. Parkes M, Fein W, Brennan HG. Pinch technique for repair of cosmetic eyelid deformities. *Arch Ophthalmol* 1973;89:324–8.
10. Dinner MI, Glassman H, Artz JS. The “no flap” technique for lower-lid blepharoplasty. *Aesthetic Plast Surg* 1992;16:155–8.
11. Rosenfield LK. The pinch blepharoplasty revisited. *Plast Reconstr Surg* 2005;115:1405–12.
12. Levine MR, Boynton J, Tenzel RR, Miller GR. Complications of blepharoplasty. *Ophthalmic Surg* 1975;6:53–7.
13. Hamako C, Baylis HI. Lower eyelid retraction after blepharoplasty. *Am J Ophthalmol* 1980;89:517–21.
14. Baylis HI, Long JA, Groth MJ. Transconjunctival lower eyelid blepharoplasty. Technique and complications. *Ophthalmology* 1989;96:1027–32.
15. Jacono AA, Moskowitz B. Transconjunctival versus transcutaneous approach in upper and lower blepharoplasty. *Facial Plast Surg* 2001;17:21–8.
16. Adamson PA, Strecker HD. Transcutaneous lower blepharoplasty. *Facial Plast Surg* 1996;12:171–83.