

결막과 경피 접근법의 상호보완을 통한 하안검 성형술

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Lower Blepharoplasty: In and Out Complementary Technique

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Purpose: Traditional transcutaneous incision and transconjunctival incision methods are commonly used in the lower blepharoplasty. The transconjunctival method leaves no visible scars nor does it change the shape of lower eyelid contour and the surgical technique is not difficult. However removal of excess baggy skin is not possible through this method. Therefore, the transconjunctival incision method is useful only for patients who still have normal elasticity of the lower eyelids and fat that is protruding only antero-caudally. The Author will introduce a technique, which complements the limitations of these two methods mentioned above.

Methods: The author combined the transconjunctival approach and lower blepharoplasty with only the excised skin flap method. This method does not go beyond the previous methods but does apply the advantages of them.

Results: From March 2007 to October 2010, this new technique was performed in a total of 62 patients. Fat was removed and repositioned through transconjunctival incision. Drooped skin was excised as in the traditional blepharoplasty but only the skin flap was elevated. This prevents post-operative complications such as ectropion, sclera show, and deformation of the shape of the lower eyelids or under-resection of fat. All patients were satisfied

with the post-operative appearance.

Conclusion: The author was able to get satisfactory results while avoiding complications of traditional transcutaneous technique with this combined technique of the transconjunctival approach and the lower blepharoplasty method of skin flaps only.

Key Words: Lower blepharoplasty, Transconjunctival approach, Combination technique

I. INTRODUCTION

The periorbital area may be the region primarily involved in the aging process of the skin. Even though in young people, the periorbital fat may protrude anteriorly and caudally which causes festoons, so-called "dark circles", which makes one appear ill or dark. For the correction of this, a transconjunctival fat remove can be done. No visible scars are seen nor will the lower eyelid contour change post-operatively. However, resecting the excess skin is impossible in this approach. Therefore, it is indicated in patients with normal lower lid tension with simple antero-caudal fat protrusion.

After the forties, lower eyelid wrinkles multiply and more fat protrudes anteriorly as well as caudally. The transconjunctival method may not solve the excess skin problem left after fat removal. Therefore, elevation of the orbicularis and the lower lid, and resection of the protruding fat and loosened skin may be performed through the subciliary transcutaneous approach. This is called traditional lower blepharoplasty. It is indicated in patients with sagging lower eyelids with protruding fat or excessive wrinkles.

However, complications such as ectropion after excessive skin resection and deformation of the lower eyelid contour after excision of the orbicularis oculi muscle is the problem with this procedure.¹ In this approach, changes in the shape of one's eye and ectropion can appear, if a surgeon conducts overresection of the muscular rolls of the pretarsal orbicularis or destroys the structure of the upper anterior lamella.² Also

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it is very difficult to estimate before the surgery.³

The author kept notice of these points and combined the transconjunctival approach with the traditional lower blepharoplasty method to minimize the complications.

II. MATERIALS AND METHODS

A. Materials

Surgery was performed on patients who had sagging lower lid skin and had potential of skin drooping after fat removal because of excessive protrusion of inferior orbital fat. 62 patients who visited our facility from March 2007 to October 2010 were included in this study. 54 were female and 8 were male. The mean age was 49.

B. Surgical Technique

Lower blepharoplasty maybe performed under local anesthesia with sedation. The globe is protected with a plastic shield. A local anesthetic, a 1:1 mixture of 1% lidocaine with 1:100,000 epinephrine and 0.25% ropivacaine with 1:200,000 epinephrine, is slowly injected transcutaneously with a 30-gauge needle. A total of 2 to 3 mL is infiltrated along the orbital floor, from the medial cantus to the lateral canthus. The inferior orbital rim is used as a landmark. The incision is made approximately 15 mm horizontally, 6 mm below the lid margin or 2 mm below the canthal margin of the inferior tarsal plate (Fig. 1, 2, Left). The incision extends through the capsulopalpebral fascia. The inferior oblique muscle is identified to distinguish the central and medial fat compartments. Fat is excised and redraped from the lateral, central, medial fat compartments (Fig. 1, Center). Usually the lateral fat compartment is not excised and preserved or redraped to avoid a hollow appearance. If the fat only needs excision, the arcus marginalis does

not need to be incised. When it's necessary to make the fat redraped, arcus marginalis should be incised and the fat pad should be sutured to the periosteum of inferior orbital rim, which requires 2 or 3 sutures. Overresection of fat should be avoided. Suturing of the conjunctiva is avoided to eliminate irritation caused by suture material of the suture granuloma.

Then a blepharoplasty was performed on only the lower skin flap. Only the skin flap was elevated minimally and removed (Fig. 1, 2, Right). Preoperatively, a pinching test was performed to measure and design the excess lagging lower eyelid that needed to be removed. After the procedure the skin was continuously sutured with 7-0 black silk. Suture was removed 3 postoperative days later.

The transconjunctival approach combined with a blepharoplasty only on the lower skin flap was performed.

III. RESULTS

We have performed 62 lower blepharoplastyies between March 2007 and October 2010. None of the patients had lateral canthal resuspensions of other lower lid tightening procedures. The age of the patients ranged from 42 to 62 years (mean age, 49 years). There were 54 women and 8 men. The follow-ups ranged from 3 to 6 months. Post-operative pictures were taken between weeks 6 and 9.

Significant complications that were not encountered in this series include lower eyelid retractions, ectropion, entropion, inferior olisque palsy, and over resection of orbital fat.

The patients were grouped according to their satisfaction. 58 patients are very pleased with the result. And four had complaints about their undercorrected nasojuugal groove (Table I).

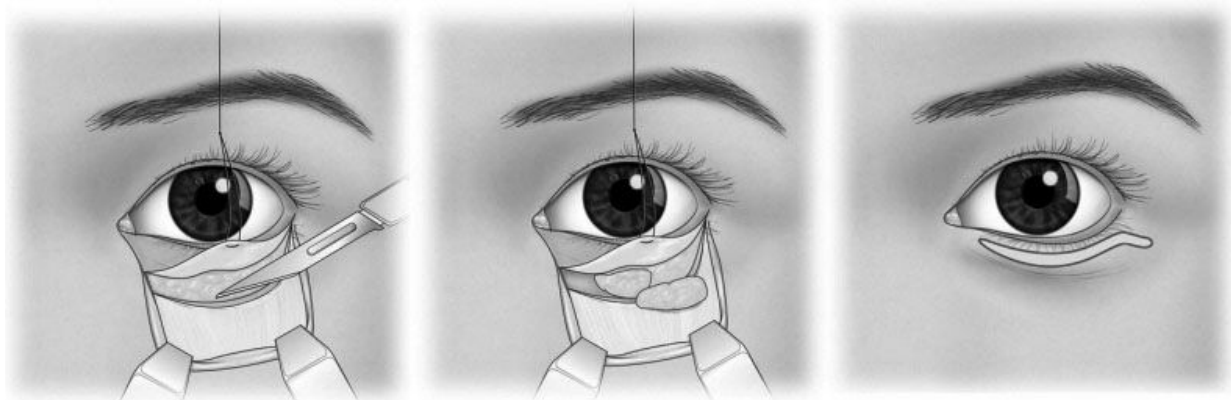


Fig. 1. Schematic illustration. (Left) Incision and dissection through transconjunctival approach. (Center) infraorbital fat is removed from central and medial fat compartment. (Right) Skin excision is performed.

Table 1. Patient Characteristics and Satisfaction

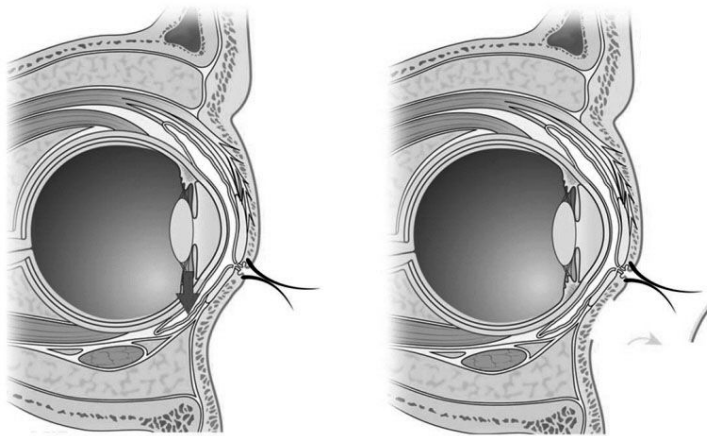
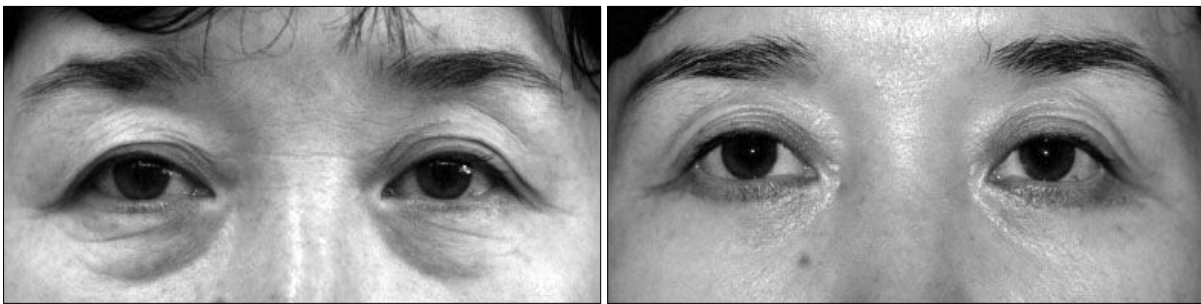
No. of patient		62
Male		8
Female		54
Age (mean)	46 - 62	(49)
Patient satisfaction	Very good	58
	Not bad	4
	Poor	0

Case 1

48-year-old female patient. She had sagging lower eyelids with multiple wrinkles. Fat protrusion and nasojugal groove was notable. A follow up picture was taken 1.5 months postoperative. The bulging was flattened and the nasojugal fold was corrected (Fig. 3).

Case 2

52-year-old female patient. She also had sagging lower eyelid, fat protrusion and deep nasojugal groove. Follow up picture was taken 2 months postoperative. The bulging was flattened and the nasojugal fold was corrected (Fig. 4).

**Fig. 2.** Schematic illustration of the sagittal views. (Left) Incision and dissection through transconjunctival approach. (Right) Skin excision is performed.**Fig. 3.** A 48-years-old female patient. (Left) Preoperative view. She has deep nasojugal groove with multiple wrinkles. (Right) Postoperative view in 1.5 month. The bulging is flattened and the nasojugal fold is corrected.**Fig. 4.** A 52-years-old female patient. (Left) Preoperative view. She has bulging infraorbital fat and drooped lower lid skin. (Right) Postoperative view in 2 month. The bulging is flattened and the nasojugal fold is corrected.

IV. DISCUSSION

Traditional lower blepharoplasty with transcutaneous incision and removal of infraorbital fat and excess lower lid skin has been performed. In the upper blepharoplasty, usually both the patient and doctor are satisfied with the results—excision of excess sagging skin and formation of double folds.

The lower blepharoplasty on the other hand, is frequently a disappointment for both the surgeon and patient. Hollows or sunken features appear after surgery which can make a patient look even older. Smile lines can appear more severe, scars can be visible, and scleral show is a common complication.⁴ Traditional lower blepharoplasty uses skin-muscle flaps in which exfoliation may reach the depth of the tarsal plate. Muscle fibers anterior to the tarsal plate and structures anterior to the anterior lamella may be damaged during this procedure, causing abnormal lid function. It may change the shape of the eye or cause ectropion. Lower eyelid muscular rolls, which make one look younger, can be over-resected. In addition it's very difficult to estimate the result before surgery.³

The incidence of lower lid retraction problems include minimal deformities after transcutaneous lower blepharoplasty at 15% and lower lid retraction, which may range from mild inferior scleral shows to severe cicatricial ectropion in 3%.^{1,5}

The transconjunctival lower eyelid blepharoplasty was first described in French literature in 1924. It had been suggested that transconjunctival lower eyelid blepharoplasty avoids many of the complications of transcutaneous lower eyelid blepharoplasty.² This new method was revolutionary in avoiding scar contracture and ectropion. However, excess baggy skin was unremovable with this approach. Furthermore some of the patients, who seemed to be ideal for transconjunctival fat removal and redraping technique, complained of newly formed baggy skin after surgery which made them appear even older. Preoperative assessment of the laxity of excess lower lids and sagging fat which protrudes antero-caudally is needed in predicting how much the lower eyelids will sag after fat removal. It also requires much clinical experience. Thus, indications for transconjunctival incisional lower blepharoplasty are restricted to a particular group of patients especially in young patients.

In patients with excess lower eyelid skin, the author thought of a way to remove the excess distended skin without causing ectropion or changes in the shape of the lower lids.

The mechanism of lower eyelid retraction is controversial, but it is certain that scar contraction must be an essential component. The traditional transcutaneous lower blepharoplasty requires an incision that goes through the skin, orbicularis muscle, and the anterior orbital septum. Even when a minimum of no skin is excised, contraction during the healing process of the skin and the orbicularis muscle can lead to lower lid retraction.⁴ Scarring at the level of the anterior lamellae and the septum of the lower eyelid increases the risk of lower eyelid retraction and ectropion.^{2,6} Smiling wrinkles, ectropion and visible scars may be caused by skin incisions, however sometimes they are caused by scar contractures of orbicularis oculi muscle injury. Also, pretarsal orbicularis oculi muscle injury can cause destruction of the subciliary muscular roll which makes one look younger. Additionally subciliary incisions can cause harmful denervation of the zygomatic branch and the buccal branch to the pretarsal muscle, resulting in a loss of function and possible ectropion.⁷

Combining these techniques, we can preserve the orbicularis muscle, its innervations, and avoid trans-lamellar scarring. Dissection of the skin is limited to the range of skin excision. This approach leaves the skin, orbicularis, and the orbital septum intact. In our experience, this has avoided the spectrum of long-term lower eyelid retraction problems.

Removal of bulging fat directly, minimizes late lid retraction problems, and retains the natural appearance of the palpebral fissure.

The author repositioned the protruding fat transconjunctivally and assessed the excess lagging skin through transcutaneous lower blepharoplasty of only the skin flap approach via the pinching test. The author called the combination of these two methods, the 'In and out complementary technique'. The author was able to effectively control the protruding fat and resection distended skin with this technique. Both patients and the doctor were satisfied with the results.

However, this technique is also not indicated in all patients. People are too old who have too much redundant skin should be excluded and transcutaneous lower blepharoplasty will be recommended. In young patients with no excess skin who have only protrusion of lower fat pads need only transconjunctival fat removal.

Since this technique uses the transconjunctival approach, securing the view and the space of the operation field is more difficult than that of the traditional lower blepharoplasty. Therefore, correction of the depressed nasojugal fold was more difficult in this method than

in the traditional lower blepharoplasty. In our results, four patients complained about undercorrection of the nasojugal groove. To avoid a hollow appearance, the lateral fat compartment is not excised and preserved or redraped. And no one complained about hollow or sunken feature appear after surgery. Diploids attributable to injury of the inferior oblique muscle can occur in lower blepharoplasty.⁸ However these complications were not found in our patients. Infection, hematoma, chemosis and visual changes were also not found. The author did not suture the tranconjunctival incision for prevention of suture granuloma.⁶ With this procedure, we had received a low incidence of complications, and it did not significantly alter the eyelid margin position.

It is possible to correct nasojugal folds with the sliding fat pad technique in transconjunctival incisions,⁹ but the visual field does not turn out to be very good. The author usually treated patients who had deep nasojugal folds with the Hamra's technique in transcutaneous incision.¹⁰

It is ideal for cosmetic blepharoplasty in younger patients who do not require large amounts of skin removal or orbicularis muscle redraping. This surgical technique, the combined technique of transconjunctival approach and only skin flap excision, was mentioned in previous articles.^{4,9,11} But it's not widely used in lower blepharoplasty.

The author was able to decrease the complication rate of the traditional transcutaneous incision method and effectively correct excess skin and fat using this technique.

V. CONCLUSION

In lower blepharoplasty, the authors received satisfactory results using this 'In and out' complementary technique in 62 patients. We were able to decrease the complication rate of the traditional transcutaneous inci-

sion method and effectively remove excess skin using this technique. However, this technique cannot be applied to all patients. The surgeon should evaluate lower lid tension and the amount of fat protrusion and select patient carefully.

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