



# Evaluation of Surgical Outcomes, Patient Satisfaction, and Potential Complications after Blepharoplasty

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## Abstract

**Objectives:** This study is an evaluation of the surgical outcomes, patient satisfaction, and potential complications following blepharoplasty surgery.

**Methods:** A total of 128 patients who underwent blepharoplasty surgery between 2015 and 2017 were included in this study. A postoperative lid crease difference of at least 1 mm was considered asymmetrical. Pre- and postoperative tear break-up time (TBUT) was evaluated. All of the patients were asked to complete a satisfaction assessment form prepared by the authors. The scar tissue that developed along the incision line was evaluated and graded by a single observer.

**Results:** The mean age of the patients was  $62.70 \pm 9.73$  years, and all of the patients were monitored for a period of at least 6 months. In combination with blepharoplasty, 17 patients underwent eyebrow surgery, 6 underwent lower eyelid surgery, and 4 underwent levator surgery. Lid crease asymmetry of 1 mm was determined in 8 patients, and a 2-mm asymmetry was identified in 2 patients, although the pre- and postoperative TBUT was not significantly different ( $p \geq 0.05$ ). A total of 107 (83.59%) patients reported a very high level of satisfaction at the postoperative sixth month, 15 (11.71%) patients reported a high level of satisfaction, and 6 (4.68%) reported a moderate level of satisfaction. In the postoperative sixth month, 87 (67.97%) patients had no scar tissue at the incision line, while 36 (28.13%) patients had noticeable scar tissue upon close inspection, and 5 (3.91%) patients had apparent scar tissue. None of the patients developed serious complications, such as severe hematoma, lagophthalmos, or wound separation.

**Conclusion:** In the present study, the patients generally expressed long-term satisfaction with the results of blepharoplasty surgery for dermatochalasis. A comprehensive preoperative assessment, and combining surgeries when necessary and appropriate, ensures a high rate of success in blepharoplasty procedures.

**Keywords:** Blepharoplasty, patient satisfaction, potential complications.

## Introduction

Blepharoplasty surgery is performed to correct changes to the eyelid that may be caused by aging or genetic disposition. Among middle-aged and elderly individuals, the removal of the orbicular muscle and fat tissue during an upper eyelid blepharoplasty provides a younger look and increases the field of vision, particularly in the upper temporal region (1). Surgical success depends primarily on meeting the patients' expectations and achieving a uniform, symmetrical appearance after the operation (2). An eyebrow elevation during blepharoplasty may also be appropriate in cases where dermatochalasis is accompanied by eyebrow ptosis, as it may

negatively affect the cosmetic outcome by reducing the distance between the eyebrow and the eyelid (3). The surgeon should also be able to manage potential postoperative complications, such as lagophthalmos, asymmetry, and eyebrow ptosis (4). While blepharoplasty surgery is often successful, rarely, complications may arise. The frequency of dry eye after blepharoplasty is higher among individuals with preoperative tear insufficiency, but it may also develop due to insufficient postoperative blinks and lagophthalmos. In previous studies, the reported frequency of dry eye following blepharoplasty ranged between 8% and 21% (5, 6). Aside from the possible negative cosmetic outcomes, such as eyelid

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**Submitted Date:** April 15, 2018 **Accepted Date:** June 19, 2018 **Available Online Date:** July 10, 2018

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asymmetry, lagophthalmos, or changes in facial expression, complications such as dry eye syndrome and superior limbic keratoconjunctivitis may also emerge after blepharoplasty, and retro-orbital bleeding is a potential complication that may, in rare cases, result in vision loss (7-11).

In the present study, the long-term outcomes regarding scar development, asymmetry, findings of dry eye, and the level of satisfaction among patients who underwent blepharoplasty surgery were evaluated.

## Methods

The study included a total of 128 patients who underwent upper eyelid blepharoplasty surgery at least 6 months earlier due to ptosis associated with a decreased visual field. Informed consent forms were obtained from all of the patients prior to their inclusion in the study. The pre- and postoperative examinations of all of the patients were carried out by the same physician, and tear break-up time (TBUT) was recorded. The need to perform simply upper eyelid or also lower eyelid surgery, and internal-external eyebrow surgery and correction for ptosis were all evaluated according to the specific problems of each patient. The staging of the scar tissue along the incision line was performed in the postoperative sixth month, in accordance with the following stage definitions, 0: no scar tissue along the incision line, 1: scar tissue can be seen upon close inspection, 2: scar tissue is apparent, 3: marked hypertrophic scar.

Before administering a local anesthetic, the surgical site was marked on the patients while they were sitting up straight on the operating table. In patients who had a visible lid crease, the first line of incision was the lid crease. In patients who lacked visible a lid crease, the eyelid was turned out, and the line corresponding to the upper boundary of the tarsal plate was used as the first line of incision. Excess skin tissue was determined with a pair of forceps, and care was taken to leave at least 22 to 24 mm of tissue, in total, on the upper part of the excised region toward the lower boundary of the eyebrow and the lower part to the eyelid boundary. To ensure that the eyes were symmetrical, the distance between the inner parts of the eyebrow, the middle highest part of the eyebrow, and the end of the eyebrow and the lid creases (estimated saturation line) were measured and equalized.

A local anesthetic (50% lidocaine [with adrenaline], 50% bupivacaine mixture) was administered subcutaneously using a dental needle. The skin on the marked line was incised using a number-11 surgical scalpel blade to the level of the orbicular muscle, and both the skin and the muscle were excised simultaneously. Hemostasis was achieved through unipolar/bipolar cauterization. Pressure was applied to the globe to check for fat tissue prolapsus, and when necessary, the septum was opened to clamp and excise fat tissue, after which hemostasis was achieved through cauterization. To

form the lid crease, 6-0 Prolene (Ethicon, Inc., Somerville, NJ, USA) sutures were used through skin-tarsus-orbicular muscle-skin lines, with 3 vertical sutures applied in women, and 2 in men. The skin was sutured using 6-0 Prolene sutures while the wound lips were kept opposite.

All of the patients were prescribed an antibiotic ointment to be used postoperatively twice-daily, and all of the sutures were removed on the 10th day of follow-up. The patients were, at a minimum, followed-up in the first, third, and sixth postoperative months. The patients were asked to complete a satisfaction assessment form that comprised 3 yes-no questions.

The patients were asked to classify their postoperative level of satisfaction as 0: I am not satisfied, 1: I am moderately satisfied, 2: I am satisfied, 3: I am very satisfied, and I would recommend it to another.

Statistical analyses of the mean values were performed using Statistics for Windows, Version 18.0 (SPSS, Inc., Chicago, IL, USA). A p value that was  $\leq 0.05$  was considered statistically significant.

## Results

A total of 128 patients with a mean age of  $62.70 \pm 9.73$  years were included in the study. Among the patients, 118 (92.1%) were women, while 10 (7.8%) were men. The mean duration of follow-up was  $12.9 \pm 5.6$  months.

In combination with blepharoplasty, 17 patients underwent eyebrow surgery, 6 underwent lower eyelid surgery, and 4 underwent levator surgery. In all, 11 patients underwent combined internal eyebrow surgery, while 6 underwent external eyebrow surgery.

When the degree of asymmetry was assessed, a 1-mm lid crease asymmetry was identified in 8 patients, and a 2-mm asymmetry was observed in 2 patients. One patient underwent repeat surgery due to asymmetry, which was corrected with no scar development.

Table 1 illustrates the postoperative satisfaction assessment form. In the late postoperative period, 6 (4.68%) pa-

**Table 1.** Post-operative satisfaction assessment form and results

	Yes (%)
Are you satisfied with the results of your operation?	
Very good	83.59
Good	11.72
Moderate	4.68
Would you have the same surgery again, knowing what it involves?	95
Do you feel more energetic and awake during the day since the surgery?	89



**Figure 1.** A preoperative photo of a patient.



**Figure 2.** A postoperative photo of the same patient.



**Figure 3.** Scar tissue visible on close inspection.

tients reported being “moderately satisfied,” 15 (11.72%) reported being “satisfied,” and 107 (83.59%) reported being “very satisfied” with the surgery, while none responded that they were not satisfied. Of the 6 patients who reported being moderately satisfied, the cause of discomfort was asymmetry in 3 of the patients, and the appearance of scar tissue in the remaining 3 patients. One patient with asymmetry was re-operated on, and symmetry was achieved. A second surgery was not deemed necessary for the remaining 2 patients.

Figures 1 and 2 are photographs of a patient before and after surgery. He reported being very satisfied with the results.

In the late postoperative period, 87 (67.97%) patients

had no scar tissue on the incision line, 36 (28.13%) had some scar tissue that was noticeable upon close inspection, and 5 (3.91%) had apparent scar tissue. None of the patients had marked hypertrophic scar tissue (Table 2). Figure 3 is a photograph of a patient with scar tissue that was noticeable upon close inspection. Figure 4 is a patient photograph demonstrating apparent scar tissue.

The mean preoperative and postoperative TBUT was  $13.48 \pm 2.4$  seconds and  $12.5 \pm 1.9$  seconds, respectively. The difference was not statistically significant ( $p > 0.05$ ). Among the patients, 19 (14.8%) developed milia along the wound boundaries during the early postoperative term.

**Table 2.** Post operation scar staging and results

Scar stage	Patients (%)
0: No scar tissue along the incision line	87 (67.97)
1: Scar tissue can be seen upon close inspection	36 (28.13)
2: Scar tissue is apparent	5 (3.91)
3: Marked hypertrophic scar	0 (0)

**Figure 4.** Visible scar tissue.

## Discussion

While blepharoplasty is a surgical intervention with a high success rate, it is still essential to perform a detailed examination of the patient before surgery and to devise a sound surgical plan in advance. The most common complications associated with blepharoplasty include asymmetry, edema, infection, lagophthalmos, and secondary keratopathy, canthal folds, and ectropion. While these complications can be treated, loss of vision is still a very serious complication that has been reported in the literature at a rate of 0.004% (11, 12). These severe complications are more common after lower eyelid blepharoplasty operations, and are seen only rarely following upper eyelid blepharoplasty.

Although a symmetrical appearance was achieved in 92.19% of the patients operated on in our clinic, asymmetry was still the most commonly encountered complication. A total of 10 patients had lid crease asymmetry: there was a difference of 2 mm in 2 patients, but only 1 required a second operation. The remaining patients did not undergo additional interventions, given that they had no complaints and did not elect to have a second surgery.

Following blepharoplasty, dry eye syndrome develops in 8% to 21% of patients (6, 13), and lower eyelid malpositioning, increased eyelid space, lagophthalmos, eyelid retraction, and decreased blink reflex may play a role in its development (14). Previous studies have indicated that the symptoms associated

with dry eye syndrome develop more frequently after lower eyelid surgeries. In their study that reported the outcomes of blepharoplasty surgery in 892 patients, Prischmann et al. (13) reported a rate of postoperative dry eye of 12.9% of the patients who underwent upper eyelid blepharoplasty alone, and 21.9% in patients who underwent lower eyelid surgery.

In the present study, the rate of postoperative dry eye syndrome requiring treatment did not significantly increase, and there was no significant postoperative change in TBUT. This was probably due to the fact that our patients were not operated on for cosmetic reasons, but required surgery due to dermatochalasis limiting the field of vision. In addition, we made only limited skin excisions in all cases. The need to use artificial tears was greater during the postoperative first due to limited eyelid movement during this period, but this returned to normal after the postoperative 10th day. To prevent the development of postoperative dry eye, a serious potential complication of surgery, the decision to operate must be considered very carefully in patients with severe dry eye syndrome; and most importantly, excisions must be limited in order to avoid lagophthalmos.

Achieving a symmetrical appearance after surgery depends on adequate evaluation of the preoperative eyebrow position, the eyebrow-eyelash edge distance, the appearance of the tarsal plate, and the eyelid edge-corneal reflex distance. Among these parameters, the amount of tarsal plate contributes most to symmetry, and is the most no-

table element with respect to appearance. For this reason, in patients with unnoticeable lid creases, it is crucial that the eyelid is turned out preoperatively and that a lid crease is formed symmetrically between the 2 eyes based on the upper boundary of the tarsal plate.

Although a visible incision site tends to be less frequent after upper eyelid blepharoplasty procedures, patient satisfaction is still linked to the absence of incision marks. To reduce the appearance of scars, the wound edges should be uniformly and smoothly joined while suturing, the sutures should not be too tight, and the minimal number of lines possible should be used. In patients who will undergo concomitant eyebrow surgery, it is important to avoid extra incisions and to pay attention to achieving symmetry. As ectropion is far more frequent in lower eyelid blepharoplasties, it is essential that preoperative measurements and marks be made very carefully before these procedures.

A similar study was previously conducted by Schulz et al. (15), who reported the results of blepharoplasty in 47 patients and identified a surgery success rate of 91.5% in terms of symmetry. The symmetry success rate in the present study was similar at 92.19%. Schulz et al. identified a patient satisfaction ratio of 95.7%, and the 95.31% total ratio of satisfied and highly satisfied patients in the present study was consistent with those results. Schulz et al. also assessed patient quality of life, and found that it increased after blepharoplasty.

Lèclere et al. (16) published the asymmetry ratio identified in laser-assisted blepharoplasty performed on 52 patients, and they determined that 8 patients had 1 mm of asymmetry. In all, 6 were re-operated on. Leclere et al. had a comparatively higher ratio of asymmetry.

In this study, the patients expressed long-term satisfaction with the outcome of blepharoplasty surgery performed due to dermatochalasis. A comprehensive preoperative assessment and combination surgery when appropriate can ensure a high rate of success in blepharoplasty procedures.

#### Disclosures

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

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