

**Review Article**

# Surgical Upper Eyelid Blepharoplasty -Risks, Complications and Outcomes

**Vladimir Filaj<sup>1\*</sup>, Erisa Kola<sup>2</sup>, Brunilda Bardhi<sup>3</sup>, Ina Kola<sup>4</sup>**<sup>1</sup>University of Medicine, Surgery, Tirana, Albania<sup>2</sup>Department of Pathology, Genius Lab, Tirana, Albania<sup>3</sup>Department of Dermatology, Tirana Polyclinic, Tirana, Albania<sup>4</sup>Department of "Burns and Plastic Surgery", University Hospital Center "Mother Teresa", Tirana, Albania**\*Corresponding author:** Vladimir Filaj, University of Medicine, Surgery, Tirana, Albania**Citation:** Filaj V, Kola E, Bardhi B, Kola I (2022) Surgical Upper Eyelid Blepharoplasty -Risks, Complications and Outcomes. J Surg 7: 1648. DOI: 10.29011/2575-9760.001648**Received Date:** 28 November, 2022; **Accepted Date:** 02 December, 2022; **Published Date:** 05 December, 2022**Abstract**

Regeneration of the periorbital area has always been a focus of plastic surgeons and especially facial surgeons. The eyes are a central feature of the face, for this reason, the mastery of anatomical knowledge and methods of aesthetic rejuvenation of the eyelids and adjacent areas is important for all surgeons who intervene in these very delicate structures. Blepharoplasty is one of the most commonly performed facial cosmetic procedures, alone or in combination with other cosmetic surgeries such as brow lifting or facial lifting or other facial and skin rejuvenation. The key to a successful eyelid surgery is a careful analysis of the face, a carefully conceived surgical plan and meticulous operative technique.

**Keywords :** Blepharoplasty; Complications; Droopy eyelids; Eyelid surgery; Periorbital rejuvenation**Introduction**

Upper eyelid blepharoplasty was first performed in the 10 and 11<sup>th</sup> centuries [1]. The main complaint was the problem with vision due to impairment of the eyelid function. As a cosmetic procedure, upper blepharoplasty was performed in the beginning of the 20<sup>th</sup> century. It wasn't until the 1950s that the traditional techniques of upper lid blepharoplasty that still remain today began to emerge [2]. Nowadays, upper lid blepharoplasty has become a common cosmetic procedure. The procedure is safe and it is performed by doctors in many specialties, and gives high satisfaction regarding the rejuvenation of the periorbital area. It is the surgeon's responsibility to identify the patient's expectations and to determine whether they can be met or not. The initial consultation may be the most important part of the surgeon-patient relationship. Take a complete medical history, history of ophthalmic diseases, use

of systemic or topical medications, drug reactions is an important part in the consultation [3]. Most patients complain of "droopy eyelids" which leads to either dull appearance or looking older than their age. Dermatochalasis mostly results from the normal physiological aging process occurring in the periorbital area and males are more predisposed to it [4].

**Surgical Technique**

For the marking I prefer the patient to be in supine position. A marker is used to define lid creases from directly above the punctum medially to the lateral canthus. The natural lid crease is often adequate, but sometimes it is necessary to correct the position of the lid creases [5]. The first drawing point is medially 5-7 mm above the medial commissure, in the center a small point is made 9-11 mm above the border of the lid in the middle of the pupillary line, laterally another point is placed that is 8-10 mm above the canthal angle lateral [3,6]. The fourth point is placed between 12 and 15 mm, with one tip placed in the lateral commissure and the

other directed superolaterally [6]. This technique helps to perform bilateral symmetrical incisions.

I recently only use the mid pupillary point and the rest is free drawing. The lid crease mark then continues laterally to address any lateral "hooding". Continuing laterally to the lateral canthus, the drawing should slope slightly upward and outward, preferably in a skin crease [7]. The extension of the skin drawing laterally depends on the amount of excess skin to be removed, but it generally extends 3-10 mm. After the marking the pinch test is performed. The eyelid should not remain open during the pinch test because more skin may be removed. This procedure can be performed in the office with local anesthesia or potentiated with venous anesthesia for more patient comfort. The use of 1 cc 30-gauge syringe allows for a very slow infusion and precise placement of the local anesthetic [8]. In general, 1-4 cc of local anesthetic per eyelid is adequate. The initial injection is placed superficially to the skin of the eyelid to facilitate dissection and induce vasoconstriction. Additional local anesthetic is injected into the fat pouch or lacrimal gland (or both) if these tissues are to be reduced or repositioned. After betadine washing of the surgical area, the next step is the skin incision which is done with a blade nr 15, once the incision is complete, a flap of skin is removed with scissors laterally-medially. Accurate hemostasis is necessary at this stage of the operation. Preserving all or part of the orbicularis muscle will decrease the potential for lagophthalmos (incomplete or defective eye closure) and dry eye [9]. Depending on whether it was discussed in the consultation about the presence of fat pads that burden the eye, they will be corrected during the blepharoplasty. The incision is made through the orbicularis muscle and the orbital septum with scissors, the medial or nasal fat bags are removed, which is paler in color and more vascularized than the rest, and by applying light pressure to the eyeball and rarely targeting to remove the central fat bag. The underlying levator aponeurosis is protected by opening the septum as high as possible because the levator and septum separate there and the septum moves superiorly [10]. The levator aponeurosis can be modified if ptosis of the levator muscle is assessed to be present. The fat pads are removed through "clamping-cutting-cauterization". The fat is gently teased out by opening the septum with forceps or applying gentle pressure to the globe. The fat is tightened with a clamp and excised over the clamp with scissors; and then the base cauterized. This technique continues until the right amount of fat is removed. Careful removal of fat is recommended when necessary, especially

medial fat pouches, to avoid a sulcus deformity [11]. The septum should not be sutured. Subcuticular closure with prolene 6.0 are used, this technique facilitates suture removal by pulling on one end. After surgery, the patient should be instructed to place cold ice packs on the eyelids for about 15 minutes every hour during the day for 2 days [12]. The patient should not engage in any strenuous activity or weight lifting and should sleep with his/her head elevated. Sutures are removed after 7-8 days by first removing the steri-strip and then pulling one end of the suture until the entire suture is free. The eyelids heal very quickly and leave behind a good scar, many surgeons leave the sutures for 3-5 days and the wound is closed [13]. We choose the 7 day approach as we have had several cases of wound opening on the 6th day. After suture removal, patients are instructed to avoid rubbing the eyelids as this may result in wound dehiscence (Figures 1-9).



**Figure 1:** Preoperative marking of the patient.



**Figure 2:** Local anesthetic injected in the upper eyelid.





**Figure 3:** The flap of skin is removed with scissor.



**Figure 4:** Fine hemostasis with bipolar electrocautery.



**Figure 5:** Subcuticular suture of the skin with prolen 6.0.



**Figure 6:** Clamping of herniated nasal fat pad before cutting and cauterizing.



**Figure 7:** Results 2 weeks after upper eyelid blepharoplasty.



**Figure 8:** Results 2weeks after upper eyelid blepharoplasty in a 63 year-old female in a 59 year-old female.



**Figure 9:** Results 2 weeks after upper eyelid blepharoplasty in a 55 year-old female.

## Material and Methods

A retrospective case control study included patients who underwent upper blepharoplasty in our clinic from January 2019 to December 2021. Exclusion criteria were any of the following: thyroid eye disease, myasthenia gravis, myotonic dystrophy, pregnancy, blepharoptosis, previous upper eyelid surgery or trauma and use of topical alpha agonists. Simple descriptive statistics were utilized to report the data of the sample. In 180 eyelid surgeries only 30 were double blepharoplasties.

## Results

The study included 180 cases age 28-71 years old, with an average age 49. A predominance of females was noted (146 vs males 34). Patients were followed for an average of 4.2 months (range, 1-12 months). None experienced complications, such as retrobulbar hemorrhage, infection, or vision loss. However one of the patients, a 50-year-old female developed a big hematoma intraoperatively and we had to remove the sutures, find the bleeding source, cauterized it and sutured it again. After three days the hematoma improved, patient didn't have any visual problems and the pain was managed with oral NSAIDs. The patient healed well.

## Complications

Since the procedure is so common, it is important to recognize the potential complications and appropriate management techniques to effectively reduce the risk of adverse outcomes.

Complications that can occur after blepharoplasty range from mild and self-limiting complications that do not require additional measures to severe complications that can result in permanent vision loss if not managed in time [9].

## Hematoma

Eyelid hematoma can occur during or after blepharoplasty and usually results from anticoagulant therapy, uncontrolled high blood pressure, trauma to the orbicularis oculi muscle during surgery, or damage to superficial vessels or deeper vasculature [14]. The first step in the management of intraoperative hemorrhage is to identify and control any active source of bleeding. If a hematoma develops, its size and time of appearance affect how it is managed (Figures 10,11).



**Figure 10:** Hematoma of the right eye.



**Figure 11:** Hematoma and subconjunctival hemorrhage of the right eye.

## Corneal abrasions

Corneal abrasions are related to damage to the corneal epithelium during surgery by harsh sterilization, chemicals, exposure and drying, or mechanical abrasion [8]. Patients may experience eye pain, discomfort with blinking, foreign body sensation, photophobia, decreased vision. Once a corneal abrasion is diagnosed, the patient should be followed by an ophthalmologist and treated according to protocol regarding the application of



antibiotic ointment or ophthalmic drops and covering the cornea with a contact lens or bandage.

### **Blindness**

Although rare, blindness is the most feared complication of blepharoplasty. It occurs with an incidence of approximately 0.04% and usually occurs within the first 24 hours after surgery and is associated with removal of fat in the orbital area and the development of a retrobulbar hematoma (the medial fat pads are most often involved) [13]. Although many management methods have been prescribed to manage the risk of visual impairment resulting from elevated intraocular pressures (wound reopening, lateral canthotomy, steroids, diuretics, anterior chamber paracentesis), the most effective definitive treatment is immediate decompression of the orbit, which is usually accomplished through resections through the medial wall and orbital floor [14]. Of course, consultation with the ophthalmologist is advisable in any case.

### **Ptosis**

The ptosis present after blepharoplasty is often due to prior excision, the ptosis being “unmasked” after surgery. Ptosis can also occur if the levator oculi aponeurosis is damaged during blepharoplasty. Anesthetic injection to the levator muscle and internal surgical site scarring have also been implicated in postoperative ptosis [10]. Postoperative ptosis is closely monitored and measured, as long as there is continued improvement, surgery should be postponed [11].

### **Deformation of the sulcus**

Deformity of the sulcus can be caused by hollowing or deepening of the superior sulcus from orbital volume changes that occur with age or iatrogenically as a result of blepharoplasty [12]. Extensive orbital fat sculpting in the upper eyelid sulcus can lead to a sunken or “skeletonized” appearance [15]. Management options for correcting superior sulcus deformities include various procedures. Less invasive is the use of soft tissue fillers such as Hyaluronic Acid (HA). Filling with autologous fat offers increased biocompatibility, but its longevity cannot be predicted.

### **Lagophthalmos**

Incomplete closure of the eyelids (lagophthalmos) can be a temporary or permanent consequence of upper blepharoplasty. Transient lagophthalmos is associated with postoperative edema and/or a reduction in muscle tone of the orbicularis oculi after anesthesia. The condition usually resolves spontaneously within the first 1-2 weeks after surgery. Persistent lagophthalmos may be caused by excessive skin removal, incarceration of the orbital septum within the wound closure, or trauma to the orbicularis oculi muscle or trauma to the seventh cranial nerve.

### **Damage to the lacrimal gland**

Damage to the lacrimal gland can occur during upper blepharoplasty, especially in patients whose tear glands have prolapsed. The upper lid has no lateral fat pad for support, and in a prolapsed lid the lacrimal gland may also be mistakenly resected. This can also lead to incorrect removal or damage if/when the central fat pad is resected [16,17]. Medical treatment after damage to the lacrimal gland is like eye management in dry eye syndrome (lubrication of the eyelids with tears, lubricants, meticulous closure, etc).

### **Suture line complications**

Milia or inclusion cysts are common lesions seen along the incision line that result from epithelial debris trapped beneath a normal skin surface or possibly from occlusion of a glandular duct [15]. They are usually accompanied by simple or subdermal sutures. If they develop, definitive therapy aims to remove the cyst (Figure 11).



**Figure 12:** Cyst in the suture lines after blepharoplasty.

### **Dry eye syndrome**

Patients experiencing dry eye syndrome will complain of eye irritation, foreign body sensation, conjunctival redness, and potentially blurred vision [13]. Dry eyes mostly result from inadequate tear production, instability or magnesium in any of the tear constituents. In patients undergoing blepharoplasty, dryness may be caused or worsened by lagophthalmos or damage to the lacrimal gland [12].

**Lymphedema** - As many of the lymphatics may get severed while giving incision over the eyelid, a chronic type of eyelid edema may occur postoperatively. This edema gradually resolves as these lymphatics get their function back.

### **Discussion**

A study posted in the Aesthetic Surgery journal in 2022 reviewed patients satisfaction after undergoing blepharoplasty,

93,4 % were satisfied with the results. Satisfaction after the procedure is an important outcome. Nowadays, surgeons are more cautious regarding the removal of orbicularis oculi muscle and orbital fat in order to preserve the volume of the peri-orbital region, and avoid the sunken eyelids. It is important to distinguish the skin of the eyebrows from the skin of the eyelids [8]. If the patient's complaint is brow ptosis, this should be addressed with a brow lift procedure, not blepharoplasty [10]. The lateral excess of the upper eyelid appears as a 'lateral hooding' that can only be addressed in two ways; either the surgeon can lift the lateral third of the brow and then perform a more conservative blepharoplasty, or perform a very aggressive lateral blepharoplasty that continues beyond the orbital rim [10,11]. This intervention is limited because the incision that extends beyond the lateral rim of the orbit becomes proportionally more visible the more laterally it extends or a broad, lateral wedge of orbicularis muscle is removed to weaken the lateral brow depressive forces. Therefore, the surgeon is often faced with the dilemma of how to balance the extent of lateral coverage against the desire to minimize lateral extension of the upper lid blepharoplasty scar.

## Conclusion

Upper lid blepharoplasty can be a very satisfying operation for both the surgeon and the patient. With appropriate counseling, planning and proper surgical technique, a very good aesthetic result can be achieved. Always the eyelids should be evaluated in relation to the position of the eyebrows, the position of the lid margin, the presence of dry eyes and the laxity of the lower lid for a better surgical plan.

## References

1. McCurdy Jr JA (2006) Beautiful eyes: characteristics and application to aesthetic surgery. *Facial Plast Surg* 22: 204-214.
2. Springer IN, Wannicke B, Warnke PH, Zernial O, Wiltfang J, et al. (2007) Facial attractiveness: visual impact of symmetry increases significantly towards the midline. *Ann Plast Surg* 59: 156-162.
3. Rhodes G, Proffitt F, Grady JM, Sumich A (1998) Facial symmetry and the perception of beauty. *Psychon Bull Ver* 5: 659-669.
4. Ho T, Brissett AE (2006) Preoperative assessment of the aging patient. *Facial Plast Surg* 22: 85-90.
5. McCord CD, Codner MA (2008) Aging changes in the eyelid and periorbital area. In: *Eyelid and periorbital surgery*. St. Louis, MO: Quality Medical 2008: 133-50.
6. Hirmand H, Codner MA, McCord CD, Hester Jr TR, Nahai F (2002) Prominent eye: operative management in lower lid and midfacial rejuvenation and the morphologic classification system. *Plast Reconstr Surg* 110: 620-628.
7. Lelli GJ, Lisman RD (2010) Blepharoplasty complications. *Plast Reconstr Surg* 125: 1007-1017.
8. Gunter JP, Antrobus SD (1997) Aesthetic analysis of the eyebrows. *Plast Reconstr Surg* 99: 1808-1816.
9. Hester Jr TR, Douglas T, Szczeska S (2009) Decreasing complications in lower lid and midface rejuvenation: the importance of orbital morphology, horizontal lower lid laxity, history of previous surgery, and minimizing trauma to the orbital septum: a critical review of 269 consecutive cases. *Plast Reconstr Surg* 123: 1037-1049.
10. McCord CD, Doxanas MT (1990) Browplasty and browpepy: an adjunct to blepharoplasty. *Plast Reconstr Surg* 86: 248-254.
11. Morton AD (2008) Assessment and management of the eyebrow. In: Albert DM, Jakobiec FA, editors. *Principles and practice of ophthalmology. Basic sciences*. Philadelphia: Elsevier 2008: 3529-3542.
12. Hass AN, Penne RB, Stefanyszyn MA, Flanagan JC (2004) Incidence of postblepharoplasty orbital hemorrhage and associated visual loss. *Ophthal Plast Reconstr Surg* 20: 426-432.
13. Goldstein SA, Goldstein SM (2006) Anatomic and aesthetic considerations in midfacial rejuvenation. *Facial Plast Surg* 22: 105-111.
14. Wolford FG, Vaughan TE, Wolford SF, Nevarre DR (1999) Retrobulbar hematoma and blepharoplasty. *Plast Reconstr Surg* 104: 2154-2162.
15. Kasturi Bhattacharjee, Sripurna Ghosh, Shoaib Ugradar, Ariel M Azhdam (2020) Lower eyelid blepharoplasty An overview. *Indian Journal of Ophthalmology* 68: 2075-2083.
16. Pacella SJ, Codner MA (2010) Minor complications after blepharoplasty: dry eyes, chemosis, granulomas, ptosis, and scleral show. *Plast Reconstr Surg* 125: 709-718.
17. Morax S, Toutou V (2006) Complications of blepharoplasty. *Orbit* 25: 303-318.