

A Novel Surgical Approach For Upper Eyelid Blepharoplasty

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ABSTRACT

Purpose: To report the surgical results of the patients with dermatochalasis (DC) who underwent upper eyelid blepharoplasty (UEB) with the cautery method was aimed.

Materials and Methods: UEB surgery was performed by cautery method in 36 eyes of 18 patients due to DC. Pencil-tipped cautery was used to cut to sagging and marked skin area and was removed. Patients were examined preoperatively and postoperatively on the 1st day, 3rd day, 2nd week, 3rd month and 6th month.

Results: The mean age was 54.6±7.9 years (range, 46 to 67 years) and 10 of were female and 8 were male. Mean operation time (1 session for 2 upper eyelid (UE)) was 36.7 ± 5.8 minutes (range, 28 to 46 minutes). Mean wound healing time was 7.7 ± 1.6 days (range, 5 to 12 days). Skin ecchymosis persisted for approximately 24.8±3.7 days (range, 19 to 38 days). Suture marks did not appear in 34 patients (%94), they were present in 2 patients 6 months after surgery. Statistically significant change was detected in the 6-month period in terms of skin ecchymosis and suture scar disappearance (p<0.001). A positive correlation was found between wound healing time and suture scar (R²=0.879, p<0.001) and also, between the duration of surgery and persistent skin ecchymosis (R²=0.918, p<0.001).

Conclusions: Cautery with UEB is a viable technique that can be reliably used to reshape the UE. This procedure does not leave a lengthy scar, which is not possible with normal UEB, enabling patient satisfaction and post-operative recovery comfort.

Keywords: Cauterization, upper eyelid blepharoplasty, dermatochalasis, ptosis.

ÖZET

Amaç: Koter yöntemi ile üst göz kapağı blefaroplastisi (ÜGB) yapılan dermatoşalazisli (DŞ) hastaların cerrahi sonuçlarını bildirmek amaçlanmıştır.

Yöntemler: DŞ nedeniyle 18 hastanın 36 gözüne koter yöntemi ile ÜGB ameliyatı yapıldı. Sarkmış ve işaretlenmiş cilt bölgesine kalem uçlu koter uygulandı ve çıkarıldı. Hastalar ameliyat öncesi ve ameliyat sonrası 1. gün, 3. gün, 2. hafta, 3. ay ve 6. ayda muayene edildi.

Bulgular: Yaş ortalaması 54.6±7.9 yıl (dağılım, 46-67 yıl) olup, 10'u kadın, 8'i erkekti. Ortalama operasyon süresi (2 üst göz kapağı için 1 seans) 36.7 ± 5.8 dakika (dağılım, 28-46 dakika) idi. Ortalama yara iyileşme süresi 7,7 ± 1,6 gündü (aralık, 5 ila 12 gün). Deri ekimozu yaklaşık 24,8±3,7 gün (dağılım, 19 ila 38 gün) devam etti. Ameliyattan 6 ay sonra 34 hastada (%94) dikiş izi görülmezken, 2 hastada dikiş izi mevcuttu. Cilt ekimozu ve dikiş skarının kaybolması açısından 6 aylık dönemde istatistiksel olarak anlamlı değişiklik saptandı (p<0,001). Yara iyileşme süresi ile dikiş izi arasında pozitif bir ilişki bulundu (R²=0.879, p<0.001). Ayrıca ameliyat süresi ile inatçı cilt ekimozu arasında pozitif korelasyon saptandı (R²=0.918, p<0.001).

Sonuçlar: Üst göz kapağı blefaroplastisi ile koter, ÜG'yi yeniden şekillendirmek için güvenilir bir şekilde kullanılabilen uygulanabilir bir tekniktir. Bu işlem, normal ÜGB ile mümkün olmayan uzun bir iz bırakmaz, hasta memnuniyeti ve ameliyat sonrası iyileşme konforu sağlar.

Anahtar Kelimeler: Koterizasyon, üst göz kapağı blefaroplastisi, dermatoşalazis, pitozis.

Upper eyelid blepharoplasty (UEB) is an essential surgical method that should be documented in the archive of cosmetic and reconstructive ocular surgery. This technique has the potential to advance a person's life by improving their appearance and visual field (1).

Today, the majority of patients apply with a complaint to the surgeon with both ptosis and dermatochalasis (DC), and treating either one of these disorders can result in surgical failure and severe patient unhappiness (2,3). According to previous studies, there were less experienced oculofacial surgeons who were able to perform both operations in the same operating session, although the many patients demanded a simultaneous approach (4). Earlier UEB aimed to remove overmuch soft tissue. Until recently, surgeons were unaware of the cosmetic benefits of periorbital fat preservation (5).

In the last 2 decades, many oculoplastic surgeons have condemned the extremely aggressive performing of fat resection in the course of UEB (6). Today, the main expectation of patients in UEB surgery is aesthetic concerns and short operation time.

In this study, the advantages and surgical results of cautery excision, which is a new method in UEB, was investigated.

Methods

Medical records of 36 eyes of 18 patients who underwent UEB due to DC and ptosis in Secondary State Hospital between October 2020 and January 2022 were included in the study. It was approved by Acibadem University and Acibadem Healthcare Institutions Medical Research Ethics Committee (ATADEK 2023-10/395). All patients

were treated in accordance with the principles of the Declaration of Helsinki.

All patients were subjected to a thorough ophthalmic examination, which included best-corrected visual acuity, slit lamp biomicroscopy, intraocular pressure evaluation, and fundoscopic inspection. Mild to moderate aesthetically bothersome DC was one of the indication to perform surgery. This study included only patients who had healthy eye examinations. Patients with conditions that impair wound healing such as keloid and hypertrophic scars, collagen tissue diseases such as psoriasis and scleroderma, and bleeding hemorrhagic were excluded from the study. Oxytetracycline for 2 weeks after surgery (until the sutures are removed) was used and then mucopolysaccharide polysulfate (chondroitin) and extractum cepae, heparin sodium, allantoin was used for 6 months along after the sutures are removed.

All procedures were conducted under local anesthetic by a single surgeon (BK) (1:200,000 adrenaline lidocaine). In all cases, the surgical method was used in the same way. The sagging skin was first marked, and after local anesthetic was administered. Pencil-tipped cautery was used to cut the skin and only the skin was removed. For hemostasis, entirely control of bleeding was achieved with bipolar cauterization and the upper eyelid (UE) skin was closed with 7-0 prolene sutures. Skin sutures were taken out on the fourteenth day after surgery. Operation time, wound healing time, skin ecchymosis and suture traces were noted. Patients were examined preoperatively and postoperatively on the 1st day, 3rd day, 2nd week, 3rd month and 6th month. Surgical procedure is showed in Figure 1. In Figure 2, surgical recovery and scar disappearance are shown according to the follow-up periods.



Figure 1: Surgical procedure with cautery method for upper eyelid blepharoplasty.



Figure 2: Surgical recovery and scar disappearance are shown according to the follow-up periods.

Statistical Analysis

The mean and standard deviation of continuous variables were used, whereas frequency and percentage were used for categorical ones. Distribution of data was determined by Kolmogorov Smirnov test. The Pearson correlation test was utilized to determine the relationship between non-parametric variables. The MANOVA test was used to show the change according to the follow-up periods. Paired sample t-test was used to compare the follow-up periods in pairs. Statistical analysis was carried out with SPSS Statistics 22.0 (IBM, Armonk, NY, U.S.A.), and p values <0.05 set out as statistically significant.

Table 1. Demographic characteristics of patients	
Clinical characteristics	Study group
Eyes	36
Gender	10 ^f 8 ^m
Age (mean ± SD) (range)	54.6 ± 7.9 years (46 to 67 years)
Operation time (mean ±SD)	36.7 ± 5.8 min (28 to 46 min)
Mean wound healing time	7.7 ± 1.6 days (5 to 12 days)
Persistent skin ecchymosis	24.8 ± 3.7 days (19 to 38 days)
Suture scar (absence/presence, n)	34/2
SD: standard deviation; min: minutes; ^f: female, ^m: male; n: number	

Table 2: According to the follow-up periods, changes in terms of suture scar and skin ecchymosis are presented.

	1 st day	3 rd day	2 nd week	3 rd month	6 th month	p value
Persistent skin ecchymosis (absence/presence)	0/36	4/32	8/28	28/36	32/36	<0.001*
Suture traces (absence/presence)	0/36	0/36	2/34	30/36	34/36	<0.001*
MANOVA test*						

Results

The mean age was 54.6±7.9 years (range, 46 to 67 years) and 10 of the patients in this series were female and 8 were male. Average operation time (1 session for 2 UE) was 36.7 ± 5.8 minutes (range, 28 to 46 minutes). Mean wound healing time was 7.7 ± 1.6 days (range, 5 to 12 days). Skin ecchymosis persisted for approximately 24.8±3.7 days (range, 19 to 38 days). Suture marks did not appear in 34 patients (%94), they were present in 2 patients 6 months after surgery. Statistically significant change was detected in the 6-month period in terms of skin ecchymosis and suture scar (p<0.001). A positive correlation was found between wound healing time and suture scar (R²=0.879, p<0.001). And also, a positive correlation was noted between the duration of surgery and persistent skin ecchymosis (R²=0.918, p<0.001).

Tables 1 shows demographic characteristics of patients. Table 2 presents changes in terms of suture scar and skin ecchymosis according to the follow-up periods. There were no complications seen such as ectropion, eyelid retraction, blepharoptosis, dry eye, or retrobulbar hemorrhage.

Discussion

In reality, they have the thinnest skin on the body, as the UE are formed of exceedingly thin skin. As a result, the UE skin tends to stretch with age and may reveal the earliest indications of facial aging. Tobacco usage, prolonged sun exposure, susceptibility to allergies, frequent eyelid rubbing, and other environmental variables can all hasten the aging of the UE. It may also have an inherited compound, including prolapse UE skin, which is often observed in family members of patients with this aesthetic concern (7).

DC (extreme UE skin) or steatoblepharon (orbital fat pseudoherniation) can produce pseudoptosis in rare circumstances. DC is a condition caused by changes in collagen fibers, elastic fibers, and ground materials within the dermis and epidermis. Aging and sun exposure are among the major factors that cause apoptosis of collagen and elastic fiber cells with reducing count in the dermis that causing the formation of DC. Furthermore, epidermis atrophies, collagen ingredient diminished, and elastic fibers undergo biochemical alterations. The ensuing lack of skin elasticity causes an expanded epidermal surface area, which is required to conceal the extruding fat (8).

The route of administration and extent of soft tissue excision will differ depending on surgeon choice and training bias. The authors largely agree with the recureparative UEB surgical trend, which allows for careful excision of herniated nasal fat while minimizing skin and muscle resection. As previously stated, some surgeons suggest relocating fat to the central compartment (9,10). Periorbital fat excision was not applied to any patient in our study. Therefore, the short duration of the surgery is one of these factors.

Conclusion

Our technique can be a safe method in terms of shortening the surgical time and reducing postoperative complications by excision from the marked areas on the UEB with cautery. In fact, it may offer an advantage in terms of wound healing time as there is less bleeding. The findings showed that UEB with cautery is a viable procedure that can be used reliably. It will be a novel approach to the

issue of aging UE. This method does not leave a long scar that cannot be achieved with standard UEB, thus offering comfort in terms of patient satisfaction and postoperative recovery. Our studies on this subject, which include large patient and control groups and have long follow-up periods, are also continuing.

Declarations

Funding

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Conflicts of Interest/Competing Interests

The authors have no conflicts of interest to declare.

Ethics Approval

Acibadem University and Acibadem Healthcare Institutions Medical Research Ethics Committee. Date: 01.08.2023 Number:2023-10/395

Availability of Data and Material

The data that support the findings of this study are available on request from the corresponding author

Authors' Contributions

B.K: Perform surgeries, Interpretation of data, drafting and revising of the manuscript critically for important content. E.K: Statistical analysis, interpretation of data, literature research. A.R.C.C: Substantial contributions to conception and design, drafting and revising of the manuscript critically for important content.

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