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Surgical Management of Cicatricial Palpebral Ectropion Following Burns and Tumors: A Retrospective Study of 39 Patients in a Moroccan Tertiary Center

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Abstract: Review Article

Background: Cicatricial palpebral ectropion is a frequent and functionally disabling sequela of facial burns, tumor surgery and other eyelid injuries, particularly in low- and middle-income settings where acute care and scar management can be suboptimal. Surgical correction aims to restore eyelid–globe apposition, protect the ocular surface, and improve cosmesis, but optimal strategies remain debated. ***Methods***: We conducted a retrospective descriptive study including all consecutive patients operated for palpebral ectropion in the plastic surgery department of Mohammed VI University Hospital, Marrakech (Morocco), between January 2020 and December 2023. Inclusion criteria were: clinically diagnosed palpebral ectropion, complete ophthalmologic assessment, and definitive surgical treatment in the unit; patients without surgery or with incomplete records were excluded. Demographic data, etiologies, clinical presentation, operative techniques, postoperative course, complications, recurrence and patient-reported satisfaction were extracted from hospital registers, medical files, operative notes and ophthalmology reports, and analyzed descriptively using Microsoft Excel. ***Results***: Thirty-nine patients were included; mean age was 43.8 years (range 6–86) with a male predominance (59%; n=23). Most patients resided in urban areas (74.3%) and two-thirds had some form of medical coverage. All ectropions were cicatricial: 64.1% followed burns (predominantly thermal) and 30.7% tumor surgery; minor facial trauma accounted for 5.1%. The main presenting symptoms were tearing (43.6%), functional discomfort (41%), foreign-body sensation (25.6%) and conjunctival hyperemia (25.6%); 25.6% reported decreased visual acuity and 20.5% had keratitis, while two patients (5.1%) had corneal ulceration. Ectropion was unilateral in 74.3% and bilateral in 25.7%; the lower eyelid alone was involved in 53.8%, the upper eyelid alone in 18.0%, and both lids in 28.2%. All patients underwent cicatricial release under general anesthesia: 76.9% via a fish-tail incision, 20.5% via a linear incision and 2.6% via Z-plasty. Anterior lamella reconstruction used full-thickness skin grafts in 89.7% of cases, and local flaps (Mustardé, Tenzel, Tripier) in 2.6% each; one patient also required conjunctival reconstruction. Early postoperative complications were infrequent: 85% of patients had an uncomplicated course, 5% had partial graft loss and 10% developed local infection, without hematoma, flap necrosis or graft failure. Recurrence of ectropion occurred in three patients (7.7%) during follow-up. Overall satisfaction was high: 81% of patients were very satisfied, 11% satisfied and 8% not satisfied with the functional and aesthetic outcome. ***Conclusion***: In this burn- and tumor-predominant North African cohort, cicatricial ectropion affected relatively young patients and was effectively managed by systematic scar release combined with full-thickness skin grafting in nearly 90% of cases, with low complication (15%) and recurrence (7.7%) rates and a high level of patient satisfaction. These findings support full-thickness skin grafting as a robust first-line reconstructive option for extensive cicatricial anterior lamella deficiency, while highlighting the need for early burn care and long-term follow-up in high-risk populations.

Keywords: Cicatricial Ectropion, Eyelid Reconstruction, Full-Thickness Skin Graft, Facial Burns, Eyelid Malposition, Oculoplastic Surgery.

INTRODUCTION

Palpebral ectropion is defined as an outward rotation of the eyelid margin with loss of contact between the tarsal conjunctiva and the globe, resulting in exposure of the conjunctival surface and, in more advanced cases, the cornea. This malposition disrupts the normal distribution of the tear film, leads

to epiphora, chronic conjunctival irritation, and predisposes to keratitis and corneal ulceration, with potential visual compromise.

Ectropion is classically classified as involutional, cicatricial, paralytic, mechanical or, more rarely, congenital or spasmodic, depending on the predominant underlying mechanism. In high-income settings, involutional ectropion related to age-associated laxity and paralytic forms secondary to facial nerve palsy predominate, and are often managed with horizontal tightening procedures such as the lateral tarsal strip and canthoplasty, sometimes combined with vertical vector correction. In contrast, in low- and middle-income countries, cicatricial ectropion following burns, tumor excision or trauma is relatively more frequent, reflecting patterns of injury and limited access to acute burn care and reconstructive services.

Cicatricial ectropion of the anterior lamella results from vertical shortening of the skin–muscle layer, often associated with tethering of deeper structures, and is particularly challenging because it frequently arises in the context of extensive facial scarring and multi-site deformities. Although a wide range of techniques has been described—including local flaps, full-thickness skin grafts, Z-plasties, canthal tightening and posterior lamella reconstruction—comparative data remain limited and most series are small, heterogeneous or focused on specific etiologies. Published series of cicatricial ectropion repair report high graft viability with full-thickness skin grafts but variable rates of residual malposition and recurrence, often influenced by etiology and the need for adjunctive procedures.

In North African and similar contexts, burns and oncologic resections contribute substantially to the burden of eyelid cicatricial deformities, yet region-specific data on presentation patterns and outcomes remain scarce. Understanding the epidemiology and results of standardized reconstructive strategies in such settings is essential to refine surgical algorithms, anticipate complications, and improve functional and cosmetic results.

The objective of this study was to describe the epidemiological and clinical characteristics, surgical management and postoperative outcomes of patients operated for palpebral ectropion in a Moroccan tertiary plastic surgery unit over a four-year period, with a particular focus on cicatricial forms related to burns and tumor surgery.

Methods

Study design and setting

We performed a retrospective descriptive study in the plastic and reconstructive surgery department of Mohammed VI University Hospital in Marrakech, a tertiary referral center serving both urban and rural populations in central Morocco. The study period extended from 1 January 2020 to 31 December 2023. The protocol was conducted in accordance with institutional ethical standards for retrospective chart reviews.

Eligibility criteria and patient selection

All consecutive patients hospitalized and operated in the department for clinically diagnosed palpebral ectropion during the study period were considered for inclusion. Inclusion criteria were: (1) ectropion involving at least one eyelid; (2) complete preoperative ophthalmologic examination documented in the chart; and (3) definitive surgical correction performed in the unit. Exclusion criteria were: absence of surgical treatment, incomplete or non-exploitable records, and isolated entropion or other eyelid malpositions without ectropion.

Using operative registers and ward admission logs, we identified 39 patients meeting these criteria over the four-year period.

Data Collection

Data were extracted retrospectively from: ward admission books, individual medical files, standardized ophthalmology

consultation notes, and operative reports. A predesigned extraction sheet mirrored the clinical used in the thesis and captured the following variables:

- **Demographics**: age at surgery, sex, origin (urban vs rural), and type of health coverage (AMO, CNSS, CNOPS or uninsured).
- **Medical history**: systemic comorbidities (e.g. diabetes, hypertension, cardiac disease, epilepsy), prior facial or eyelid surgery, history of burns, trauma or tumor excision, previous ectropion surgery (same or contralateral eye), and family history of similar conditions.
- **Etiology of ectropion**: categorized as burn-related, post-tumor excision, post-traumatic (non-burn), or other causes; all cases in this series were ultimately classified as cicatricial based on clinical and operative findings.
- **Presenting symptoms**: tearing, ocular discomfort, foreign-body sensation ("foreign body sensation"), conjunctival hyperemia, pain, aesthetic complaint, and subjective decrease in visual acuity.
- **Duration of symptoms**: time from onset of ectropion or symptoms to surgical management, recorded in months and grouped into <3, 3–6, 6–12, and >12 months.
- **Clinical examination**: laterality (unilateral vs bilateral), eyelid(s) involved (upper, lower, or both), lash abnormalities (eversion, loss), lagophthalmos, presence of linear retractive bands, ocular surface status (conjunctival hyperemia, keratitis, corneal ulcer, slit-lamp anomalies), intraocular pressure, facial nerve function, and associated facial or cervical scars (location and type: hypertrophic plaques, linear bands, pigmentary changes).
- **Preoperative adjuncts**: lubricating drops, topical antibiotics, antihistamine eye drops, and other supportive measures instituted prior to surgery.
- **Operative details**: type of anesthesia, incision design for scar release (simple linear, fish-tail, Z-plasty), technique for coverage of anterior lamella (full-thickness skin graft vs local flap type: Mustardé, Tenzel, Tripier), posterior lamella or conjunctival reconstruction if performed, and postoperative dressing type.
- **Postoperative course**: immediate prescription (topical and systemic antibiotics, analgesics, lubricants), duration of hospitalization, early local complications (hematoma, infection, partial or total graft or flap loss, necrosis, retraction).
- **Follow-up and outcomes**: presence of residual or recurrent ectropion, documented recurrence requiring reoperation, and global patient satisfaction categorized as "very satisfied", "satisfied" or "not satisfied" at the most recent visit.

Surgical strategy

All surgeries were performed by plastic surgeons under general anesthesia, in collaboration with ophthalmologists for pre- and postoperative assessment. The overarching strategy consisted of complete release of cicatricial bands and shortened anterior lamella, followed by lengthening of the vertical eyelid dimension, primarily using full-thickness skin grafts, occasionally supplemented or replaced by local or regional flaps depending on defect size, tissue quality and associated deformities.

Scar release and incision design

Cicatricial release was achieved either through:

- A straight linear incision centered on the most retracted segment in 20.5% of cases;
- A "fish-tail" incision, combining a vertical and oblique component to increase vertical length and redistribute tension, used in 76.9% of cases;
- A Z-plasty in 2.6% of cases, when linear retraction lines made local lengthening feasible without grafting alone.

The aim was to fully mobilize the eyelid margin and release all tethering of the lamellae before reconstruction.

Anterior lamella reconstruction

After release, anterior lamella defects were reconstructed as follows:

- Full-thickness skin grafts (FTSG) in 35 patients (89.7%), harvested from donor sites with thin, pliable skin and good color match (supra-clavicular, retroauricular or palpebral skin) according to standard technique.
- A Mustardé cervico-facial rotation flap in one patient (2.6%) with extensive cheek and lower eyelid scarring.
- A semicircular Tenzel flap in one patient (2.6%) with a lateral peri-palpebral defect.
- A bipedicled Tripier flap from the upper eyelid in one patient (2.6%) where adjacent tissue quality and quantity allowed for safe transposition.

One patient additionally underwent conjunctival reconstruction to address posterior lamella deficit.

Postoperative care

Two standardized dressing protocols were used:

- Type 1: tulle gras impregnated with povidone-iodine, ophthalmic antibiotic ointment, cotton pledgets and compressive bandage.
- Type 2: vaseline tulle, ophthalmic antibiotic ointment, pledgets and compressive dressing.

All patients received topical tetracycline cream, systemic amoxicillin–clavulanate, systemic analgesia (paracetamol plus codeine), and were reviewed by ophthalmology during the early postoperative period.

Outcomes and definitions

The primary outcome was anatomical correction of ectropion, defined clinically as restoration of eyelid–globe apposition with central positioning of the punctum, in the absence of significant residual eversion. Secondary outcomes included early postoperative complications, ectropion recurrence (reappearance of clinically significant eversion after initial correction), and patient-reported satisfaction at final follow-up.

Statistical analysis

Given the sample size and descriptive design, only descriptive statistics were applied. Continuous variables are reported as means with ranges; categorical variables as absolute numbers and percentages. All analyses were performed in Microsoft Excel.

RESULTS

Demographic and epidemiologic characteristics

Thirty-nine patients underwent surgical correction of palpebral ectropion during the study period. The mean age at surgery was 43.8 years (range 6–86 years), with the 40–59-year age group being the most represented. There was a male predominance: 23 men (59%) and 16 women (41%), corresponding to a sex ratio of 1.4.

Most patients (29/39; 74.3%) originated from urban areas, while 10 (25.6%) lived in rural regions. Twenty-six patients (66%) had some form of health insurance coverage (29% AMO, 23.7% CNSS, 13.3% CNOPS), whereas 34% were uninsured.

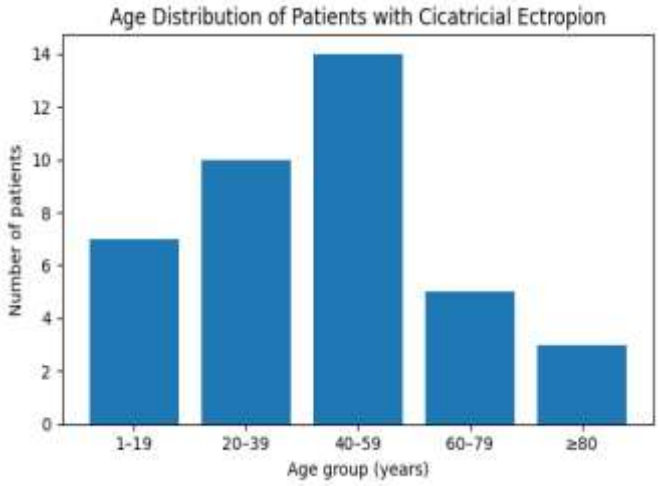

Figure 1: Distribution of patients by age group and sex (bar chart showing predominance of 40–59-year age group and higher male frequency in middle age)

Medical and etiologic background

Systemic medical comorbidities were present in 11 patients (28.2%): two had type 2 diabetes, three hypertension, two cardiac disease and four epilepsies; 71.8% had no significant medical history.

All 39 patients (100%) had a relevant surgical or injury history explaining the ectropion, confirming the cicatricial nature of the malposition. Burns were the leading etiologic factor, identified in 25 patients (64.1%): 22 cases were thermal burns (56.4% of the total cohort), including scalds (18.2%) and flame injuries (38.2%), and three were chemical burns due to acid exposure (7.7%). Tumor-related causes were present in 12 patients (30.7%), including seven basal cell carcinomas of the eyelid margin (17.9%), three tumors of the medial canthus (7.6%) and two of the lateral canthi (5.1%). Two patients (5.1%) developed ectropion following repair of peri-palpebral facial lacerations.

Three patients (7.7%) had already undergone previous ectropion surgery, including two on the same eye; no prior cosmetic blepharoplasty was recorded. No family history of similar eyelid malpositions was documented.

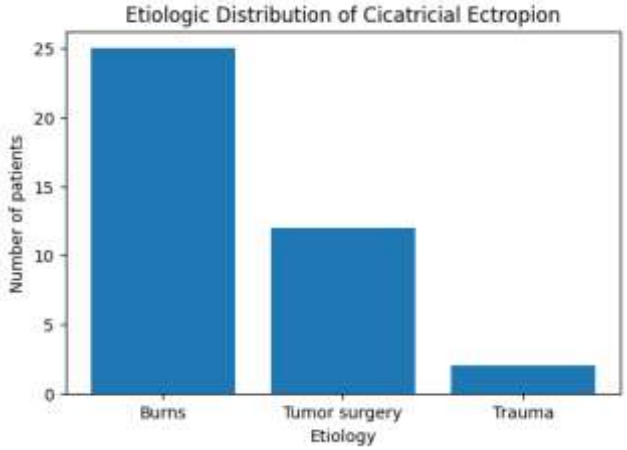

Figure 2: Etiologic spectrum of cicatricial ectropion in the series, showing predominance of burn-related and tumor-related causes

Clinical Presentation

The most frequent presenting symptom was tearing (epiphora), reported by 17 patients (43.6%). Sixteen patients (41%) complained of non-specific ocular discomfort or “gêne”, while ten (25.6%) described a foreign-body sensation and ten (25.6%) presented with conjunctival hyperemia. Decreased visual acuity was reported by ten patients (25.6%) and ocular pain by eight (20.5%). Aesthetic concern alone was the primary complaint in three patients (7.7%), though most also had functional symptoms.

The delay between symptom onset and surgical management ranged from 1 month to 4 years, with a mean of approximately 7 months. Around one-third of patients were operated within three months of onset, whereas another third had symptoms for more than one year before referral.

On ophthalmologic examination, 10 patients (25.7%) had bilateral ectropion and 29 (74.3%) unilateral involvement. Regarding eyelid distribution, seven patients (18%) had isolated upper eyelid ectropion, 21 (53.8%) had isolated lower eyelid involvement, and 11 (28.2%) had both upper and lower eyelids affected. Lash abnormalities were frequent: ciliary eversion was observed in 26 patients (66.7%) and lash loss in 12 (30.7%). Lagophthalmos was present in three patients (7.7%), and linear retractile bands crossing the eyelid were seen in five (12.8%).

With respect to ocular surface status, ten patients (25.6%) had decreased visual acuity at presentation and ten (25.6%) had conjunctival hyperemia or “conjunctival hyperemia”. Eight patients (20.5%) had keratitis and two (5.1%) had corneal ulceration; slit-lamp examination was abnormal in ten patients (25.6%). No destruction of the globe and no facial nerve paralysis were observed, and intraocular pressure was normal in all patients.

Examination of extra-palpebral scars revealed sequelae in several facial regions: 16 patients (41%) had forehead scars (including six linear bands and ten hypertrophic retractive plaques), 14 (35.9%) had cheek scars (five bands and nine hypertrophic plaques), and ten (25.6%) had cervical sequelae (seven hyperpigmentation, three bands). Eight patients (20.5%) had axillary bands as part of more extensive burn scarring.

Medical Management

All patients received pre- and/or postoperative medical treatment aimed at optimizing the ocular surface: topical lubricating eye drops, topical antibiotic therapy (ointment in

20 patients, drops in 18), topical antihistamine drops in 12 patients, and saline eye lavage. These measures were continued in the postoperative period according to ophthalmologic advice.

Surgical Techniques

All 39 patients underwent ectropion release under general anesthesia, followed by anterior lamella reconstruction tailored to defect size and scar pattern. Length of hospitalization ranged from 4 to 8 days.

Incision and Release

Eight patients (20.5%) were treated with a simple linear incision to release the retraction, whereas 30 (76.9%) underwent a fish-tail incision providing more effective vertical lengthening and scar redistribution. One patient (2.6%) was managed with Z-plasty alone for localized linear retraction.

Coverage of anterior lamella

Coverage techniques were as follows:

- Full-thickness skin graft (FTSG) in 35 patients (89.7%);
- Mustardé cheek rotation flap in 1 patient (2.6%);
- Tenzel semicircular temporal flap in 1 patient (2.6%);
- Tripier upper-lid orbicularis myocutaneous flap in 1 patient (2.6%).

One patient also underwent conjunctival reconstruction for posterior lamella deficiency.

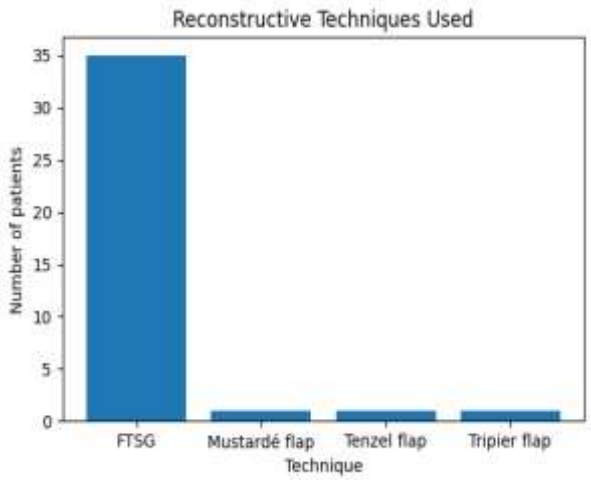

Figure 3: Distribution of reconstructive options for anterior lamella lengthening (pie chart: FTSG vs Mustardé, Tenzel, Tripier flaps)

Postoperative dressings and prescriptions

Type 1 dressings (povidone-iodine tulle, antibiotic ointment, pledgets and compresses) were used in 66% of patients, and type 2 dressings (vaseline tulle) in 34%. All patients received topical tetracycline cream, systemic amoxicillin–clavulanate, systemic analgesia (paracetamol plus codeine), regular dressing changes, and an early postoperative ophthalmologic assessment.

Complications, recurrence and satisfaction

Early postoperative evolution was uneventful in 33 of 39 patients (85%), categorized as "simple". Two patients (5%) developed partial graft loss, managed conservatively or with minor revision, and four patients (10%) had local wound infection treated with antibiotics and local care; there were no cases of total graft or flap loss, hematoma or necrosis.

Recurrent ectropion was recorded in three patients (7.7%) during follow-up. Details on timing and severity of recurrence were not systematically documented, but at least some cases required secondary surgical correction.

Patient-reported satisfaction was high: 32 patients (81%) declared themselves very satisfied with the postoperative result, 4 (11%) satisfied, and 3 (8%) not satisfied.

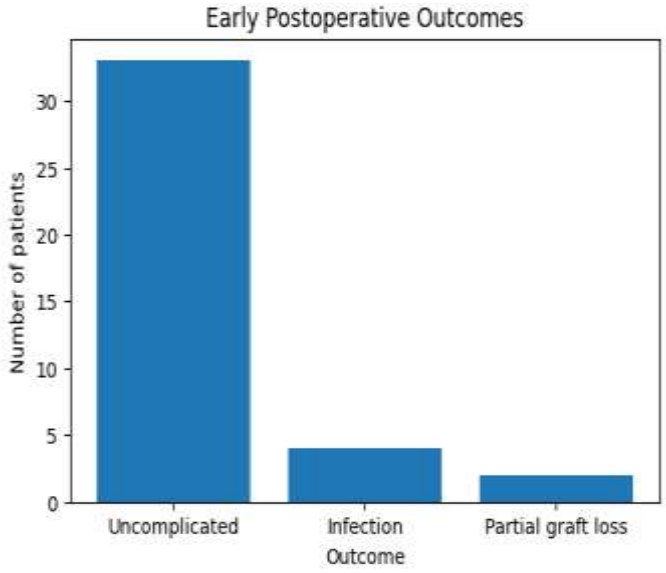

Figure 4: Global outcome distribution showing proportion of uncomplicated cases, complications and recurrences, and overall satisfaction categories

Table 1: Main etiologic patterns and preferred surgical strategies in this series

Etiologic group	Relative frequency	Dominant mechanism	Typical reconstructive strategy used in this series	Comments
Thermal burns (scald/flame)	56.4%	Vertical skin shortening and multi-level scarring	Wide cicatricial release + FTSG; Mustardé flap when cheek scarring extensive	Often associated with forehead/cheek/cervical scars; risk of recurrence if release incomplete
Chemical burns (acid)	7.7%	Deep cicatricial retraction, sometimes posterior lamella involvement	Release + FTSG; conjunctival reconstruction when required	Close ophthalmologic follow-up essential
Post-tumor excision (including CBC)	30.7%	Localized skin loss, sometimes canthal distortion	Release + FTSG; Tenzel or Tripier flap in selected lateral or central defects	Good tissue quality often allows reliable local flaps
Post-traumatic laceration repair	5.1%	Linear retractive scars distorting eyelid margin	Limited release with Z-plasties or small FTSG	Prognosis favorable if addressed early

Table 2: Early complications and recurrence after ectropion surgery (n = 39)

Outcome parameter	n	% of patients
Uncomplicated postoperative course	33	85.0%
Local infection	4	10.0%
Partial graft loss	2	5.0%
Hematoma / flap necrosis / total graft loss	0	0%
Documented recurrent ectropion	3	7.7%
Very satisfied (self-reported)	32	81.0%
Satisfied	4	11.0%
Not satisfied	3	8.0%

DISCUSSION

This series describes the epidemiological profile, clinical presentation and surgical outcomes of 39 patients operated for cicatricial palpebral ectropion over four years in a Moroccan tertiary plastic surgery center. It highlights the predominance of burn- and tumor-related etiologies, the relatively young age of affected patients, and the effectiveness of a systematic approach based on extensive cicatricial release and full-thickness skin grafting, with adjunctive local flaps in selected cases.

Epidemiology and etiologic specificities

Unlike many reports from high-income countries where involutional ectropion predominates and mean patient age often exceeds 60 years, our cohort had a mean age of 43.8 years, with the most affected group between 40 and 59 years. Comparative series cited in the thesis report mean ages of 58–80 years for mixed ectropion populations, reflecting the burden of age-related laxity. This age discrepancy underscores the heavy impact of burns and oncologic resections on younger, economically active patients in our context.

All ectropions in this series were cicatricial, with burns accounting for around two-thirds of cases and tumor surgery for nearly one-third. In other published series, burns typically represent a much smaller fraction (1.4–9.4%), whereas trauma, involutional changes and paralytic etiologies are more prominent. The high prevalence of burn-related ectropion in this setting likely reflects the incidence of domestic and occupational thermal injuries and resource limitations in acute burn management and scar rehabilitation.

Tumor-related ectropion, particularly after excision of basal cell carcinoma near the eyelid margin or canthi, is well documented in the literature and in our series represented 30.7% of cases. Adequate oncologic excision followed by timely reconstructive planning is crucial to prevent progressive cicatricial malposition.

Clinical presentation and ocular morbidity

The symptom profile in this series—dominated by epiphora (43.6%), ocular discomfort (41%) and lash eversion (66.7%)—is consistent with classic functional complaints of ectropion, as reported in other cohorts. Notably, 20.5% of patients had keratitis and 5.1% had corneal ulceration at presentation, emphasizing the potential for significant ocular surface damage in chronic cicatricial ectropion. These rates are comparable to those reported in other series of complex eyelid malposition, especially in settings where referral is delayed.

The frequent association of forehead, cheek and cervical scars in our patients illustrates the multi-regional nature of severe burns and their long-term sequelae. In such cases, correcting ectropion often forms part of a staged global reconstruction program, and results may be influenced by residual tension from adjacent scarred areas.

Surgical strategy and comparison with the literature

Our reconstructive strategy relied predominantly on full-thickness skin grafts after wide cicatricial release, used in almost 90% of patients, with local or regional flaps reserved for selected cases with extensive cheek involvement or favorable local tissue conditions. This approach aligns with widely accepted principles for anterior lamella deficiency, where FTSG provides thin, stable skin with acceptable color and texture match and has demonstrated high viability.

Several studies have shown excellent graft survival and functional improvement after FTSG for cicatricial lower eyelid ectropion. Kim et al. reported 100% graft viability and meaningful reduction in ocular surface symptoms, even in previously irradiated fields, although mild residual ectropion was not uncommon. A large series from a tertiary oculoplastic unit similarly found 100% survival of grafts with overall surgical success around 76%, and symptomatic recurrence in approximately 7% of patients. In our cohort, partial graft loss occurred in only 5% and no total graft loss was observed, which is in line with these data.

Local flaps such as Mustardé, Tenzel and Tripier were used sparingly (one case each) in this series, mainly due to extensive regional scarring and limited laxity of adjacent skin. In less scarred contexts, these flaps offer excellent color match and reliable vascularity and are widely recommended for moderate lateral or central defects. Our results suggest that in heavily burned faces, donor tissue availability may be constrained and FTSG remains the most versatile option.

Horizontal tightening procedures such as the lateral tarsal strip (LTS) were not systematically employed in this series, likely because all patients had primary cicatricial shortening of the anterior lamella rather than isolated laxity. However, the literature supports combining anterior lamella lengthening with horizontal tightening when there is concomitant canthal laxity, particularly in involutional or mixed ectropion. Hou et al. reported a 95% success rate with LTS in involutional ectropion, with low recurrence and minimal complications. Future protocols in our center could incorporate horizontal reinforcement in selected cicatricial cases with evident laxity to further reduce recurrence.

Similarly, static suspension procedures using fascia Lata are recommended for paralytic lower eyelid malposition, with good long-term stability and improved ocular protection. Although facial paralysis was not present in our cohort, awareness of these techniques is important in centers managing broader spectrums of ectropion.

Outcomes, complications and recurrence

Our overall early complication rate was 15%, comprising 10% local infection and 5% partial graft loss, without hematoma, flap necrosis or total graft failure. These rates

compare favorably with other cicatricial ectropion series, where infection rates of 1–24% and partial graft loss rates of 3–5% have been reported, depending on patient selection and irradiated fields.

The recurrence rate of 7.7% in our series is at the lower end of values reported in the literature, where recurrence after cicatricial ectropion repair ranges approximately from 4.8% to nearly 19% in mixed etiology cohorts. Factors contributing to recurrence include incomplete cicatricial release, persistent adjacent scar contracture, unaddressed horizontal laxity and underlying dermatologic or systemic conditions. While detailed characterization of recurrent cases was limited in our data, the modest recurrence rate suggests that aggressive release combined with FTSG provided durable correction in most patients.

Patient-reported satisfaction was very high, with 81% “very satisfied” and only 8% “not satisfied”. Comparable high levels of satisfaction have been described in other reconstructive series where both function and cosmesis are restored, underscoring the impact of ectropion correction on quality of life. The absence of formal patient-reported outcome measures (PROMs), however, remains a limitation, and future studies would benefit from standardized instruments.

Strengths and limitations

The main strengths of this study include its focus on a homogeneous group of cicatricial ectropions in a setting where burns and oncologic resections are particularly prevalent, and the use of a relatively standardized reconstructive protocol, which facilitates interpretation of outcomes. The inclusion of all consecutive operated cases over a four-year period limits selection bias and reflects real-world practice in a tertiary plastic surgery unit.

However, several limitations must be acknowledged. First, the retrospective, single-center nature of the study and the modest sample size limit generalizability and preclude robust statistical analysis of prognostic factors or comparison between techniques. Second, follow-up duration and timing of assessments were heterogeneous, and detailed documentation of eyelid position over time, ocular surface scores and PROMs was incomplete, restricting the precision of functional outcome evaluation. Third, no formal grading of ectropion severity or standardized classification of cicatricial patterns was used at baseline, which would be useful in future prospective studies to guide surgical choice and allow cross-study comparisons.

Clinical implications and future directions

Despite these limitations, the present series supports several practical conclusions for surgeons managing cicatricial ectropion in burn- and tumor-heavy populations. First, early referral and coordinated management with ophthalmology are critical to prevent irreversible corneal damage, particularly in the presence of keratitis or ulceration. Second, thorough release of all cicatricial components of the anterior lamella and careful tension-free coverage—most often with a full-thickness skin graft—are key to durable correction. Third, in patients with significant canthal laxity or mixed etiologies, combining anterior lamella lengthening with horizontal tightening (e.g. LTS or canthoplasty) is likely to further reduce recurrence and should be considered in future protocols.

In contexts where burns are a major etiologic factor, preventive strategies—including improved acute burn care, early scar management and patient education—could substantially reduce the incidence and severity of cicatricial ectropion. Future research should focus on prospective evaluation of standardized reconstructive algorithms stratified by etiology and severity, incorporation of validated PROMs, and longer-term follow-up to better assess late recurrence and aesthetic outcomes.

In conclusion, this four-year experience from a Moroccan tertiary center demonstrates that systematic cicatricial release combined with full-thickness skin grafting provides reliable anatomical and functional correction for the majority of cicatricial palpebral ectropions related to burns and tumor surgery, with low complication and recurrence rates and high patient satisfaction.

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