

Chapter 54

Improvement of Temporal-Orbital-Palpebral Regions Through Extended Blepharoplasty



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54.1 Introduction

The region of the orbit is one of the most important facial areas because it is related to expression and communication. Due to its location, it is fundamental in the body's harmony and appearance.

The orbit can be divided into subunits of aesthetic importance: the eyebrow, upper eyelid, lower eyelid, and malar region.

Throughout the history of mankind, the eyebrows have always been considered important for the facial aesthetics and were being manipulated under the influence of the culture of each people, including with the use of tattoos to evidence or to correct the loss of its traces.

There are multiple reports of eyelashes' surgical correction. More recently, we have performed the lifting of the lateral corners, with percutaneous traction wires, known as traction sheaves (Fig. 54.1).

The upper eyelids should be treated conservatively, with long incisions to maintain an elongated, natural, and more attractive appearance (Fig. 54.2).

The treatment of lower eyelids represents a challenge in facial cosmetic surgery. The anatomical changes resulting from the face's aging process, especially those that occur in the lower eyelid and the malar region, have already been well described by the different authors [1–4]. The type and the graduation of each modification vary according to each individual. The most extreme aspect of alteration of the face's middle third, classified as type IV by Hester, in 2000, is characterized by the

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Fig. 54.1 Marking of the drawstring attachment points

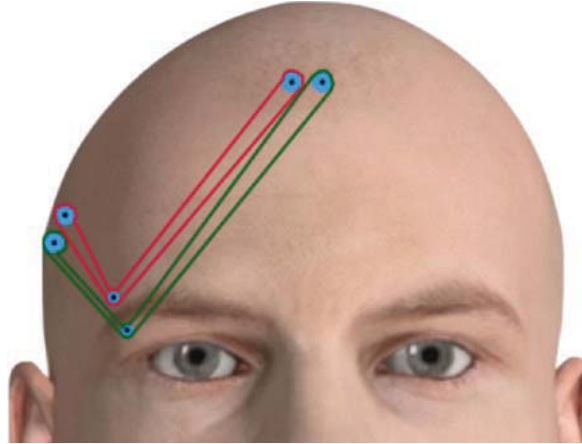
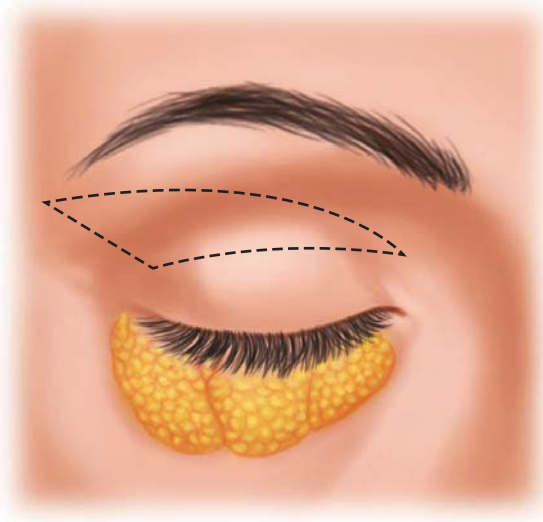


Fig. 54.2 Demarcation of the incision in the upper eyelid



protrusion of eyelid fat, the excess sagging skin and muscle tissue in the lower eyelid, the descent of the eyelid's joining with the malar region, and the descent of malar prominence also by skeletonization of the orbit border, the deepening of the nasolabial sulcus, and the presence of a malar sac [4].

The basic anatomical cause of these changes is the sagging tissues. In the most extreme cases, these tissues descend over the orbito-malar ligament, which, being relatively fixed, gives the aged external appearance. The same process occurs with the nasolabial sulcus, resulting in a deeper aspect [5].

Correction of these anatomical changes is the current objective of surgical techniques. Increasingly, the need for muscle repositioning has been emphasized, and the number of patients submitted to lower blepharoplasty with muscle treatment has progressively increased [6].

The surgical techniques described for correction of the lower eyelid with tissue vertical elevation and orbicularis oculi muscle fixation at the orbit's upper margin are based on the direct transcutaneous approach. This preference has been defended by several authors due to the technical difficulty and also to the morbidity of the hole procedure performed by the transconjunctival pathway. Nevertheless, transconjunctival blepharoplasty has developed rapidly in recent years, aided by the modernization of lighting and hemostasis equipment [7–10]. An important technological advance was the use of laser rays for the execution of incisions, as an aid in the process of hemostasis and the cuts accuracy. All these innovations made the execution of technical details by the transconjunctival route possible, previously only feasible by the transcutaneous route [11].

We present our experience in 1476 cases using the transconjunctival pathway to correct lower eyelid and the middle third of the face aging by mobilization of the orbicularis oculi muscle and its elevation and fixation in the superior orbital rim. The main advantage of conjunctival technique is the preservation of the orbital septum and the orbicularis muscle, which reduces the risk of altering the position of the lower eyelid [12].

In the transcutaneous technique, the skin, orbicularis oculi muscle, and the eyelid pouches are treated by infraciliary incision. By previous access we have excellent exposure and dissection of the musculature, septum, and orbital fat. In the postoperative period, complications such as eyelid retraction and ectropion are relatively high (15–20%).

These complications are related to the possible denervation of the musculature and the retraction of the medial lamella due to the healing fusion between the capsular-palpebral fascia and the septum [13].

Recent studies by Lessa [12] demonstrate that myotomy can cause significant changes in the nerves, connective tissue, and diameter of the fibers of the orbicularis oculi muscle. These authors suggest the use of techniques that preserve the integrity of the orbicularis muscle during lower eyelid blepharoplasty (conjunctival access).

54.2 Surgical Technique

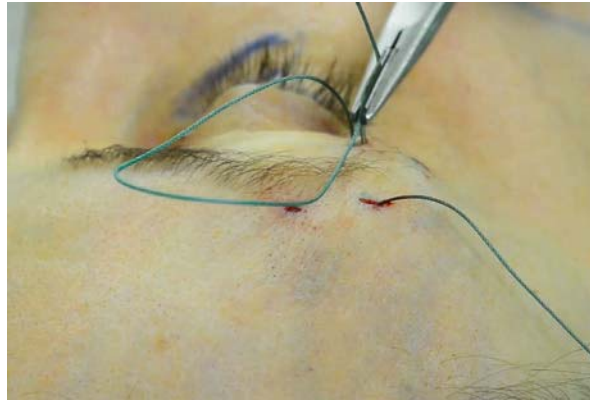
Patients undergo sedation or general anesthesia with the presence of anesthesiologist. It is used infiltration with local anesthesia in the temporo-frontal region with lidocaine 0.25% with epinephrine 1:200,000, when treatment of the eyebrows. Bilateral temporal incisions are made at 2 cm of the capillary and frontal implantation in the same characteristics. Through the incisions is performed detachment of the frontal and temporal regions in the sub-galeal plane, releasing the upper and lower temporal septa, in addition to the temporal ligament (Fig. 54.3).

The release of these structures allows lateral elevation of the eyebrows as a unit, together with the lower and upper eyelids' lateral portion, in order to improve the result. This traction is useful when the release of the orbicularis retaining ligament is needed, lateral thickening and when it is performed the canthopexy.

Fig. 54.3 Release of structures through temporal and frontal incision



Fig. 54.4 Traction polyester yarn being pierced



2-0 polyester thread are pierced from the front incision to the eyebrow incisions with the Reverdin needle in the subcutaneous planes and then through the incisions with a surgical needle, again being passed to the temporal region, in the same spatial plane, with Reverdin needle (Fig. 54.4).

The fixation in the temporal fascia for traction is performed by raising the eyebrow at the previously selected points; for each specific case, the second fixation is performed in the galea and in the periosteum of the frontal region. The choice of traction points is important and should be appropriate for each case. This is a tactic that reflects the flexibility of this procedure to act according to the case.

The eyebrows' superolateral traction in conjunction with the lateral corner of the eyelids lengthens the shape of the orbital region, with the intention of becoming more youthful and with a more pleasant appearance, and especially with less surgical stigma.

54.2.1 Upper Eyelids

After the selective traction of the eyebrows, the surgical access in the skin spindle is marked as an elongated crescent, as described by Loeb in 1988, marking the excess skin that will be removed. The areas where fat grafting will be needed and also the areas that will be submitted to dermabrasion laser as the final stage of surgery are marked. The eyelid bags are marked, as well as areas of excess projection of the malar fats that will be liposuctioned [14].

After the insertion of the eye protectors, the local infiltration of 0.5% lidocaine and adrenaline in a ratio of 1:100,000 is done. The incisions of the upper eyelids with blade scalpel 15 are performed superficially; then deepened with CO₂ laser with 7 watts of power, the skin spindle is resected. The previous access by the muscular tissue is done with the use of laser ray, which allows access to the adipose tissue and its excesses resection when necessary [15].

When there is a need for releasing of the orbicularis retaining ligament, lateral thickening, or canthopexy without canthotomy, the muscular incision is enlarged beyond the orbital border with about 1 cm in length to access the upper temporal fascia laterally. It is made with the help of CO₂ laser in cut mode.

54.2.2 Lower Eyelids

The tarsal border is carefully hooked up and pulled with two Gilles hooks, so it is exposed to the conjunctiva palpebral. Then, a 7-watt laser is incised at 6 mm from the tarsal border, sectioning the mucosa and capsule-palpebral fascia (posterior lamella) to the middle lamella (palpebral septum and bags), which maintains the septum intact, a tactic employed to avoid cicatricial retraction and lower eyelid descent (Fig. 54.5) [16].

At this stage, the hooks are repositioned to fix the orbicularis muscle, which allows vision for the lower eyelids bags treatment and irradiation with the laser of

Fig. 54.5 Use of the CO₂ laser as a cutting tool for greater precision and less trauma



Fig. 54.6 The transconjunctival approach provides a broad view to the tissues



the septum and posterior face of the muscle, when necessary, aiming to promote tissue retraction. This maneuver improves the tonus of the structures, and the obtained retraction elevates the ciliary edge, improving the aspect of the inferior eyelid (Fig. 54.6) [17].

The release of deep structures, specifically the orbicular retaining ligament and lateral thickening, through the incision of the upper eyelid, will allow the superolateral traction of these structures as a unit (Fig. 54.7).

With specific instruments, the lateral thickening (LOT) and orbicular retaining ligament (ORL) are released, which will allow the area to be mobilized as a unit. The canthopexy without a canthotomy with preservation of the lateral canthal ligament becomes easy to perform (Fig. 54.8).

These procedures usually performed transcutaneously can be performed by conjunctival pathway, and when there is a need to remove excess of the lower eyelid, it can be done through the incision of the upper eyelid.

After the structures are released, the lateral cutaneous muscle flap is superolaterally tractioned and fixed in the temporal fascia just above the orbital bone border. The excess of muscle is folded over itself realizing “jaquetão” (“big jacket”) that will avoid a depression in the muscular fixation (Fig. 54.9).

The incisions edges approximation of the upper eyelid is performed by intradermal suture with 5-0 monocryl. There is no need to suture the lower eyelid access pathway.

The skin abrasions are then performed with only one step to avoid hypochromia, with CO₂ laser with 22 watts of power, the entire length of the lower eyelid, and the lateral portion of the orbit, with the purpose of retracting the tissue and improving skin appearance, avoiding surgical resection of the skin (Fig. 54.10).

Adipose tissue grafts are performed in the previously analyzed and marked areas, most frequently in nasojugal sulcus, malar orbit, upper eyelids, below eyebrows, glabellar sulcus, and temporal region. The usual anatomical plan of grafting is the suprapariosteal in small amounts to avoid the formation of nodules (Fig. 54.11).

Fig. 54.7 After resection of the upper eyelids skin (a), the superior lateral dissection of the orbicularis muscle begins with Iris scissors blunt tip (b)

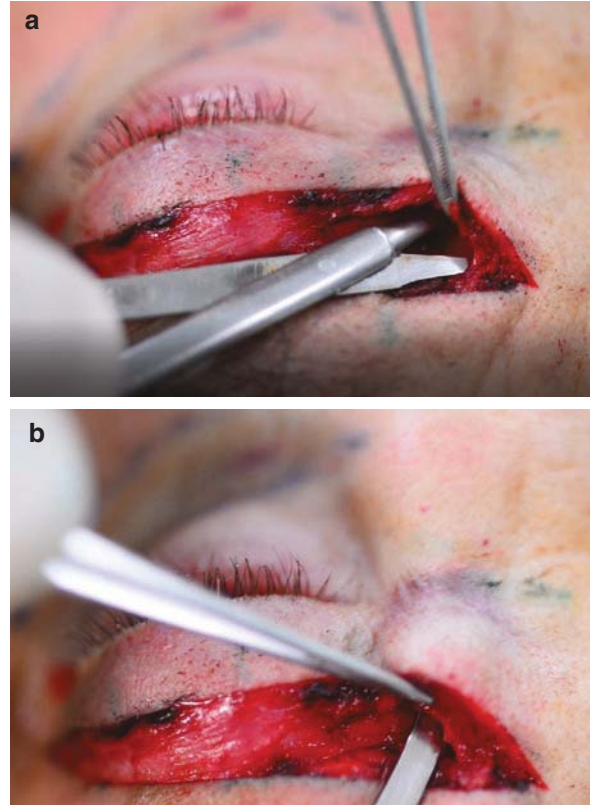


Fig. 54.8 Canthopexy without canthotomy



Fig. 54.9 The musculocutaneous flap is superolaterally tractioned and fixed in the temporal fascia, resulting in elevation of the lateral third of the lower eyelids



Fig. 54.10 CO₂ laser dermabrasion



54.3 Reviews

There are reports which demonstrate that most complications or insufficient results after lower blepharoplasty are related to excess tissue withdrawal. Removal of skin and orbicularis oculi muscle can result in ectropion and sclera exposure. Increasingly it has been recommended that the surgeon resist the tendency to remove larger amounts of skin because it is not so easy to correctly calculate in the intraoperative period the amount of skin that should be removed. It is more prudent to take the risk of undergoing a surgical review and to remove some excess skin in a secondary surgical procedure than to correct an ectropion. It should be noted that it has already been demonstrated that laser abrasion promotes skin contraction, enough to reduce the need for its removal.

Excessive surgical manipulation also contributes to increase the possibility of tissue fibrosis. Even if the amount of tissue maintained at the end of surgery is considered adequate, the long-term retraction process can lead to complications. Lessa



Fig. 54.11 Adipose tissue grafts

in 2019 compared the inferior blepharoplasty with and without myotomy, demonstrating that there is a decrease in nerve action after myotomy, justifying postoperative complications such as malposition of the lower eyelids. So it concludes that the myotomy causes changes in the collagen, nerves, and the diameter of the muscle fibers and suggests that the conjunctival procedure preserves the integrity of the muscle, being considered the best option. This author considers canthopexy as an additional resource. The transconjunctival technique would be the most recommended because it does not have the external incisions and also for causing less trauma to the tissues, as shown in our results (Figs. 54.12, 54.13, 54.14, 54.15, and 54.16).

The muscle repositioning is the basis of repairing the eyelid and the face's middle third aging. So far it has been argued that it would be technically impossible to treat the orbicularis oculi muscle adequately without extensive surgical exposure by the cutaneous route. The important steps in this procedure are the individualization of the orbicularis oculi muscle and the possibility of its elevation and fixation in firm structures in order to obtain the desired result. As this text demonstrated, it is possible to perform these procedures with excellent visibility and with the necessary effectiveness. It includes the fixation of the muscular border in the temporal fascia and at the edge of the orbit, with the effectiveness similar to that previously described by Hamra and Hester, performed by the transcutaneous route.

Some authors point out that adipose tissue has a close anatomical relationship with the aponeurotic muscle system, and, therefore, they consider the correction of



Fig. 54.12 A 42-year-old patient



Fig. 54.13 A 50-year-old patient



Fig. 54.14 A 58-year-old patient



Fig. 54.15 A 64-year-old patient



Fig. 54.16 A 67-year-old patient

fat decrease by muscle mobilization more effective than by fixation of adipose tissue. For this reason, in this series of cases, the fatty tissue was removed when necessary, but in no case was the adipose tissue individualized and fixed.

Adequate visualization allows the myotomy to be performed. The extension of only 1 cm in the incision in the lateral direction of the upper eyelid prevents changes in the position of the inferior eyelids and the inadvertent injury of the innervation of the orbicular musculature. The inferior and superior bloody border, resulting from the orbicularis muscle myotomy, should be approximated and superimposed with the superior border in anterior position. This way, it eliminates the possibility of visible depression in the skin on the lateral part of the commissure, which may occur when a simple myomectomy is performed.

The incision with the laser ray in the conjunctiva of the lower eyelid gives an extremely precise cut with simultaneous hemostasis, reducing the possibility of edema and ecchymosis, preventing fibrosis in the chronic phase of healing.

The application of laser ray emission in the eye's orbicularis muscle induces a retraction of the lower eyelid, improving muscle-septal tone. The immediate retraction of the treated muscle is already visible. The final abrasion on the skin's outer portion of the eyelids avoids the need for final removal of the lower eyelid skin and improves the aesthetic appearance by attenuating the skin folds. These procedures decrease the incidence of complications such as ectropion and apparent sclera.

It should be noted that the incision in the conjunctiva of the lower eyelid is not approximated to avoid the formation of granulomas.

The scientific knowledge of causes of the changes in the aging process and in the external aesthetic aspect motivated new technologies. In the case of blepharoplasty, there is a need for more expensive and specialized equipment for its execution. This is probably the biggest obstacle to the diffusion of this technique, especially the need for a laser device. However, it is a less aggressive and less likely complication technique.

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