Complications in Periocular Rejuvenation

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KEYWORDS

• Blepharoplasty • Brow surgery • Lid retraction • Ptosis
• Orbital hemorrhage • Dry eye syndrome

The ultimate rejuvenation goal of cosmetic periocular surgery is to achieve an aesthetic balance between the forehead, periocular area, and midface. As patients who seek cosmetic surgery are focused on achieving their ultimate aesthetic result, it is imperative that cosmetic surgeons take the time to focus on the importance of educating patients regarding realistic outcomes and possible complications that may result from the planned procedure. This discussion should emphasize the aging changes that occur in the periocular region, including facial volume loss (deflation), volume shifting (descent), and skin, ligament, muscle, and bone changes, which lead to baggy lids, suborbicularis oculi fat descent, subcutaneous fat loss, and other age-related changes. Cosmetic surgeons should strive to restore fullness with avoidance of procedures/surgeries that result in hollowing and skeletonization. This goal can be achieved by efforts to reposition and reinforce, with an individualized surgical plan for each patient to achieve facial aesthetic balance with a youthful, refreshed appearance.

Because blepharoplasty ranks as one of the most popular cosmetic procedures in the United States, with more than 221,000 cases performed in 2008, thorough preoperative evaluation with meticulous surgical planning is imperative to decrease or even avoid the risk of potential complications (cosmetic and functional) that can occur with facial cosmetic surgery in the periocular region.[1] Possible functional issues following periocular surgery include keratopathy/dry eyes, infection, tearing/ocular irritation, lagophthalmos, hemorrhage/hematoma, diplopia, loss of vision, and/or blindness (**Box 1**).[2–8] Postoperative cosmetic problems include asymmetry, deep superior sulcus, periorbital hollowing, lateral canthal dystopia, and unnatural appearance. Complications with functional and cosmetic implications include eyelid malposition, retraction, and ptosis (**Box 2**). It is imperative that the cosmetic surgeon does not focus on the amount of tissue removed in periocular surgery; instead, the surgical goals should focus on the importance of preservation of tissue to retain a youthful symmetric fullness through repositioning and reinforcing to achieve optimal aesthetic results.

HISTORY

The importance of obtaining a thorough preoperative medical history should be emphasized because it is imperative to recognize patients who may be at an increased risk for complications from procedures to rejuvenate the periocular region. A history of systemic diseases, such as Graves disease, Sjögren syndrome, rheumatoid arthritis, rosacea, Bell palsy, and myasthenia gravis, or other neuromuscular diseases, should be ascertained. Patients should be questioned regarding a past history of ocular allergies, facial trauma, previous facial surgery (including skin cancer excision), or any previous periocular procedures.

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Box 1
Cosmetic complications

1. Asymmetry
2. Lower lid hollowing
3. Deep superior sulcus
4. Suture milia
5. Lid crease/fold asymmetry
6. Lateral canthal dystopia
7. Eyelid malposition
8. Medial canthal webbing
9. Scarring
10. Chemosis
11. Ptosis
12. Unnatural appearance

PERIOCULAR/OCULAR EXAMINATION

Following the complete review of their history, the prospective surgical candidate should have a complete periocular examination, including the brow, lid, and cheek regions as well as the ocular surface. During the initial consultation it is imperative to document and show any preoperative asymmetry. Patients for upper eyelid/brow rejuvenation surgery should undergo complete evaluation of the periocular area, including documenting the brow position and contour, as both contribute to a person's expression, whether angry, tired, sad, or happy. The diagnosis of underlying brow ptosis is crucial because patients may have evidence of frontalis muscle contraction to raise the brows secondary to underlying upper eyelid ptosis or significant dermatochalasis (**Fig. 1**). Because the distance between the brow and lid margin is increased from secondary brow compensation, an aged, tired appearance results. To unmask any underlying brow ptosis, apply manual pressure to the brow region and have the patient look in primary gaze (**Fig. 2**). In addition to the periocular evaluation, the prospective patient should undergo a complete ocular examination with documentation of best corrected visual acuity, pupil examination, extraocular motility, and a slit lamp examination to evaluate the status of the cornea.

Box 2
Functional complications

1. Dry eyes/keratopathy
2. Tearing/ocular irritation
3. Orbital hemorrhage/hematoma
4. Diplopia/strabismus
5. Visual loss/blindness
6. Lagophthalmos
7. Infection
8. Chemosis
9. Retraction
10. Ptosis
11. Eyelid malposition

NORMAL EYELID ANATOMY

In the normal periocular region, the eyelid is shaped like an almond, with the highest point just nasal to the pupil and the brow position higher temporally (**Fig. 3**). The typical lid crease is around 8 mm, with at least 10 to 12 mm of skin superior to the eyelid crease to allow proper lid excursion and closure. The upper eyelid crease occurs where the uppermost fibers of the levator aponeurosis insert into the overlying lamellae and subcutaneous tissue. The lateral commissure is 1 to 2 mm higher than the medial commissure. The lower lid margin should be in apposition along the entire length of the eye.

To diagnose pathophysiology of eyelid malposition after lower eyelid blepharoplasty, the surgeon must be familiar with the surgical anatomy. The eyelid is divided into 3 layers: anterior, middle, and posterior lamella. The anterior lamella consists of the skin and orbicularis muscle, the middle lamella is the orbital septum, and the posterior lamella includes tarsus, conjunctiva, and the lower eyelid retractors. Lower eyelid retraction results from inflammation, scarring, shortening, and cicatricial tethering of the middle and posterior lamella (**Fig. 4**). Patients with a previous history of eyelid/facial surgery or facial trauma are at a higher risk for possible lid retraction. Anatomic factors that can contribute to an increased risk of lower eyelid retraction include prominent eyes, evidence of facial negative vector, midfacial hypoplasia, and scleral show.

BROW/UPPER EYELID EXAMINATION

In addition to the evaluation for brow ptosis or asymmetry, the examination for brow/upper eyelid surgery should include the eyelid crease and position, evidence of preexisting lagophthalmos (inability to completely close the eyes), floppy eyelid syndrome, deep superior sulcus, prolapsed lacrimal gland, and/or underlying eyelid ptosis (**Fig. 5**). The margin reflex distance (MRD1), which represents the distance from the light reflex of the patient's cornea to the center of the upper eyelid as the patient gazes in primary position, is used to assess the presence of upper eyelid ptosis. The normal MRD1 in an