# Transconjunctival Lower Blepharoplasty

Sean Pack, DDS, MD [a], Faisal A. Quereshy, MD, DDS [a,*], Mehmet Ali Altay, DDS, PhD [b], Dale A. Baur, DDS [a]

**KEYWORDS**

• Lid—cheek junction • Tear trough • Transconjunctival approach • Fat repositioning

**KEY POINTS**

- With lower blepharoplasties, there is no secret to achieving successful results; as is the case with any surgical procedure, proper patient evaluation and development of a comprehensive, anatomic-based treatment plan are prerequisites for success.
- For situations in which a patient has little lid laxity and pseudoherniated periorbital fat, transconjunctival lower blepharoplasty is the treatment of choice.
- Transconjunctival lower blepharoplasty enables the surgeon to reposition fat, effectively blending the lid—cheek junction and filling the tear trough deformity.
- In order to better enable clinicians to achieve optimal outcomes, the authors advocate an anatomic-based approach for patient evaluation and treatment planning.

## Introduction

"The eyes are the windows to the soul." although somewhat cliché, this proverb is meaningful for the cosmetic surgeon. As a part of the human experience, it is settled fact that the eyes play an important role in both verbal and nonverbal communication; they convey the full range of human emotions. In light of this, many patients seek to alter the appearance of their eyes or, more specifically, their lower eyelids. There are a number of reasons why patients often seek lower eyelid rejuvenation. In the authors' experience, some of the most common reasons have been for correction of a tired, aged, or sad appearance.

Despite being an often-requested procedure, many surgeons have completely abandoned performing lower blepharoplasty due to the frequency of complications and their potentially devastating nature. It is the authors' belief that most of these complications are avoidable. With a proper knowledge of lower eyelid anatomy and the pathophysiology of aging, and the development of a logical guide for treatment planning, it is possible to predictably perform transconjunctival lower blepharoplasty. As such, the purpose of this article is to equip the clinician with knowledge of the indications and technical details of the transconjunctival lower blepharoplasty. In doing so, the authors hope to give confidence to the cosmetic surgeon and improve his or her chances of success.

## Anatomy

To properly treat patients with aged lower eyelids, one must have a well-founded understanding of lower eyelid anatomy. This is prerequisite for development of an anatomic-based treatment plan. To proceed without this knowledge will invariably lead to unpredictable outcomes.

Before describing the organization of the periorbital soft tissues, it is necessary to understand the dimensions of the bony orbit and its contents. As a general rule, the bony orbit is conical in shape, with a depth of 38 to 44 mm, a height of 33 to 37 mm, and a width of 38 to 41 mm.[1] On average, the internal volume of the orbit is approximately 30 cc and is filled with the following structures: the globe (10 cc), extraocular muscles (10 cc), and orbital fat and lacrimal gland (10 cc).[1,2]

Of particular interest in lower blepharoplasty is the organization of periorbital fat. Postseptal orbital fat is organized into 5 discrete pads, 2 upper and 3 lower pads. With regard to the 3 lower fat pads, there is a lateral, middle, and medial fat pad. Of note, the middle and medial fat pads are connected by a narrow isthmus of fat and are separated by the inferior oblique muscle.[3]

In addition to being organized into fat pads, orbital fat is also unevenly distributed within the orbit, with the majority being located posteriorly, in supraperiosteal pockets between intramuscular septae. In fact, approximately 60% to 70% of the fat volume is located deep within the bony orbit, posterior to the globe. As a result, posterior orbital fat has relatively little effect on vertical globe support. This function primarily belongs to the aforementioned orbital fat pads. This concept is important, as removal of only a small amount of orbital fat from the anterior areas, those immediately deep to the orbital septum, can have a profound effect on globe position. In 1986, Manson demonstrated that removal of 0.5 cc (a pea-sized volume) of orbital fat caused the globe to move 1 mm inferiorly and 2 mm posteriorly.[1,4,5] This highlights the authors' position that orbital fat should either be repositioned or, at most, removed judiciously.

Now that the contents of the bony orbit have been discussed, one is in a better position to examine the organization

[a] Department of Oral and Maxillofacial Surgery, Case Western Reserve University, 2124 Cornell Road, Room DOA 53A, Cleveland, OH 44106, USA
[b] Department of Oral and Maxillofacial Surgery, Akdeniz University, Antalya, Turkey
* Corresponding author.
*E-mail address:* faq@case.edu

Atlas Oral Maxillofacial Surg Clin N Am 24 (2016) 147–151
1061-3315/16/$ - see front matter 
http://dx.doi.org/10.1016/j.cxom.2016.05.011

of the periorbital soft tissues. The periorbital soft tissues of the eyelid are described in layered/lamellar terms, with an anterior and a posterior lamella separated by the orbital septum (Fig. 1). From superficial to deep, the anterior lamella is composed of skin, subcutaneous adipose tissue (ie, malar fat), and orbicularis muscle. This muscle is divided into 3 discrete components: pretarsal orbicularis (overlying the inferior tarsal plate), preseptal (overlying orbital septum), and preorbital (overlying the facial bones) (Fig. 2).[6] The fibrous attachment of the orbicularis is at the lateral orbital rim, at a discrete fibrous structure termed the lateral thickening. Extending medially from the lateral thickening, along the inferior rim, is another ligament of import, the orbicular retaining ligament (ORL). This ligament attaches the orbicularis muscle to the zygomatic bone. Knowledge of the function and location of this structure is a prerequisite to understanding the pathophysiology of lower lid aging, which will be discussed later. Next, immediately deep to the orbicularis muscle is the orbital septum, which separates the anterior and posterior lamella. With regard to the posterior lamella, it is composed of the inferior tarsus and palpebral conjunctiva.[6]

With an understanding of layered organization of the periorbital soft tissues, one can discuss a key component of the globe's support apparatus, the lateral canthal tendon (LCT). With regard to the LCT, it has 2 main support functions. First, it provides lateral anchorage for the eyelids, and, second it provides vertical support for the globe and lower lid. The bony attachment of the LCT is at Whitnall tubercle, located approximately 4 mm posterior to the lateral orbital rim, on the lateral orbital wall.[7,8] It is from this site that the LCT extends inferomedially, attaching to the lateral aspects of the upper and lower tarsal plates. In addition, the LCT is situated 2 to 3 mm superior to the medial canthal tendon. This helps form a 2 to 3° tilted intercanthal axis, a desirable characteristic.[9]

## Pathophysiology of aging

Lower eyelid aging, like all physiologic processes, is the result of cause-and-effect relationships. The cumulative effect of these relationships results in common and well-documented physical findings. In this section, the precise cause of many of

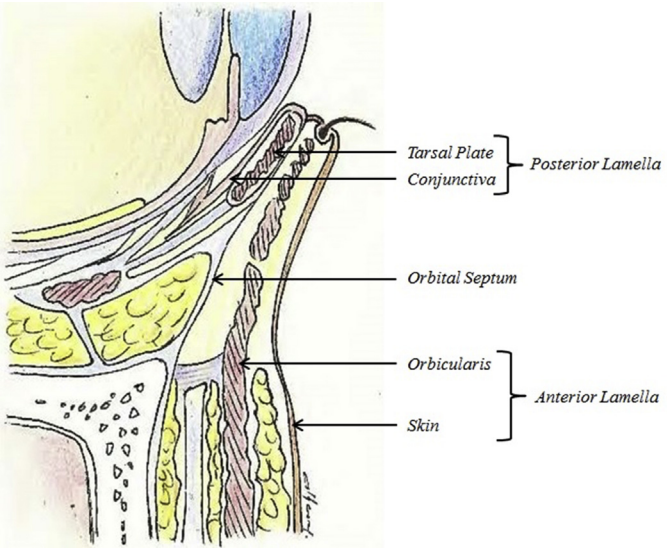


**Fig. 1** Lamellar organization of periorbital soft tissues.

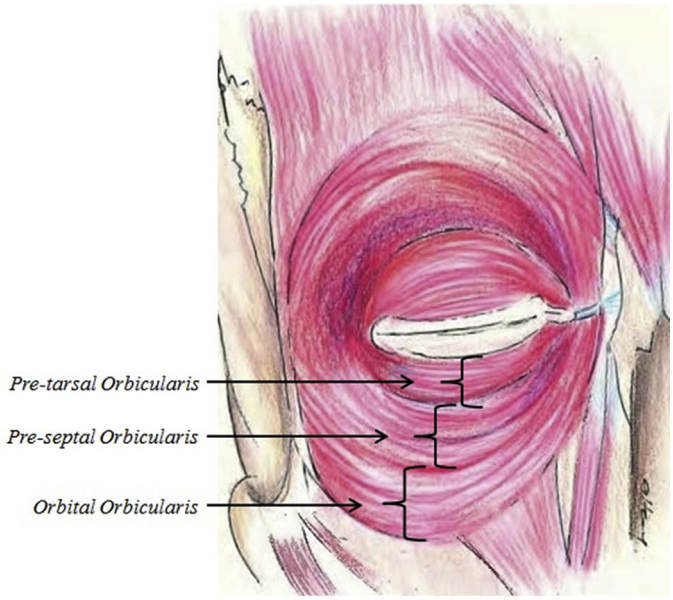


**Fig. 2** Organization of orbicularis muscle in accordance with underlying anatomical structures.

physical examination findings common to aged lower eyelids will be discussed. This will better enable the surgeon to address the source of a patient's chief complaint, improving the likelihood of a successful outcome.[1,9]

The anatomic discussion of lower-lid changes will begin with the external appearance of the aged lower eyelid. One of the most common findings is often described as puffy eyelids. This finding represents the merger of the lid—cheek junction with the tear trough (Fig. 3). Merger of these discrete entities forms a continuous furrow that delineates displaced/pseudoherniated postseptal fat from inferiorly displaced, sagging, suborbicularis oculi fat (SOOF) pad. The end result of these anatomic changes is development lower lid bags, which represent herniated or, more commonly, pseudoherniated postseptal fat.[1,10]

With regard to the surface appearance of the lateral lower eyelid, there are other noteworthy changes. First among them is the presence of fine rhytids and crow's feet extending from the lateral canthus. These findings are often the result of ultraviolet (UV) damage in conjunction with an age-related decrease in collagen remodeling. In addition to development of fine rhytids and crow's feet, the lateral canthal angle also becomes more rounded with age. This is the result of increased laxity of the LCT. The end result of this age-related process is loss of the aesthetic, almond-shaped palpebral aperture, ectropion, increased scleral show, and generalized accentuation of lower lid rhytids.[1,11]

Each of the aforementioned physical findings has interconnected etiologies. As such, the authors next describe the lower lid aging process as a chain reaction, the first step of which is the development of progressive laxity of the globe support apparatus, which is primarily comprised of Lockwood suspensory ligament (LL) and the LCT (Fig. 4). As a consequence, the globe descends and translates posteriorly, displacing postseptal fat anteriorly, leading it to bulge/pseudoherniate through the orbital septum (Fig. 5). This process accounts for both lower lid bags and sunken eyes. In addition, increased laxity of the LCT and LL not only displaces