

Defect of the Eyelids



Guanning Nina Lu, MD^a, Ron W. Pelton, MD, PhD^b,
Clinton D. Humphrey, MD^a, John David Kriet, MD^{a,*}

KEYWORDS

• Eyelid reconstruction • Post-MOHS reconstruction • Eyelid flaps • Eyelid defects • Eyelid anatomy

KEY POINTS

- The primary goals of eyelid reconstruction are restoration of eyelid function, corneal protection, and recreating the natural appearance and symmetry of the eyelids.
- The anterior and posterior lamella and the tarsoligamentous sling are considered discrete subunits of the eyelid and their distinction can guide reconstructive options.
- Disruptions of the lacrimal system should be repaired to prevent epiphora.
- Whenever possible, vertical surgical tension near the lid margin should be converted to horizontal tension in the eyelids to minimize vertical tension, lid retraction, and cicatricial ectropion.
- A variety of options exist for eyelid reconstruction and familiarity with many different methods will give the reconstructive surgeon the ability to analyze an eyelid defect and choose an optimal method for repair.

INTRODUCTION

The eyelids are an important aesthetic unit of the face. They have multiple functions, most notably serving as the primary protectant of the globe. Surgically restoring the natural form and function of the eye can be complex and challenging. Defects of the upper and lower eyelids frequently result from cancer ablation but also arise from trauma, burns, congenital defects, and autoimmune disease. The eyelids are composite structures with an anterior lamella comprising skin and orbicularis oculi muscle, the middle lamella comprising the orbital septum and lower lid retractors, and a posterior lamella comprising tarsus and conjunctiva. This article discusses the anterior and posterior lamellae as discrete units during repair. Eyelid reconstruction involves replacing one or both lamella, depending on the size and anatomic position of the defect, as well as other structures such as the lacrimal drainage system. Thus, reconstruction can be approached in a variety of ways and familiarity with a diversity of methods will yield the best reconstructive outcome.

CONTENT

Physiology of the Eyelid and Lacrimal System

The primary functions of the eyelids include the protection and maintenance of the orbital contents, light regulation, and facial expression. They also serve as an important aesthetic focal point of the face. Intact eyelid closure establishes an air-tear barrier over the cornea. Eyelids rest on the surface of the globe and wick tears across as they glide over the corneal surface. The bulbar conjunctiva on the surface of the globe is continuous with the palpebral conjunctiva lining the inner surface of eyelids by means of a redundant fornix. Conjunctival relationships must be maintained or restored during reconstruction to preserve blink efficiency for corneal wetting and normal tear flow. Corneal drying and irritation leads to exposure keratopathy that, if prolonged, can result in corneal scarring and infection.

The lacrimal system is closely associated with the medial canthus of the eyelid and allows for proper outflow of tears into the nasal passage. Physical disruption of the lacrimal system can

^a Otolaryngology-Head and Neck Surgery, University of Kansas Medical Center, 3901 Rainbow Boulevard, MS 3010, Kansas City, KS 66160, USA; ^b Oculofacial Cosmetic and Reconstructive Surgery, 2770 North Union Boulevard, Suite 100, Colorado Springs, CO 80909, USA

* Corresponding author.

E-mail address: dkriet@kumc.edu

cause epiphora, blurred vision, and severe patient annoyance. Lacrimal punctal eversion (aka punctal ectropion) after lower lid reconstruction can also result in improper tear drainage.

Surgical Anatomy of the Eyelids

The eyelids are essentially bilamellar structures comprising the anterior and posterior lamella and supported by the tarsoligamentous sling a branch of the oculomotor nerve

- The anterior lamella comprises skin and orbicularis oculi muscle.
- The posterior lamella comprises the tarsal plate and conjunctiva.

The upper eyelid layers vary depending on their distance from the palpebral fissure or eyelid crease. The eyelid crease is formed by the

cutaneous insertion of the aponeurosis of levator palpebrae superioris muscle (**Fig. 1**):

- Below lid crease: epidermis, orbicularis oculi, levator aponeurosis, tarsus, and conjunctiva.
- Above lid crease: epidermis, orbicularis oculi, orbital septum (inserts onto the levator aponeurosis before attaching to the tarsal plate), orbital fat, levator aponeurosis, Müller muscle, and conjunctiva.

In the lower eyelid, the capsulopalpebral fascia (aka lower lid retractors) is similar and analogous to the levator aponeurosis of the upper lid. This is a fascial extension of the inferior rectus muscle sheath and causes downward movement of the lower lid via the ophthalmic nerve (cranial nerve 3). Additionally, the inferior tarsal muscle is analogous to Müller's muscle and causes downward movement of the lid via sympathetic input.

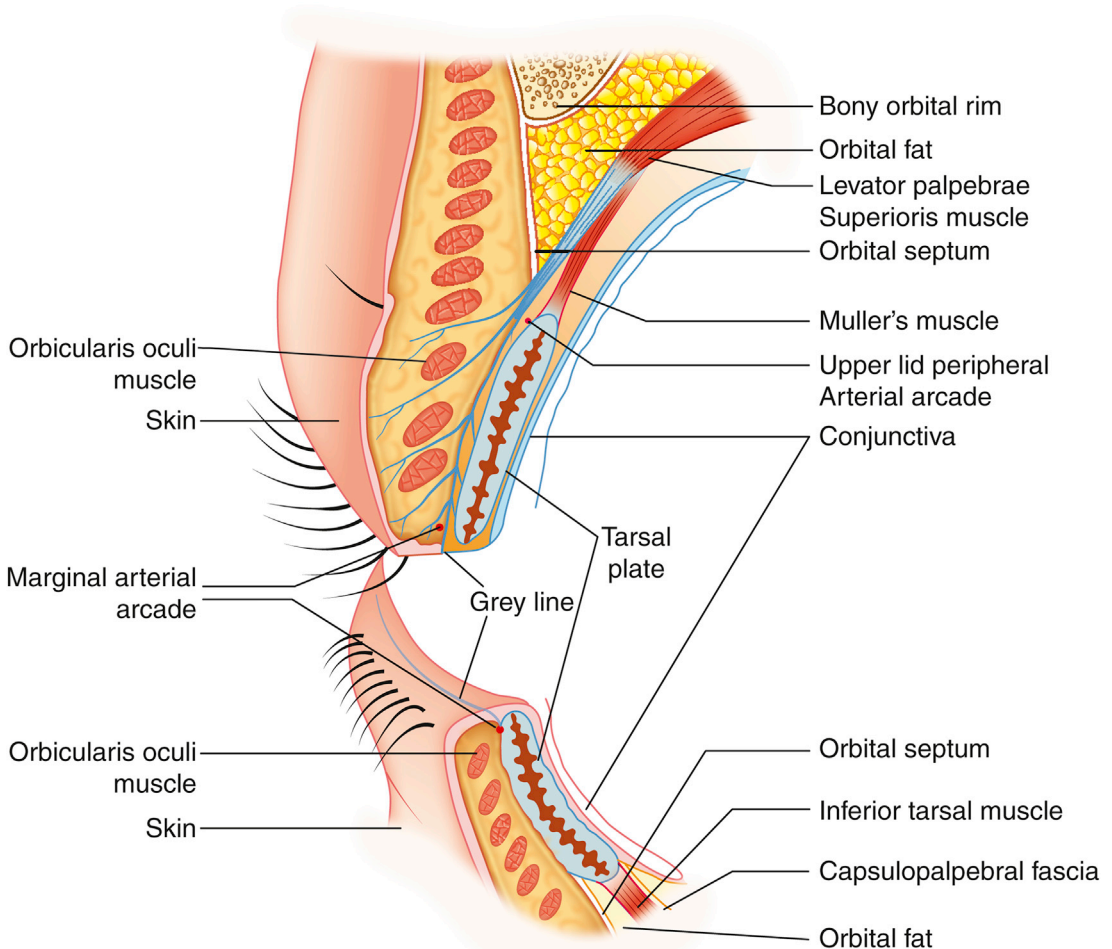


Fig. 1. Cross-sectional view of upper and lower eyelids.

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