

### PRACTICAL DERMATOLOGY

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KEYWORDS Eyelids; Orbit; Dermatologic surgery; Skin cancer **Abstract** Oncologic surgery of the eyelid and orbital region is a challenge in dermatologic surgery. This region presents difficulties and possible complications that do not exist at other sites, including ectropion, epiphora, corneal exposure, keratitis, conjunctivitis, and lagoph-thalmos. Adequate oncologic surgery associated with the best possible functional and cosmetic result requires extensive knowledge of the anatomy, innervation, and blood supply of the eyelid and anatomy of the lacrimal apparatus. We present examples of reconstructive surgical techniques that can be used after the excision of tumors of the upper or lower eyelid, with descriptions of the different flaps and grafts employed in our department in recent years. We also review the surgical techniques according to the site and size of the lesions. © 2014 Elsevier España, S.L.U. and AEDV. All rights reserved.

PALABRAS CLAVE Párpados; Órbita; Cirugía dermatológica; Carcinomas cutáneos

#### Cirugía oncológica de párpado y la región orbitaria

**Resumen** La cirugía oncológica del párpado y de la región orbitaria supone un reto en cirugía dermatológica, ya que en esta región se encuentran dificultades y posibles complicaciones que no hay en otras localizaciones, como podrían ser el ectropión, la epífora, exposición corneal, queratitis, conjuntivitis o lagoftalmos, entre otros.

Para conseguir una correcta cirugía oncológica, unida a un resultado lo más funcional y cosmético posible, es necesario el correcto conocimiento de las estructuras anatómicas de los párpados, así como su vascularización, inervación y anatomía del aparato lacrimal.

Presentamos varios ejemplos de técnicas quirúrgicas reconstructivas tras exéresis tumorales quirúrgicas, tanto en el párpado superior como en el inferior, con diversos colgajos o injertos, que se han realizado en nuestro servicio en los últimos años, y revisamos las posibles técnicas quirúrgicas según el tamaño y la localización de las lesiones.

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#### Introduction

The eyelid and the orbital region are anatomically highly complex topographic areas, and this means that they are probably among the most difficult areas for reconstruction in dermatologic surgery. This region also carries additional risks that are not encountered in other anatomic areas. The intricacies of palpebral surgery are a challenge for dermatologists and can make it difficult to perfect the techniques required in this surgical field.

The neoplastic disease that most frequently affects the evelids is basal cell carcinoma,<sup>1</sup> which typically arises on the lower eyelid.<sup>2-4</sup> Other tumors can also be found in this area, including, though not limited to, squamous cell carcinoma, sebaceous carcinoma, melanoma, Merkel cell carcinoma, angiosarcoma, various types of lymphoma, microcystic adnexal carcinoma, and malignant fibrous histiocytoma.<sup>4</sup> Furthermore, the possibility of tumor spread to deeper structures along the embryonic fusion lines of the medial canthus must also be taken into account.<sup>5</sup> The principal objective of oncologic surgery to this area consists, as always, of complete excision of the tumor lesion, whether by conventional excisional surgery or by microscope-assisted surgery. Subsequently, during reconstruction, the aim must be to preserve the maximum possible degree of palpebral function and, finally, to achieve the best possible cosmetic result. Care must be taken to avoid complications such as ectropion, corneal exposure, loss of rigidity of the palpebral margin, lagophthalmos, epiphora, or loss of tension in the upper eyelid, which can cause mechanical ptosis.<sup>6</sup>

To perform optimal palpebral surgery, it is essential to have a full knowledge of palpebral anatomy, and of the different possible anesthetic techniques. Appropriate surgical instruments should be used and basic reconstruction techniques must be understood.

#### Palpebral Anatomy

The eyelids are complex anatomic structures that act as a shield, protecting the globe and creating and maintaining

the lacrimal film.<sup>6,7</sup> Each eyelid measures approximately 30 mm in width and 8 to 10 mm in height.<sup>5</sup> The palpebral fissure, which is the space between the open evelids, varies from 7 to 10 mm in men and 8 to 12 mm in women.<sup>5</sup> The skin of the eyelids is very fine, with a thickness that varies between 700 and 800  $\mu$ m.<sup>5</sup> There is virtually no dermis, and the subcutaneous cellular tissue is very loose and is easily distended, which means that hematomas and edema are easy to cause even in minor interventions. In each evelid, the orbicularis oculi muscle is found deep to the subcutaneous cellular tissue. This muscle is a protractor muscle, meaning that its main function is to close the eyelids; this facilitates lacrimal drainage. Deep to the orbicularis oculi muscle are the superior and inferior tarsal plates, which are 2 fibrocartilaginous plates with an approximate thickness of 0.8 to 1 mm. These plates are attached respectively to the superior and inferior orbital margins by the orbital septum, a fibrous layer that separates the eyelids from the contents of the orbit. The medial and lateral extremes of the tarsal plates are attached to the orbital rim by the medial and lateral canthal ligaments. The palpebral conjunctiva is tightly adherent to the tarsal plates and is continuous with the marginal conjunctiva, and subsequently, on reaching the fornix, is reflected over the globe, where it continues to the margin of the cornea, forming the bulbar conjunctiva (Fig. 1).

In some people a fine gray line can be distinguished at the free border of the eyelid. This is the line of separation between the anterior and posterior lamellae of the eyelid. The anterior lamella is formed of skin and the orbicularis oculi muscle, and the posterior lamella by the tarsal plate, the retractor muscles, and the conjunctiva. The eyelashes are found in 2 or 3 irregular rows in front of the gray line, with 100 to 150 eyelashes in the upper eyelid and approximately half that number in the lower lid. The openings of the Meibomian glands are present behind the gray line.

The limits of the upper eyelid are the inferior border of the eyebrow superiorly and the free palpebral margin inferiorly. The superior palpebral fold divides the eyelid into pretarsal (inferior) and preseptal (superior) portions. The



Figure 1 Eyelid anatomy. Images from the Atlas of aesthetic eyelid and periocular surgery. Spinelli HM. Elsevier. Madrid, 2006.

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