

## Caso clínico

# Medial canthal and eyelid reconstruction using the split paramedian forehead flap: a case report

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### A B S T R A C T

Medial eyelid/canthal defects are difficult to reconstruct. This region has both functional and cosmetic importance in facial esthetics. The lacrimal apparatus drains in the medial canthal area and both eyelids protect the eye from dryness and exposure, so damage to these organs may have severe ophthalmic consequences. Furthermore, the medial canthal area owns a complex concave surface difficult to replace satisfactorily. Poor reconstruction techniques may have undesirable cosmetic outcomes, which may be easily noticeable.

The paramedian forehead flap is a mainly used in nasal reconstruction. It has a reliable vascularity and allows a wide arc of rotation. Plus, trimming and recontouring of the flap may be done to offer the best results. Several modifications of the flap have been purposed in the literature. The paramedian forehead flap may be a good choice for medial canthal/eyelid reconstruction as well, given the characteristics aforementioned. We present a case of an 88 year old woman who presented with a medial eyelid/canthal defect following resection of a squamous cell carcinoma. Reconstruction with a contralateral split paramedian forehead flap was achieved.

We conclude that the paramedian forehead flap may represent a safe and simple alternative in medial eyelid/canthal reconstruction, preserving eyelid function and offering acceptable cosmetic results with minor donor site morbidity.

## Reconstrucción del canto interno con un colgajo frontal: presentación de un caso

### R E S U M E N

Los defectos que comprometen el canto interno son difíciles de reconstruir. Esta región tiene importancia funcional y estética en la armonía facial. El aparato lagrimal dre-

na en el área del canto interno y ambos párpados protegen el ojo de la sequedad y la exposición, de tal forma que el dañar estas estructuras puede tener consecuencias oftalmológicas severas. Además, el canto medial es un área con una superficie cóncava y compleja, difícil de reconstruir de manera satisfactoria. Es importante realizar una buena técnica de reconstrucción para evitar resultados cosméticos indeseables. El colgajo frontal se utiliza principalmente en la reconstrucción nasal. Tiene una buena vascularización y permite un amplio arco de rotación. Además, se puede remodelar y adelgazar de manera que ofrezca mejores resultados estéticos. Se han descrito diferentes modificaciones en la literatura. El colgajo frontal puede ser una buena opción para la reconstrucción del área del canto medial dadas las características mencionadas previamente. Presentamos el caso de una paciente de 88 años de edad que presentó un defecto del área del canto medial tras la resección de un carcinoma escamoso. Se realizó la reconstrucción con un colgajo frontal contralateral.

Concluimos que el colgajo frontal puede ser una opción segura y sencilla como alternativa en la reconstrucción del canto medial. Permite preservar la función del párpado y ofrece resultados estéticos aceptables con mínima morbilidad de la zona donante.

## INTRODUCTION

The medial eyelid/canthal area comprises an important anatomical region given its esthetical relevance and its intimate relationship with the eye and lacrimal apparatus. One major cause of medial canthal/eyelid defects are malignant skin cancers. The main goal in the reconstruction of any eyelid/canthal defect is to provide a good esthetic and functional outcome, ensuring integrity of the lacrimal apparatus and corneal protection.

A wide variety of local flaps can be used, as well as distant flaps in case of larger defects. Skin grafting is not advisable given the poor cosmetic outcomes.

In this article we describe the case of an 88 years old woman who suffered from a squamous cell carcinoma of the medial canthal region which was excised and repair using a contralateral split paramedian forehead flap.

## CASE REPORT

We report the case of an 88 years old woman who presented with a medial canthal lesion affecting both superior and inferior medial eyelids of her left eye (Figure 1). Patient's



Figure 1. Pre-operative photographs. A medial canthal lesion affecting both upper and lower medial eyelids.

informed consent was obtained. Incisional biopsy confirmed a squamous cell carcinoma moderately differentiated.

Preoperative CT showed a poorly defined lesion located in the medial canthal area of the left eye, in intimate proximity with the left nasal bone and periorbital fat (Figure 2). No pathological nodes were found.

A conservative approach was decided in order to preserve her left eye, given the diminished visual acuity in her right eye due to a previous ophthalmic artery embolism. Surgical resection was performed including the left nasal bone, the medial canthal tendon, the lacrimal punctum and the upper portion of the lacrimal sac and both upper and lower eyelids in their most medial region including the conjunctiva. A right supratrochlear artery-based split paramedian forehead flap was designed, providing two axially perfused flaps for simultaneous repair of both upper and lower eyelids (Figure 3). The flap was elevated, rotated, passed over the nasal dorsum and then trimmed to fit the defect. A canthopexy with wires was performed, fixed to the contralateral nasal bone. Reconstruction of the conjunctiva was not performed. A silicone tube was placed in the left nasolacrimal duct for

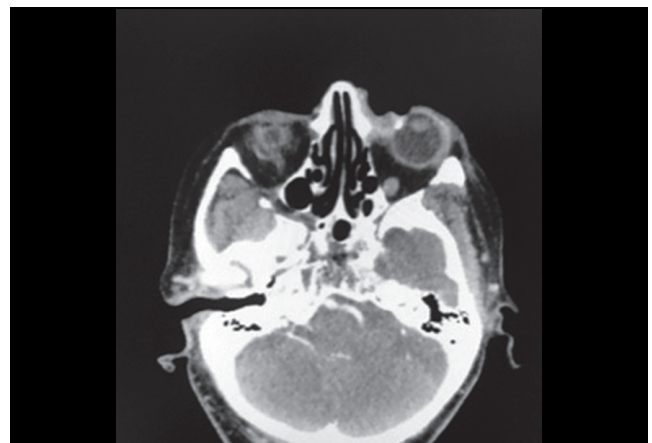


Figure 2. Pre-operative CT images.

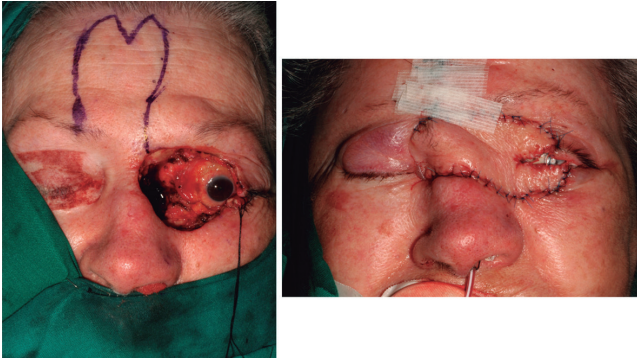


Figure 3. Surgical resection performed, contralateral split paramedian forehead flap designed.

three weeks to maintain drainage. The donor site was closed primarily.

Histopathological analysis confirmed the previous biopsy: infiltrating squamous cell carcinoma with a maximum thickness of 10 mm. Perineural invasion was found. The lachrymal glands were found free of disease.

A follow up photograph is shown (Figure 4). Adjuvant radiotherapy was considered. Satisfactory esthetic outcomes were achieved. No revision surgery was considered. The patient remained free of disease during the 2 year follow-up.

## DISCUSSION

Skin cancer is a major cause of medial eyelid/canthal region defects, being basal cell carcinoma the most frequent type (80%)<sup>1</sup> followed by squamous cell carcinoma.



Figure 4. Post-operative photograph.

Reconstruction of medial eyelid/canthal defects is technically challenging because of the remarkable important function and esthetics of the lids<sup>2</sup>. Difficulties arise from the necessity to restore different type of tissues at the same time: skin, tarsus, muscle, conjunctiva, etc.<sup>3</sup>. Sometimes a canthopexy may be needed.

Defects larger than one-third of the length of the eyelid require the use of flaps<sup>4</sup>. Microvascular flaps can be used when larger defects are found. However, local flaps are to be the workhorse in this type of defects.

Paramedian forehead flaps and their following modifications have been widely used to repair nasal defects, as well as medial canthal areas. It offers a large portion of donor tissue for large, complex defects<sup>5</sup> of the medial eyelid/canthal area. It is an axial patterned flap based on the supratrochlear artery<sup>6</sup>. Blood supply is so reliable that a narrow pedicle can nourish a relatively large flap<sup>7</sup>. The main disadvantage is the thickness of the flap, so that debulking and thinning may be necessary, which implies a risk of jeopardizing the vascularity and subsequent flap failure.

One modification of the paramedian forehead flap is the split paramedian forehead flap, presented in this article. Its main advantage is its suitability to repair both eyelids simultaneously.

We want to highlight the importance of performing a canthopexy to achieve optimal esthetic results, enhancing the medial canthal contour and reducing medial canthal webbing.

In conclusion, the paramedian forehead flap is a versatile and reliable that should be considered when a defect in the medial eyelid/canthal area is found. Its ease to harvest and minimum donor-site morbidity make the paramedian forehead flap a simple yet satisfactory flap in medial canthal repair.

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