

Linear basal cell carcinoma of the lower eyelid: Reconstruction with a musculocutaneous transposition flap



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Key words: eyelid surgery; linear basal cell carcinoma; musculocutaneous flap.

INTRODUCTION

Linear basal cell carcinoma (LBCC) is a rare morphologic variant of basal cell carcinoma. It is defined as a basal cell carcinoma that grows following a linear pattern, with a longitudinal diameter longer than its width. This entity was first reported by Lewis in 1985,¹ and since then approximately 50 new cases have been described. LBCC characteristically spreads following relaxed skin tension lines, and the most frequent site is the lower eyelid. Currently, some controversy exists regarding the most appropriate surgical approach and reconstructive technique for LBCC. For this reason, we present 2 cases recently managed in our center.

CASE REPORTS

The first patient was a 52-year-old woman who presented with a linear lesion of 2.5 × 0.3 cm located 1 cm from the free border of left lower eyelid. She had first noticed the lesion 3 years previously. The clinical diagnosis was of LBCC, and a punch biopsy confirmed this suspicion. Mohs micrographic surgery using paraffin sections was performed. The defect was reconstructed with a musculocutaneous transposition flap from the upper eyelid (Fig 1).

The second patient was a 60-year-old woman that consulted for an erythematous linear lesion of 3 × 0.5 cm located on the right lower eyelid, immediately below the lower lash line. As in the previous patient, Mohs micrographic surgery using paraffin sections and reconstruction with musculocutaneous transposition flap from the upper eyelid were performed (Fig 2).

Abbreviation used:

LBCC: linear basal cell carcinoma

DISCUSSION

LBCC is objectively described as a basal cell carcinoma that extends in one direction, with a length-to-width ratio of approximately 3:1.² Periocular skin, especially the lower eyelid, is the most common location, followed by the neck. However, cases on the trunk, inguinal crease, lower face, and preauricular region have been reported.^{2,3} Regarding its histologic features, the nodular pattern is the most prevalent, although about 32% of cases are described as belonging to the infiltrative and morpheaform subtypes.⁴ Therefore, this entity could be considered a potentially aggressive variant of basal cell carcinoma.

Trauma and Koebner phenomenon are suggested as etiologic factors, and the association of LBCC with previous surgical procedures or radiotherapy has been reported.⁴ Nevertheless, in most patients, the trigger that explains these lesions remains undetermined.

As for the mechanism that explains the linearity of this tumor, some investigators suggest that it could be caused by stromal interactions with Langer lines or growth along embryonic cleavage planes,⁵ whereas others proposed that reactive dermal fibrosis limits the lateral spread of this cancer.⁶

Currently, some controversy exists regarding the most appropriate surgical approach for LBCC. Several authors propose Mohs micrographic surgery as the treatment of choice, because of the

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Fig 1. **A**, LBCC involving half the lower eyelid. **B** and **C**, Final defect after exeresis of the lesion with slow Mohs micrographic surgery. Drawing of a musculocutaneous transposition flap from upper eyelid. The healthy area of skin that extends from the lateral part of the lower eyelid to the external edge is included in the area to be removed. **D** and **E**, Result after removing the healthy skin's bridge and displacing the flap to the new site. **F**, Immediate result after suture with 6-0 silk. The donor zone closes directly. **G**, Appearance after 48 hours with a discrete hematoma. **H**, Final appearance 6 months later.



Fig 2. **A**, LBCC located on the lower eyelid immediately below the eyelash line. **B**, Final defect after removal with conventional Mohs micrographic surgery. **C**, Design of the reconstruction using a musculocutaneous transposition flap from the upper eyelid drawn along the eyelid with a width of 1 cm. Sculpted and transposed flap, with a previous exeresis of the bridge of healthy skin next to the turning point of the tissue. **D**, Immediate result after suture with 6-0 silk. The donor site is directly closed by approximation. **E**, Appearance after 48 hours. **F**, Appearance after 6 months with an excellent aesthetic result and no apparent scarring.

increased risk of subclinical extension and the potentially aggressive behavior of this tumor.^{2,5} In our cases, both LBCCs were located in the periocular region, which is considered a high-risk area and where Mohs micrographic surgery is particularly indicated.

Musculocutaneous transposition flap from the upper eyelid was first reported by Tripier⁷ and includes skin and superficial fibers from the orbicularis oculi muscle of the upper eyelid to reconstruct a defect of the anterior lamella in the lower eyelid. The exact measurements of the flap depend on the size of the surgical defect. The length and the width of the flap must be the same as the length and the width of the surgical defect. The flap should be designed to extend 10 to 15 mm beyond the free border of the upper eyelid. To favor the transposition and guarantee a better functional and cosmetic result, the excised area of the lower eyelid must be extended to the lateral canthus. If the tumor is located more medially, the bridge of healthy skin up to the lateral cantus must be sacrificed in the design of the flap, with the aim of avoiding 2-stage surgery. With this flap designed with a single pedicle, it is possible to reconstruct the whole lower eyelid and reduce the risk of ectropion. As our cases demonstrate, the Tripier flap allows large and wide linear defects located on the lower eyelid next to the gray line or proximal to the lash line to be reconstructed. Despite a narrow pedicle, this flap contains orbicularis oculi muscle fibers and therefore provides some bulk and increased vascularity, which decreases the risk of necrosis.⁸ The list of adverse events that may occur

include swelling, ecchymosis of the thin tissues, and hematoma.⁸

LBCC is a rare morphologic variant underreported to date. The periocular skin, especially the lower eyelid, is the most frequent site. Currently, no unanimity exists regarding which is the most appropriate surgical approach. If the final surgical defect is narrow, direct closure can be an appropriate alternative. However, we propose Mohs micrographic surgery and a musculocutaneous transposition flap from the upper eyelid (Tripier flap) as the surgical techniques of choice for LBCC that generates large and wide linear defects in the lower eyelid.

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