

Cutler Beard Flap and Upper Palpebral Loss of Substance: Case Report and Literature Review

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Abstract

Case Report

Basal cell carcinoma, accounting for over 80% of malignant eyelid tumors, often localized in the periocular region. Although generally less aggressive, this type of cancer can infiltrate surrounding structures, making its management and tissue reconstruction crucial. We report the case of a 73-year-old patient, with no significant pathological history, admitted for a nodular lesion on the left upper eyelid that was in favor of basal cell carcinoma. The patient underwent surgical excision, followed by reconstruction using a Cutler-Beard palpebral-jugal advancement flap. Reconstruction techniques vary according to the characteristics of the defect, and although the Cutler-Beard flap is a versatile option for large defects, other alternatives such as switch and bridge flaps have drawbacks. This case highlights the importance of adequate reconstruction of the upper eyelid, which plays a crucial role in aesthetics and ocular protection.

Keywords: Basal cell carcinoma, Eyelid, Reconstruction, Cutler-Beard flap.

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INTRODUCTION

Basal cell carcinoma (BCC) is a malignant skin neoplasia capable of causing extensive local tissue destruction. This type of carcinoma mainly affects the face, particularly the eyelids. The reference treatment is essentially surgical, aiming for complete carcinological excision of the tumor, followed by palpebral reconstruction to restore palpebral function and achieve a satisfactory aesthetic result.

This article presents the case of a patient who underwent palpebral reconstruction using a Cutler-Beard flap after excision of basal cell carcinoma of the upper eyelid.

CASE REPORT

We report the case of a 73-year-old patient, with no particular pathological history, admitted for consultation with a nodular lesion of the left upper eyelid, evolving for 2 years with a progressive increase in volume. No associated oculomotor signs were present, notably no decrease in visual acuity, limitation of eye movements or sensitivity disorders. The disease was evolving in a context of apyrexia and preservation of general condition.

Clinical Examination: On examination, the nodular lesion of the left upper eyelid measured 1.5 cm in long axis, occupying the middle third of the eyelid. It was bordered by pearly collars, involving the entire thickness of the eyelid, and infiltrated the tarsal conjunctiva. Ophthalmological examination revealed no abnormalities. Examination of the lymph nodes was normal, with no regional adenopathy, particularly in the pretracheal and subangulomaxillary areas.

Biopsy and Imaging: A biopsy of the lesion revealed a nodular basal cell carcinoma ulcerated on the surface and infiltrating the dermis. A facial computed tomography (CT) scan with contrast injection revealed a nodular thickening of the left upper eyelid, measuring 4.4 x 11.8 mm, well limited, isodense, tissue dense and homogeneously enhancing after injection, with no evidence of locoregional infiltration.

Surgery: The patient underwent surgical excision of the tumor with a 0.5 cm margin, resulting in subtotal amputation of the full thickness of the upper eyelid (Figure 1).

The second stage of the operation involved immediate reconstruction using a Cutler-Beard cheek advancement flap. After tracing the useful pallet, a full-

thickness rectangular incision was made in the lower eyelid, with a lower base, 2 mm from the tarsal margin. This incision was followed by sub-tarsal tunneling, then suturing was performed at the recipient site in three planes (conjunctival, tarsal and musculocutaneous). The flap was left in place for 6 weeks (Figure 2).

Pathological analysis: The surgical specimen, sent to the pathology laboratory, revealed an infiltrative carcinomatous proliferation, ulcerated on the surface,

organized into lobules and clusters of variable size. The tumour cells had a basaloid appearance, confirming the initial diagnosis of ulcerated nodular basal cell carcinoma.

Post-operative follow-up: The patient was called for flap weaning at 6 weeks. Suture removal was performed at D7, and regular follow-up was instituted at 1 month, 3 months and 6 months (Figures 3 and 4).



Figure 1:
A: Left upper palpebral nodular basal cell carcinoma.
B: Full-thickness excision of the eyelid
C: transfixing loss of substance with subtotal amputation of the upper eyelid

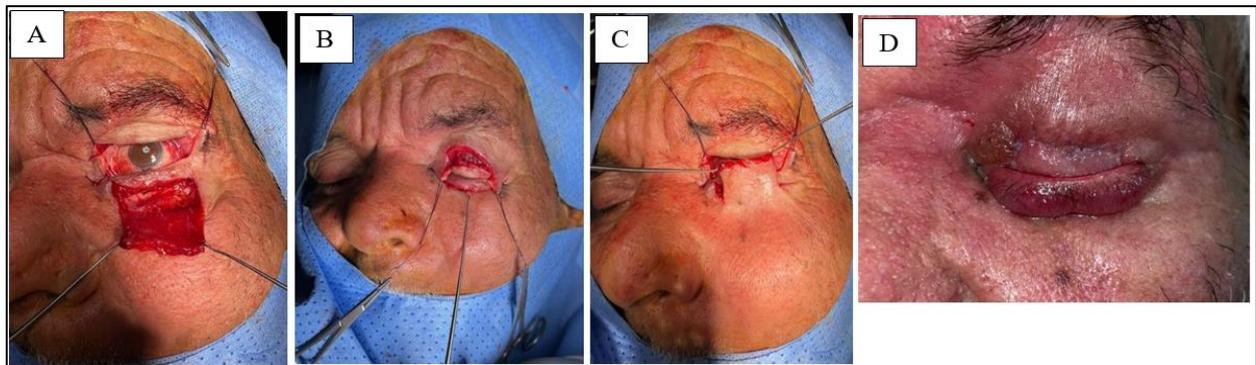


Figure 2: Cutler BEARD flap
A: Tracing with lifting of the useful pallet
B: Tunneling with suture of the conjunctival plane
C: Lift and suture of the musculocutaneous plane
D: Viable flap at d3 post-op



Figure 3: flap weaning
A and B: flap appearance after 6 weeks
C: individualization of the 2 anterior and posterior flaps
D: local condition at d3 postweaning



Figure 4: Ad integral appearance of the upper eyelid with normal palpebral opening. (3 months post-op)

DISCUSSION

Malignant tumors of the face are frequently observed in the periocular area, particularly in the lower eyelid, medial canthus and upper eyelid, respectively [1]. Moreover, more than 80% of malignant eyelid tumors are basal cell carcinomas [2].

The upper eyelid is a unique anatomical entity, with structures that have no equivalent elsewhere in the human body, with the exception of its homolateral and contralateral counterparts. It plays a fundamental role in facial aesthetics and, above all, in protecting the eyeball. Adequate reconstruction is therefore imperative, first and foremost for functional reasons, but also for aesthetic and social reasons.

Full-thickness reconstruction of the upper eyelid is a complex procedure requiring specific techniques. Due to the rarity of this situation, few studies have focused on it, and the number of patients identified is often limited [3].

Reconstruction techniques for upper eyelid defects vary according to the location, size and depth of the defect, as well as the individual characteristics of the patient. The tissues used for reconstruction must include well-vascularized musculocutaneous, tarsoligamentous and mucosal structures. These tissues are usually harvested from adjacent structures [4].

Tumoral defects affecting less than 25% of the upper eyelid can be corrected by primary suturing after transformation into a pentagonal shape. However, full-thickness defects affecting 25% to 50% of the eyelid require lateral and medial canthotomy, as well as cantholysis. For defects affecting more than 50% of the upper eyelid, Tenzel semicircular flaps can be used, provided that at least 2 mm of tarsal tissue remains both laterally and medially.

Cutler-Beard flaps can be used to repair defects affecting more than 50% of the upper eyelid. The Cutler-Beard procedure is a two-stage reconstruction technique used in cases where the fascia of the levator muscle of the eyelid is intact. Its main advantage lies in its versatility, being applicable in almost all cases of major defects of the upper eyelid. However, this technique has certain potential complications, including entropion of the upper eyelid, irregularity of the palpebral margin, loss of eyelashes, scar retraction of the lower eyelid, as well as necrosis of the pont flap [5, 6].

To minimize the risk of entropion and palpebral retraction associated with the Cutler-Beard flap, the use of autogenous cartilage tissue harvested from the nose or ear may be considered, replacing the tarsal tissue between the skin and mucosa to recreate a functional eyelid [7, 8].

Switch and bridge flaps, prepared from the lower eyelid, are also alternatives to the Cutler-Beard flap [4, 9]. However, these techniques have drawbacks, such as extensive resections of the lower eyelid and prolonged exposure of the cornea to air, which can lead to ocular complications.

In addition, the Frick flap and myocutaneous flaps can also be used to reconstruct the anterior and posterior lamellae, in combination with different grafts and flaps. However, a major drawback of these techniques is the disruption of eyelid dynamics, particularly in cases of large defects. For this reason, the Cutler-Beard flap remains an attractive option for achieving satisfactory anatomical results in reconstructions of extensive defects of the upper eyelid.

CONCLUSION

Malignant tumors, particularly basal cell carcinomas, frequently affect the periocular region, especially the upper eyelid. Reconstruction is crucial to preserve aesthetic and protective functions. Cutler-Beard

flaps, indicated for major defects, offer an effective solution, although complications such as entropion can occur. Alternatives such as switch flaps also have drawbacks, such as extensive resections. Thus, the Cutler-Beard flap remains a preferred option for achieving satisfactory anatomical results in upper eyelid reconstructions, guaranteeing functionality and aesthetics.

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