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# The McGregor flap for lower eyelid defect reconstruction

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## **The case**

A 58-year-old Caucasian male presented with a 1.6×1 cm nodular lesion on the right lower eyelid, clinically diagnosed as basal cell carcinoma (Figure 1). Surgical excision was planned. How would you remove this lesion?

## **Our choice**

A McGregor cheek flap was chosen for reconstruction, with an incision extending from the lateral canthus to the ear in a gentle, upward arc. A lateral Z-plasty was used to reduce dog-ear formation in the superior edge of the wound and help conceal the scar by breaking lines (Figure 2).

The V-shaped eyelid defect was marked. Surgery began with a lateral incision along the lower eyelid's curve, extending approximately 3 cm from the outer canthus to the anterior preauricular hairline. This ensured adequate vertical height of the reconstructed eyelid segment and minimized ectropion risk.

The flap was undermined to the orbicularis oculi and elevated, exposing the lateral canthal tendon. Its lower limb was divided (cantholysis) to allow greater flap mobility.

Medial flap transfer created a triangular lateral defect, closed with Z-plasty. The central limb matched the defect width; ascending and descending limbs were equal, having the same length as the central limb and angled at 60°. The detachment of the flap followed the subcutaneous dissection plane (Figure 3). Postoperatively, only mild lid edema occurred, resolving in seven days.

## **Comment**

Basal cell carcinoma is the most common non-melanoma skin cancer and, despite its slow growth, may cause significant damage to adjacent tissues if not treated promptly.

Small eyelid defects (<25%) can be closed directly, with or without lateral canthotomy and cantholysis. Medium defects (25-50%) may require local tarsoconjunctival advancement flaps with myocutaneous flaps, free tarsomarginal grafts, myocutaneous flaps, or Mustardé lower lid sharing flaps. Large defects (>50%) are treated using a Hughes flap with a full-thickness skin graft or combined techniques.<sup>1</sup>

Full-thickness lower lid defects can be reconstructed using autografts (tarsoconjunctival, tarsomarginal, palatal mucoperiosteal, nasal chondromucosal, auricular cartilage) or flaps (local tarsoconjunctival, Hughes, reversed Hughes, Cutler-Beard, Tenzel, Mustardé).<sup>2,3</sup>

In our case, secondary intention healing and full-thickness grafts were less preferred due to complete tarsal resection. Secondary intention healing might have left a noticeable, depressed scar. Alternative reconstructive options could be the Hughes procedure (tarsoconjunctival advancement flap), which

is, however, a more complex and dual-stage technique, and the Tenzel semicircular flap, which is suitable for moderate full-thickness defects typically up to one-third to one-half of the eyelid.

The McGregor flap can be considered as an extension of the Tenzel flap, incorporating a Z-plasty at the lateral end to recruit more tissue from the temporal area, allowing the repair of larger defects, involving up to two-thirds of the eyelid.<sup>4,5</sup>

Z-plasty offers the advantage of reducing tension on the outer corner of the eye by lengthening the scar while also allowing it to be hidden by distributing the incision lines over multiple vectors. It is a simple one-stage technique, which allows for repairing large full-thickness defects of the lower eyelid with optimal functional and aesthetic outcomes, although it requires detailed anatomical knowledge and technical expertise.

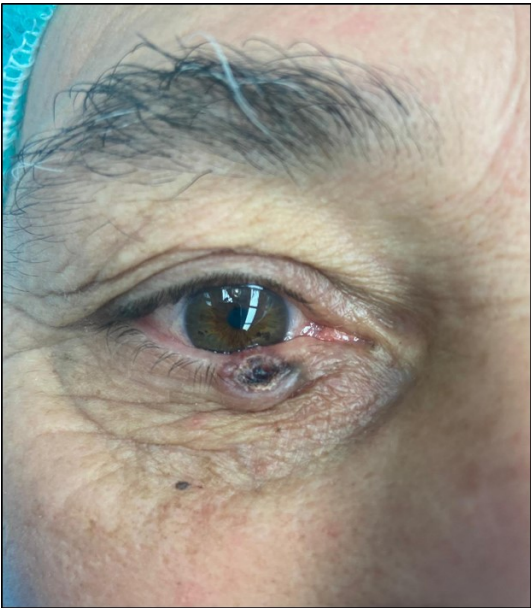
### **The outcome**

The final defect extended from the central part of the lower lid in a triangular shape down to the zygomatic bone, with resection of the full thickness of the eyelid, including the tarsal part (Figure 4).

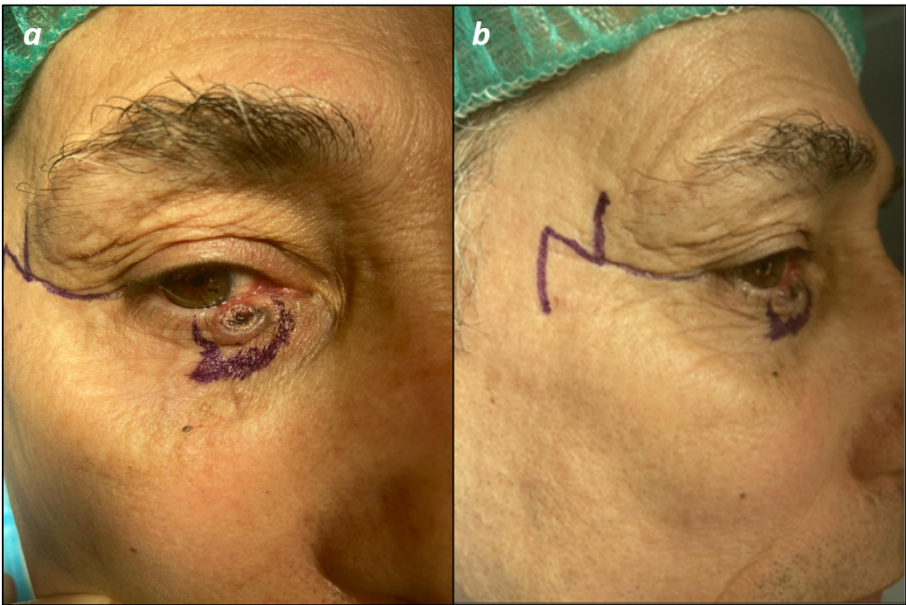
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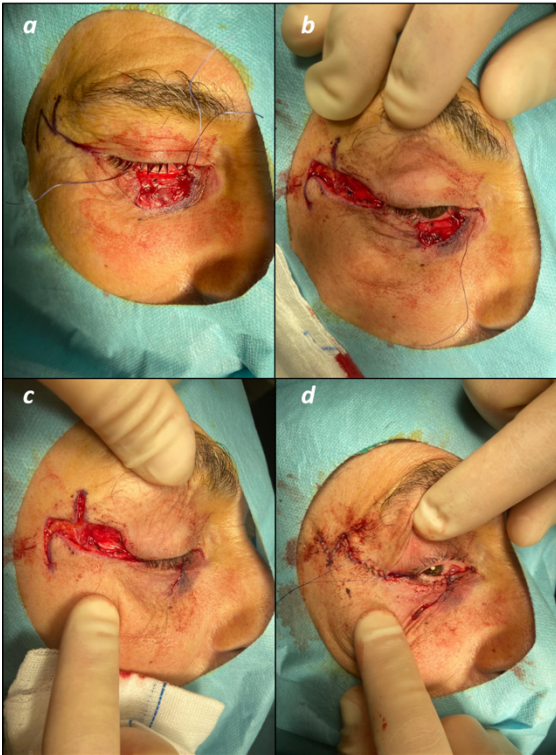
**Figure 1.** Basal cell carcinoma of the right lower eyelid.



**Figure 2.** McGregor cheek flap design, frontal (a) and lateral (b) views.



**Figure 3.** Intraoperative steps of the McGregor flap procedure.



**Figure 4.** Frontal and lateral view of the final suture (a, b) and at 6-month follow-up, showing excellent functional and cosmetic results (c, d).

