

Medial Pedicled Orbicularis Oculi Flap

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Resurfacing of the medial canthal region and bony nasal dorsum is a problem frequently encountered after tumor excisions. Traditional flaps used in this region from the glabellar and frontal areas are bulky, and donor site scar may be unsightly. A medial pedicled orbicularis oculi myocutaneous flap is an alternative. A total of 12 flaps have been used to resurface the defects secondary to basal cell carcinoma excisions, with a mean follow-up of 10 months. All flaps survived. The flap elevation is easy and fast, and the flap can be extended to the contralateral site when needed. The skin match is good and donor morbidity is minimal.

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Resurfacing of the medial canthal region and bony nasal dorsum is a problem frequently encountered after tumor excisions. Simple grafting is not possible if periosteum is excised together with the tumor. The local flaps traditionally used to resurface this area include glabellar or frontal skin, which are quite thick when compared with the original skin.¹ Furthermore, frequent pin cushioning adds to the cosmetic disadvantages of these flaps. Eyelid skin is an alternative because it provides like-tissue and better skin match for the medial canthal region and the nasal dorsum.^{2,3}

The orbicularis oculi muscle and overlying skin have been used as an island flap for lower lid⁴ and periorbital reconstruction.² We have used this flap with some modifications, which allowed us to elongate its arc of rotation, thus expanding its indications. We called this flap a medial pedicled orbicularis oculi (MPOO) flap in our former publication. The arterial and the motor nerve supply of this flap have been well documented.⁵

The MPOO flap has been used in 12 patients for

medial canthal (n = 5) and nasal dorsum (n = 7) resurfacing. A routine blepharoplasty incision is performed, and the medial portion of this skin island is deepithelialized. The size of this deepithelialized area differs according to the length of the tunnel. The flap is elevated from the lateral to the medial including the orbicularis oculi muscle as a skin–muscle flap based on 0.5- to 1-cm wide orbicularis oculi muscle (Fig 1). The blood supply of this flap from peripheral arcade of the upper eyelid (medial palpebral vessels) as was described Porfiris et al.⁴ The skin island is transferred to the recipient bed through this tunnel and further flap adjustment to the recipient bed is performed. Donor site of the flap is closed primarily in a blepharoplasty fashion (Figs 2 and 3).

Temporary venous congestion, which lasted 3 to 5 days, was seen in all of the flaps. No partial or total flap losses were observed. Mean follow-up was 10 months (minimum, 8 months; maximum, 13 months).

Patient Reports

Patient 1

A 66-year-old woman with an enlarging skin lesion on the medial side of the left eye underwent operation with local anesthesia. The lesion was excised with the safe margins, including the periosteum. The size of the defect was 1.5 × 1.5 cm. An MPOO myocutaneous flap from the left upper lid was elevated and passed through a subcutaneous tunnel and was sutured to the defect. The wound healing was excellent, with minimal donor morbidity and good contour and color match (Fig 4).

Patient 2

A 65-year-old man reported a nodular lesion on the dorsum of his nose lasting for more than 5 years. The lesion was excised and the resulting 1.5- × 2-cm defect was covered with a right MPOO flap using local anesthesia. An additional

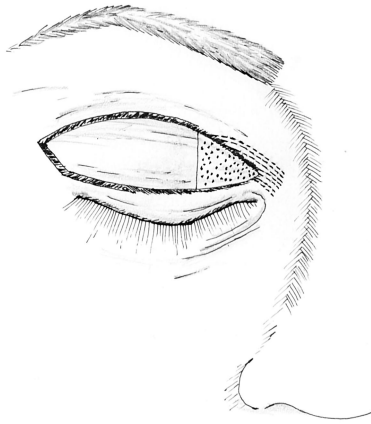


Fig 1. The design of the flap. Dotted area indicates deepithelialized portion of the flap.

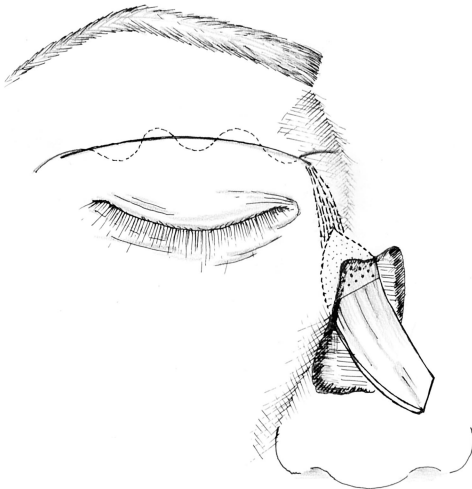


Fig 2. Flap transferred to the dorsal nasal defect.

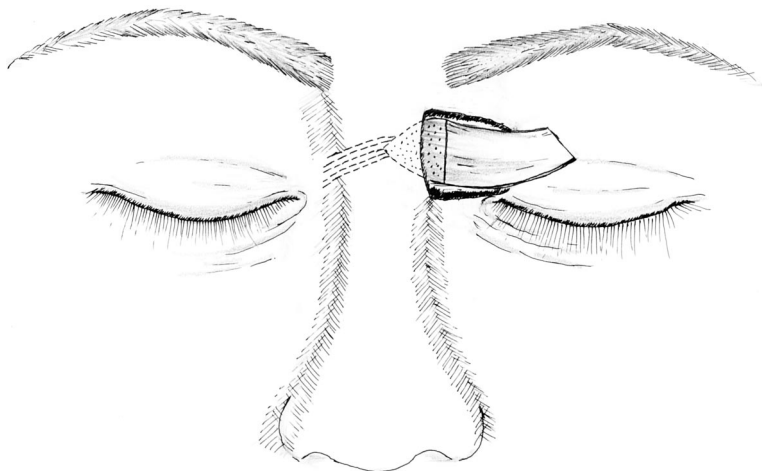


Fig 3. Flap transferred to the contralateral medial canthal defect.

left upper blepharoplasty was performed for symmetry, also. The healing was uneventful (Fig 5).

Patient 3

A 72-year-old man was admitted for a vegetative lesion over the left lateral nasal dorsum. A MPOO flap of 3×1.5 cm from the ipsilateral side was transferred together with a V-Y advancement flap to close the defect (Fig 6).

Patient 4

A 48-year-old woman with a basal cell carcinoma of 1.5 cm in diameter on her left medial canthal area was reconstructed with a contralateral MPOO flap in the same manner as for the other patients (Fig 7).

Patient 5

A 69-year-old man with a basal cell carcinoma on the right nasal dorsum underwent reconstruction with an ipsilateral MPOO flap (Fig 8).

Discussion

Although skin grafting is the best choice in resurfacing the periorbital area because of its simplicity and good cosmetic results, an intact periosteum is required. The medial canthal region is a frequent site of recurring skin cancers. Therefore, an adequate excision margin usually including the periosteum requires flap coverage. The classical median forehead flap and the glabellar flap are generally recommended in this region.¹ Although the median forehead flap can cover large defects in the

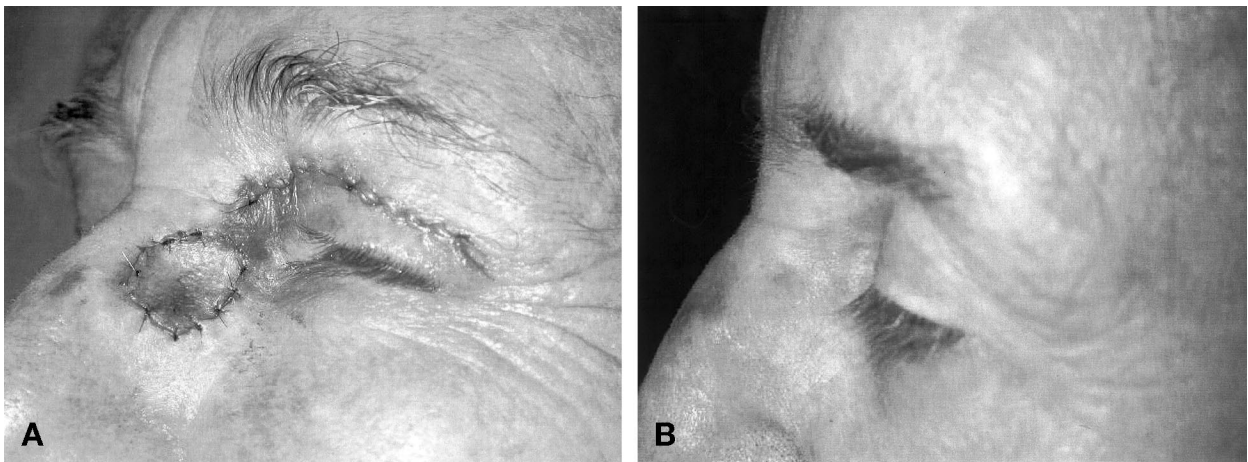


Fig 4. (A) Early and (B) late postoperative views.



Fig 5. (A) Early and (B) late postoperative views.



Fig 6. (A) Preoperative view of the defect and medial pedicled orbicularis oculi (MPOO) flap incised. (B) Late postoperative view of the MPOO flap and nasolabial V-Y advancement flap.

medial canthal region and nasal dorsum, its excessive thickness and the remarkable donor site morbidity are the drawbacks of its use. The glabellar flap is thinner when compared with

the forehead flap, but it is still very thick for the medial canthal area and the nasal dorsum. Furthermore, pin cushioning is another problem frequently seen in these flaps.

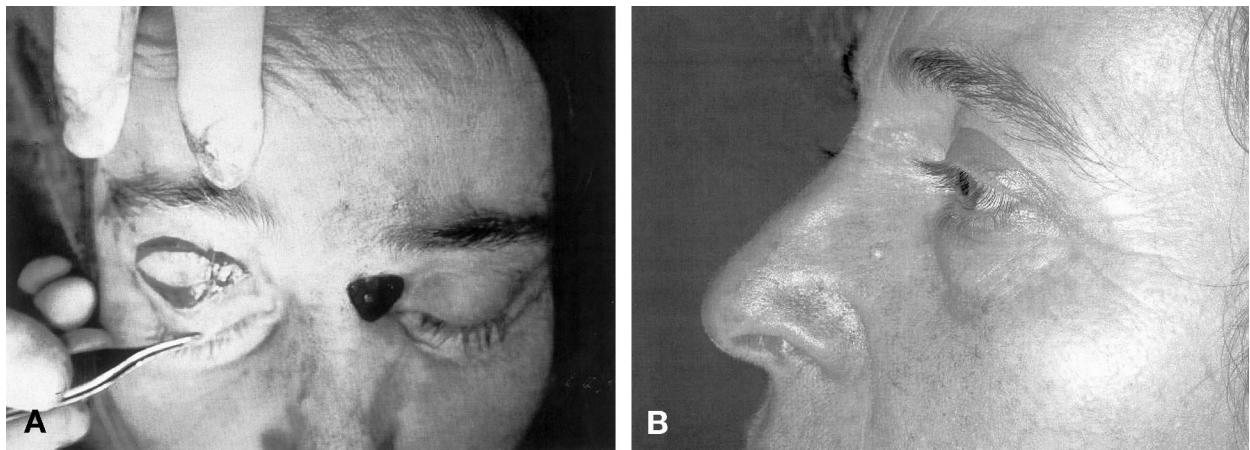


Fig 7. (A) Preoperative view of the defect and the contralateral medial pedicled orbicularis oculi flap. (B) Late postoperative view.

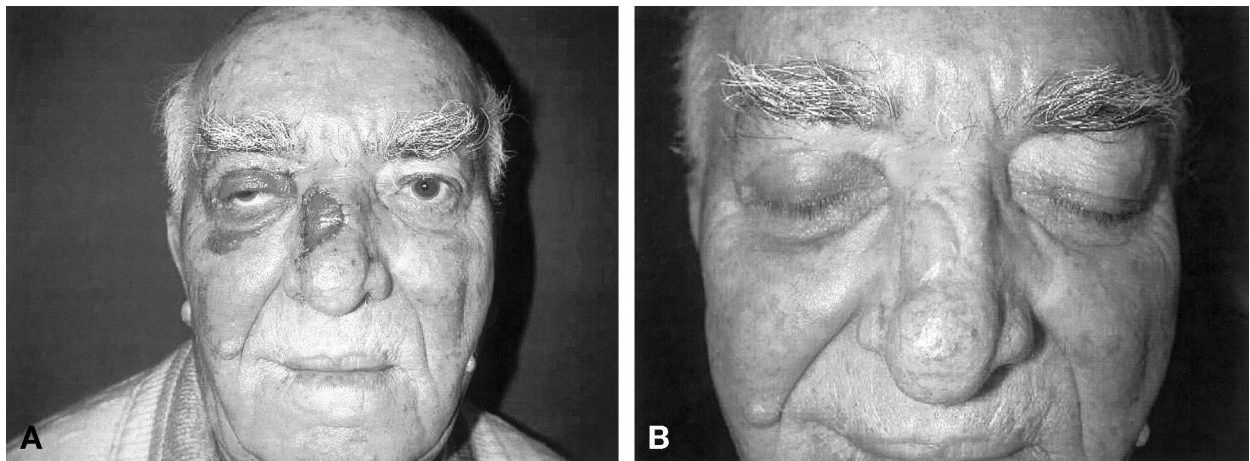


Fig 8. (A) Early and (B) late postoperative views.

The principles of MPOO myocutaneous flap are similar to the medial pedicled unilateral Tripier flap. This flap based on the angular artery branches⁵ can pivot easily to the contralateral medial canthal region and almost anywhere on the bony nasal dorsum as a musculocutaneous flap with the underlying orbicularis oculi muscle. Furthermore, in elderly patients, fairly large flaps can be elevated with minimal donor morbidity. The defect size is an important factor because the amount of tissue available for the transfer depends largely on the skin excess of the individual patient's upper lid. Simultaneous contralateral blepharoplasty can, of course, be performed at the request of the patient to achieve the symmetry. A small webbing of skin may be encountered in the medial canthal area as a result of the bulk of the pedicle.

Porfiris and colleagues² used a similar flap to resurface seven medial canthal and six upper

lateral nose defects in a series. Our technique differs in several aspects. First, a considerably larger flap can be elevated, providing sufficient pedicle width is preserved at the medial canthus, as in patient 3. Second, the flap not only covers the ipsilateral defects but also allows contralateral extension. This, according to the location of the defect, may provide a better arc of rotation for the flap and less webbing in the medial canthal area resulting from the underlying pedicle. Third, we perform a standard blepharoplasty incision, elevate the whole skin (which is excised during a standard blepharoplasty) as a flap, and trim the flap at the recipient bed secondarily, rather than elevating the flap according to the defect in the first place and then trimming the donor area in a blepharoplasty fashion. We believe this makes the flap elevation quicker; donor-site esthetics are more predictable; and the flap trimming, accord-

ing to the recipient site requirement, is practical. Last, again because of donor site scar concerns, we deepithelialized the skin over the pedicle rather than incising the skin and elevating skin flaps. Performed in the mentioned manner, it takes 15 minutes to elevate the flap, pass it under a subcutaneous tunnel, and close the donor site.

We believe the MPOO myocutaneous flap is an easy and reliable flap for resurfacing medial canthal area and nasal dorsum. Furthermore, minimal donor site scar, good color, and texture match with the neighboring skin should be the reasons to consider this flap.

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References

- 1 Jackson IT. Eyelid canthal region reconstruction. In: Jackson IT, ed. *Local Flaps in Head and Neck Reconstruction*. St. Louis: Mosby, 1985:312–322
- 2 Porfiris E, Kalokerinos D, Christopoulos A, et al. Upper eyelid island orbicularis oculi myocutaneous flap for periorbital reconstruction. *Ophthal Plast Reconstr Surg* 2000; 16:42–43
- 3 Tezel E, Sönmez A, Bayramiçli M, et al. Medial pedicled orbicularis oculi flap for medial canthal resurfacing. *Ann Plast Surg* 2001;47:213
- 4 Porfiris E, Georgiou P, Popa CV, et al. Island orbicularis oculus myocutaneous flap from the upper eyelid for lower eyelid reconstruction. *Eur J Plast Surg* 1998;21: 246–248
- 5 Lemke BN, Lucarelli MJ. Anatomy of the ocular adnexa, orbit and related facial structures. In: Nesi FA, Lisman RD, Levine MR, eds. *Ophthalmic Plastic and Reconstructive Surgery*, 2nd ed. St. Louis: Mosby, 1998:42–46