Triple-flap medial canthal reconstruction

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A patient with a medial facial defect, following oncological resection involving the medial canthus, nose, upper and lower eyelids, and the cheek, is presented. The defect was reconstructed using a combination of local flaps to provide tissue similar to native tissue, addressing both functional and aesthetic aspects.

Key Words: Basal cell carcinoma; Local flap; Medial canthal reconstruction

The medial canthal region is a common site for tumours, particularly basal cell carcinomata (BCC) (1,2). Due to its location, there are certain important features concerning both function and aesthetics. For optimal function, eyelid skin mandates mobility and is the thinnest in the facial area. Being a fundamental element of the 'facial triangle' – the socially important area bounded by the eyes, nose and mouth (3) – aesthetics are particularly important, with canthal webs being especially noticeable. Previous authors have described both individual and combination flaps (1,4-6), with the occasional classification and management algorithm emerging from larger experience to guide the surgeon (2). Our case describes the use of a combination of flaps based on the fundamental plastic surgical principle of like-for-like replacement. To our knowledge, it has not been hitherto described, and the early result is most encouraging both functionally and aesthetically.

CASE PRESENTATION

A 45-year-old Australian man presented with a BCC of the left medial canthal region, which had been neglected for approximately four years. Past medical history included alcohol-related hepatitis, intravenous drug abuse and encephalopathy six years previously, but the patient had been medically well over the two years preceding surgery. The defect was excised under magnification, producing a composite defect comprising the lower medial eyelid, anterior medial canthal tendon leaf, upper cheek and lateral nasal wall tissues (Figure 1). The lower lid was reconstructed with an unipedicled, laterally based Tripiet flap. The cheek defect was addressed by cephalad rotation of the remaining cheek skin, which was firmly attached to the remaining canthal tendon and periosteum. Finally, the lateral nasal wall was reconstructed with a thinned glabellar flap. Figure 2 show the immediate postoperative appearance. The flaps were selected not only for optimal tissue match, but also

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RÉSUMÉ :

Figure 1) Operative view demonstrating the postexcisional defect, which encompasses the upper and lower eyelids, medial canthus, upper medial cheek and lateral nasal wall

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Figure 2) Immediate postoperative view with all three flaps inset

with careful consideration of their donor morbidity. After three weeks, the pedicles were divided and the standing cones were revised (Figure 3). The appearance at six months' follow-up is shown in Figure 4. Histological examination revealed a nodular BCC with a separate focus of infiltrative tumour inferiorly. Excision was complete, and no perineural invasion was observed. The patient experienced no healing problems, and has reported no concerns with eyelid function, visual field or epiphora. Thus far, he is delighted with his reconstruction.

DISCUSSION

From review of the extant literature, of which there is surprisingly little given the frequency of tumour occurrence in this location, there are several options available for reconstruction of the medial canthal region. Ascending the reconstructive ladder, they include healing by secondary intention, full-thickness skin grafts, and local or regional flaps. The rhomboid flap has received attention from oculoplastic surgeons (2), and some authors have recommended combinations of flaps based on aesthetic units (4). Spinelli et al (1) were the first to recommend a systematic approach based on aesthetic subunits; in their classification, the upper lid (zone I) and lower lid (zone II), combined with the medial canthus (zone III) and lateral canthus (zone IV), encompass the periorbital area proper. Zone V represents contiguous cheek, nasal and brow tissues (1). Under this categorization, our defect consisted of zones II, III and V. A recent report (5) of 'triple-flap' repair involved a similar defect, but was addressed differently. The lower lid was reconstructed with a Mustardé advancement and lateral cantholysis. A superomedial Tripiér flap covered the upper eyelid defect, and

Figure 3) Revision of standing cone and final flap insetting at three weeks

Figure 4) Final appearance at six months

lateral nasal wall skin completed the reconstruction, covering a conchal cartilage graft for lid stability. Impressive combinations of other flaps have been used for particularly extensive defects (5).

Drawbacks to such combination flaps include the staged nature and temporary deformity before flap division and inset. The potential for ectropion with 'gravity' flaps such as cephalad-vector cheek elevation can be militated against by secure fixation to bone or periosteum, and combination attachment to the opposing-vector 'antigravity' glabellar and Tripiér flaps. One of the most troublesome aspects is the formation of epicanthic webs; in our case, generous flaps inset without tension minimized this at early review (Figure 4). The lower lacrimal canaliculus was excised, including the punctum, and the proximal end was marsupialized. The patient had no epiphora and excellent symmetry. Should tear drainage be required, future reconstruction can be facilitated by the well-vascularized surrounding flaps. Continued observation will be required as a consequence of the patient's skin type and the presence of scars traversing the reconstructed lower lid, which may potentially obscure a recurrence of his tumour.

Although neither author was aware of previous reports at the time of surgery, following the basic principles of like-for-like tissue replacement and donor site respect emphasizes previously espoused concepts while yielding the novel reconstruction reported. The authors claim no particular originality for this combination, but merely offer it for those in a similar position due to the ease of initial reconstruction and highly satisfactory final result.

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