Reconstruction of the temporal canthus

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SUMMARY In the course of tumour excision the entire lateral canthus including the lateral palpebral ligament may have to be removed along with an upper or lower lid. In such cases it is difficult to conceal the defect and restore the function of the eyelids by plastic surgery. A combined advancement rotation flap has proved to be a technically simple method of reconstruction and successful functionally as well as cosmetically. A temporal flap is prepared and advanced medially. By making incision(s) into this flap it is possible to reconstruct both the canthus and the sulcus suprapalpebralis. The lateral tarsal margins are fixed to the periosteum by chromic catgut loops, and with a skin flap there is sufficient support to ensure normal function. An inner lining is provided by mobilising conjunctiva. The advantages and results of this method are discussed.

Ophthalmic plastic surgeons are sometimes confronted with the problem of complete excision of a tumour infiltrating the temporal canthus and adjacent lid tissue (Figs. 1, 2). Repair must be carried out respecting the important role played by the temporal canthus in the smooth functioning of the eyelids.^{1,2} Suturing the residual tarsal stumps together invariably causes a shortened palpebral fissure.³

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Operation and technique

After complete excision of the tumour, confirmed histologically,⁴ conjunctiva is mobilised from both upper and lower fornices and placed at the future site of the new lid margin, establishing a complete inner lining.⁵ The lateral tarsal margins are then fixed to the periosteum by 4-0 chromic catgut loops near the origin of the lateral palpebral ligament.⁶ This provides a supporting mechanism for the tarsal plates (Fig. 3). In

Fig. 1 Case 1. Male aged 40 years with recurrent basal cell carcinoma of the temporal canthus.

Fig. 2 Case 2. Basal cell carcinoma of the temporal canthus involving $\frac{1}{3}$ of upper lid and $\frac{1}{4}$ of lower lid in a female aged 75 years.

Fig. 3 Chromic catgut loops anchoring the tarsal plates to the periosteum.

the final step of reconstruction a skin flap is prepared by 2 lateral incisions extending temporally and superiorly and temporally and inferiorly from the upper and lower edge of the defect. An incision is made into the flap extending temporally from the palpebral fissure, dividing the flap into an upper and lower segment. The upper segment is advanced medially and sutured to the residual skin of the upper lid, completing the upper lid and the upper lid sulcus. The lower segment is advanced in a similar fashion and rotated medially, thereby completing the lower lid. The canthus is formed at the angle of the upper and lower segments and anchored to the periosteum. Finally the skin and conjunctiva are co-opted with 8-0 Vicryl to form the lid margin. 6-0 Prolene is used for all skin sutures (Fig. 4).

Fig. 4 Case 1. Five days postoperatively with sutures *in situ*.

Fig. 5 Case 1. Motility of the eyelids is sufficient again.

Fig. 6 Case 1. Lid closure is complete.

Fig. 7 Case 2. Two months after the operation.

Discussion

With this method extensive defects involving the temporal canthus can be repaired without difficulty. Of primary importance is the re-establishment of the function of the resected tarsal plates, which is made possible by the growth of connective tissue stimulated by the chromic catgut loops. This connective tissue acts as a tarsal substitute, providing stability at the temporal canthus while maintaining flexibility. Both are necessary for close fitting to the globe with mobility of the lids and complete closure (Figs. 5, 6, 7). This procedure does not require complicated tarsal flaps^{7,8} and avoids shortening of the palpebral fissure,^{3,7} which results in a reduced temporal field of

vision, a difficult surgical access to the globe in the future, and a disfiguring appearance seen also in the frontal flap procedure.^{7,9} The lid margin is stable initially and remains so indefinitely.

In the management of tumours of the lateral canthus excision must be complete and all margins free of tumour, the function of the partially excised tarsal plates and lid ligaments must be re-established, and a total inner lining with conjunctiva is obligatory. Optimal skin adaptation develops if function and appearance are restored.

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