Modified Tessier Flap for Reconstruction of the Upper Eyelid

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ABSTRACT
We present a modification of the Tessier or orbitonasojugal flap for use in upper eyelid reconstruction. It is suitable for repairing full-thickness defects involving 60% or more of the lid margin and has the advantage of being a one-step procedure.

The orbitonasojugal or Tessier flap has been described for use in lower-eyelid reconstructions in which total or subtotal loss of tissue has occurred. Similar tissue loss in the upper eyelid is less common but may still arise following tumor excision or trauma. Our modification of the Tessier flap is suited for total or subtotal upper-eyelid reconstruction in cases in which a remnant of the lid is present laterally.

TECHNIQUE
The eyelid tumor (Fig 1) is surgically excised until clear margins are obtained (Fig 2). The transpositional flap, almost vertical, is marked out in the orbitonasal angle and then in the nasojugal region (Fig 3). Its base is centered over the angular vessels and lies above the level of the medial canthal ligament. This allows the flap to reach 90° of transposition. The flap is outlined to approximately equal the apparent loss of tissue. Its end should reach the lateral canthus in total lid reconstruction or lateral eyelid remnant in subtotal eyelid reconstruction (Fig 4).

The posterior lamella is formed by a buccal mucosal graft. The remnant of the levator aponeurosis is secured to the superior border of the graft with interrupted 5-0 Dexon (Davis and Geck) sutures. The lower border of the flap is sutured to the graft with running 6-0 plain catgut in such a fashion as to give an everted mucosal margin. The remainder of the flap is secured to skin superiorly with interrupted absorbable or nonabsorbable sutures (Fig 5).

The flap donor site may be closed with either an advancement flap from the cheek or a free full-thickness skin graft.

CASE REPORT
An 89-year-old woman with biopsy-proven basal cell carcinoma of the left upper lid underwent excision of the tumor, with frozen section control of margins. This resulted in a loss of approximately two thirds of her lid medially, which included the upper canaliculus. Reconstruction was performed using the technique described above. Six months postoperatively, the patient had a satisfactory appearance, with good lid movement and height. There was a slight lid notch, which subsequently (within 2 months) healed by secondary intent to give a satisfactory margin. There were no lagophthalmos or corneal staining (Figs 6-8).

We have performed this operation on three patients; acceptable cosmetic and functional results were obtained in each. One patient has light lagophthalmos on downgaze, necessitating artificial tears. One has 1.5

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FIGURE 1: Patient with basal cell carcinoma of left upper eyelid.

FIGURE 2: Eyelid defect once clear margins have been obtained with frozen section. The upper canaliculus is totally excised.

FIGURE 3: The orbitonasojugal flap is marked out. The flap will be rotated to the upper lid to cover a buccal mucosal flap, and cheek flaps will be advanced to close the defect.

mm of ptosis.

DISCUSSION
Numerous options are available to the surgeon planning the reconstruction of a full-thickness upper eyelid defect. The modified Tessier flap is recommended for total or near-total upper-eyelid reconstruction. Direct closure with or without cantholysis and semicircular temporal advancement flaps are not suitable for reconstructing these major defects.

The Cutler-Beard bridge flap may be used, but it has the disadvantage of being a two-stage procedure, requiring occlusion of the eye for approximately 8 weeks. A midline forehead flap or temporal forehead...
The flap may be used to reconstruct entire upper eyelids, but they have the disadvantage of being two-stage procedures and providing thick skin to form the eyelid.\(^4\) Composite grafts may be used for large subtotal eyelid defects, but not for complete eyelid loss. A pedicle flap from the lower lid to the upper lid as described by Mustardé may be used in reconstruction of large upper-eyelid defects and has the advantage of providing lashes to the eyelid margin.\(^5\) However, it has the disadvantage of being a two-stage procedure.

Our modification of the Tessier flap has the following advantages:

- It is a single-stage procedure for total or subtotal upper-eyelid reconstruction.
- The skin of the flap is more supple and less thick than skin from midline forehead or temporal forehead flaps.
- All scars are placed along normal skin folds.
- No surgery is required on eyelids from the other eye, or on the lid margin of the ipsilateral lower lid.
- There is no period of eye occlusion such as is required with the Cutler-Beard bridge flap and the pedicle flap (Mustardé).

The surgeon confronted with the need to perform a total or subtotal upper-eyelid reconstruction should have several options available. The choice of technique will depend on the characteristics of each individual case. We believe the modified Tessier flap is a valuable option in major full-thickness upper-eyelid reconstructions.

REFERENCES