

UPPER AND LOWER EYELID RECONSTRUCTION WITH A NEUROVASCULAR FREE FLAP FROM THE FIRST WEB SPACE OF THE FOOT

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After orbital exenteration for neoplasia the remaining bony socket is usually lined with skin and the deformity covered with a prosthesis; in many cases this is acceptable to the patient. However, in certain circumstances, especially in younger patients, a request for some form of reconstruction is made. In the past this has involved multistaged local or distant flaps, lined by skin grafts (Meyer, 1971; Carraway *et al.*, 1976) and usually leaves extensive scarring around the orbit.

The use of a neurovascular free flap from the first web space of the foot to reconstruct eyelids after exenteration has not to the best of our knowledge been done before.

A 23-year-old man had an orbital exenteration carried out 10 years previously for a rhabdomyosarcoma. The bony socket had been lined with a split skin graft (Fig. 1). He had found an external prosthesis unacceptable and preferred to wear a black eye patch. A free neurovascular flap from the first web space of the foot had previously been described for hand repairs (May *et al.*, 1977) and it occurred to us that it might be used to reconstruct eyelids. The operation was carried out in January 1978.

Foot dissection. A flap consisting of the first web space of the foot was designed with extensions running onto the adjacent toes, as far as their tips. Enough skin was

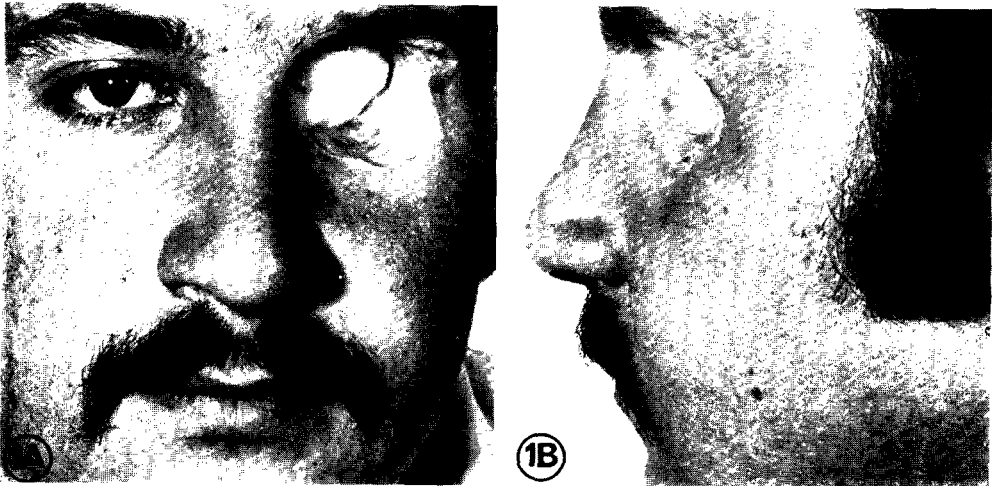


FIG. 1. A and B. Patient 10 years after orbital exenteration for rhabdomyosarcoma. Socket lined with split skin graft.

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removed from each toe to allow it to be folded on itself to provide both lid cover and lining. The vascular pedicle of the flap comprised the dorsalis pedis artery, and its extension, the first dorsal metatarsal artery and the greater saphenous vein. The deep peroneal nerve lying with the arterial pedicle was preserved.

Facial dissection. Through a vertical preauricular incision the superficial temporal artery and vein and branches of the temporal nerve were identified. An incision in the graft skin junction was made around the orbital margin and a 1 cm strip of skin graft was removed circumferentially from just within the bony rim. A horizontal incision was then made connecting the lateral side of the orbital incision to the preauricular wound.

INSERTION OF THE FLAP

The flap was sutured into place with the dorsal skin outwards and the web on the lateral side, to form a lateral canthus. The skin from each toe was folded on itself to provide both lid cover and lining and sutured into the defect left after removing the strip of skin graft. Using the operating microscope, anastomoses were made between the dorsalis pedis artery and saphenous vein and the superficial temporal artery and vein respectively. The deep peroneal nerve was sutured to a branch of the temporal nerve.

Two months later the flap was defatted and a small conchal cartilage graft was inserted into the lower lid for additional support. At the same time a hair-bearing full thickness graft was inserted to provide lower lid lashes (Fig. 2).



FIG. 2. A and B. The flap 4 months after operation. A hair-bearing graft has provided lower lid lashes.

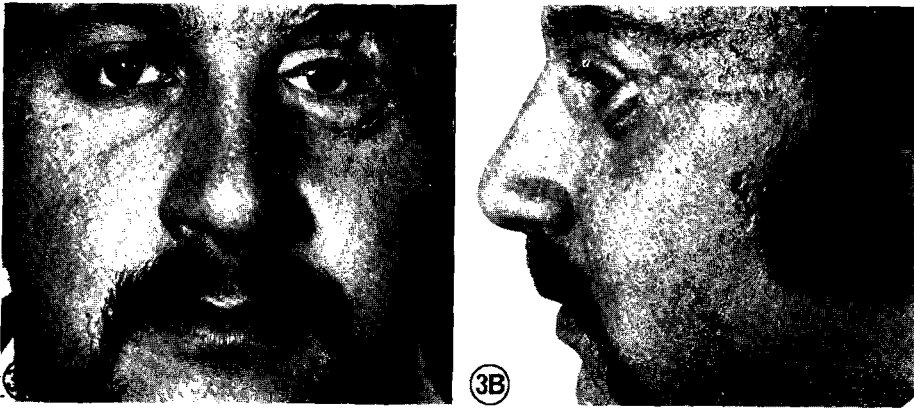


FIG. 3. A and B. The small elliptical prosthesis in place resting snugly between the flaps.

After a further 2 months a small elliptical prosthesis was fitted, showing as much globe as the normal side when the patient looked directly ahead. The prosthesis carried a small rim of upper lid which included lashes, was very light and rested securely between the 2 flaps (Fig. 3). A small additional flange on the prosthesis hooked behind the upper lid and obviated the use of glue as a means of fixation (Fig. 4). Crude sensation had returned to the external part of the flap after 8 months. This is still referred to the temporal region but re-orientation is anticipated.

The neurovascular free flap from the foot first web space provides enough skin to create both upper and lower lids with their lining in one operation as well as having a naturally formed lateral canthus. The only additional visible scar is that running hori-

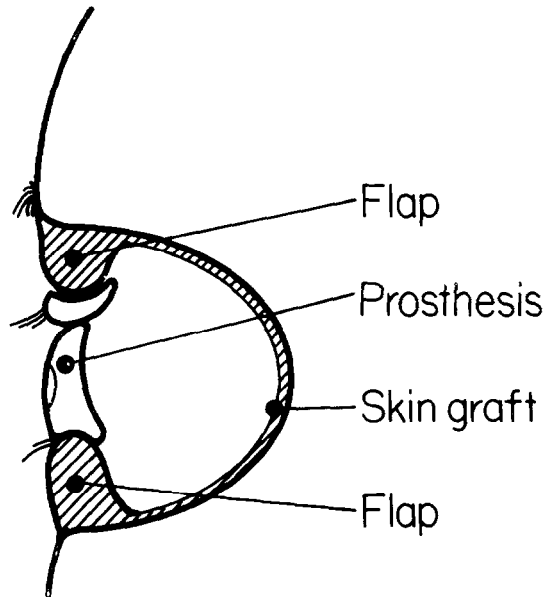


FIG. 4. Diagrammatic cross-section through the orbit showing how the prosthesis rests between the 2 parts of the flap.

zontally from the lateral canthus to the ear. In our patient the colour match was very good and the thicker plantar skin on the deeper side of each lid lent support. The new eyelids are quite thick and it was found very difficult to have a prosthesis within the orbital cavity. The small elliptical prosthesis which was fitted is secure enough for the patient to swim with, and yet allows easy removal for cleaning. The patient has now discarded the black eye patch completely and wears lightly tinted spectacles.

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