

Use of expanded temporal flaps to resurface the skin grafted forehead

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Summary—The forehead flap, whilst providing a reliable method of intra-oral reconstruction, leaves an unsightly donor defect in the skin grafted forehead. We describe a technique of resurfacing the forehead using tissue expansion. Axial pattern flaps of expanded hairless temporal scalp are transposed to the forehead. This technique is likely to have wide applications since no other satisfactory method of resurfacing the entire forehead exists.

The forehead flap provides a reliable method of intra-oral reconstruction (McGregor, 1963). More recent techniques using musculocutaneous flaps and free flaps have the advantage that they avoid the skin grafted forehead donor site. However, there are many patients who have had a forehead flap who find the shiny, featureless, yellow appearance of the skin-grafted forehead, with its associated contour defect, a considerable social handicap. We report the case of such a man where resurfacing of the forehead was achieved using expanded flaps of temporal scalp.

Case report

In 1981 a 44-year-old mathematics lecturer had a forehead flap used for lining following an extensive right hemimandibulectomy and radical cervical lymph node dissection for squamous carcinoma. He has remained disease-free since that time but became increasingly concerned about the forehead defect (Fig. 1). Cosmetic camouflage was tried to no avail. With the advent of tissue expansion, we saw the opportunity to resurface the forehead.

Four years after his original surgery, tissue expanders were inserted into each temporal region, a 250 cc round expander on the right and a 100 cc rectangular expander on the left. These were both inflated to capacity over the next 2 months and 1 month later he was admitted for removal of the expanders (Fig. 2).

Two temporal flaps were raised using the expanded non-hairy skin (Fig. 3). On the previously undissected left side a good axial vessel was seen, but this was not visible on the right. The flaps were transposed to the forehead and the resulting defects closed directly using expanded temporal scalp; all "dog-ears" were ignored.

Healing was uneventful; all the "dog-ears" have resolved. The patient is delighted with the result (Fig. 4).

Discussion

Donor site disfigurement after forehead flap may be limited by using supraclavicular split skin grafts (Edgerton and Hansen, 1960) or by raising the flap superficial to frontalis muscle (Leonard, 1983). Neither provides a complete solution and both can present considerable technical difficulties.

The method described has all the usual advantages of tissue expansion, producing no donor defect, an ideal tissue match, robust tissue and intact sensation (Argenta, 1984). Central to the technique is the use of expanded axial pattern flaps transposed from the temple. Advancement or rotation of the expanded tissue (Leonard and Small, 1986) would not have covered the entire forehead with hairless skin. We see this method extended to cover other forehead skin grafts and recommend its use.

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Fig. 1



Fig. 2



Fig. 3



Fig. 4

Figure 1—Before insertion of tissue expanders. Figure 2— Following full expansion. Figure 3—Showing the two axial pattern flaps of hairless temporal skin prior to their elevation. Figure 4—The final result 12 weeks postoperatively.

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