THE INDIRECT DELTOPECTORAL FLAP

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RECONSTRUCTION of defects of the head and neck has been greatly simplified following the introduction of the deltopectoral flap by Bakamjian in 1965. The versatility of this flap has been well described in many papers. It has been used as a direct flap to reconstruct defects in the neck, larynx and cervical oesophagus (Bakamjian, 1965; Bakamjian et al., 1971; Jackson and Lang, 1971; Fry, 1973; Brown et al., 1974), lower face and oral cavity (McGregor and Jackson, 1970; Bakamjian et al., 1971) and nose (Song et al., 1973). Its axial blood supply has been well described (McGregor and Morgan, 1973; Daniel et al., 1975) and complications arising from its use are recorded (Gingrass et al., 1972; Krizek and Robson, 1972). More recently its scope has been extended by using it as a free flap, utilising microvascular anastomosis (Harii et al., 1974).

We wish to describe its use as an indirect flap for reconstruction of defects of the upper face and scalp out of reach of a direct flap.

Case 1. A 72-year-old man presented with a squamous cell carcinoma of the left parieto-occipital scalp and underlying skull, recurrent after surgical excision and flap repair and a long course of radiotherapy (Fig. 1). There was insufficient local flap tissue left for repair. A deltopectoral flap was raised, tubed and its free end set into a trapdoor flap in the left postauricular region (Fig. 2). Three weeks later the sternal end of the flap was delayed. Due to slight necrosis here, excision of the involved scalp and underlying skull was deferred for 3 weeks. Repair of the large defect was effected by migration, untubing of an appropriate length and setting in of the flap (Fig. 3). Excision of the bridge segment was delayed for 3 months at the patient's request.

Case 2. A 61-year-old man presented with a squamous cell carcinoma of the right orbit, recurrent after previous radiotherapy and surgical excision and flap repair. In order to clear the tumour, excision of the bony orbit and its contents was necessary. Scars from previous surgery precluded the use of local flaps to repair the defect. A deltopectoral flap was raised, tubed and the free end set into a trapdoor flap just below the right ear (Fig. 4). Four weeks later the sternal end of the flap was delayed and after a further 10 days the bony orbit was widely excised. The flap was migrated to the defect and, after untubing an appropriate length, was set in (Fig. 5). One month later the bridge segment was excised (Fig. 6).

DISCUSSION

This use of the deltopectoral flap was influenced by several considerations. In both instances flap repair was necessary due to exposed dura. The presence of scars from previous surgery precluded the safe use of local flaps. The defects were out of reach of the direct deltopectoral flap and the patients too old to consider free flap repair with microvascular anastomosis. It is recognised that there is a delay of 5 to 6 weeks to enable the flap to obtain an adequate blood supply from its new attachment before excisional surgery and repair can be performed. Alternative methods, such as the groin flap and thoraco-epigastric tubed pedicle flap, take just as long or even longer; in addition each requires an upper limb as a carrier which can be most uncomfortable for an elderly person, especially when the recipient site is in the head and neck region. The other
Captions to Figs. 1-4 on page 124
alternative, the acromiothoracic flap, although capable of transfer after only 3 weeks (Pollock et al., 1972) does not have a longer range than a direct deltopectoral flap.

The flap may be raised on the same side or, if necessary, the opposite side of the body to the proposed defect. Its first attachment is to a small trapdoor flap raised in the parotid or postauricular region on the affected side. From either of these attachments the flap can reach any part of the craniofacial region of that side, out of reach of the direct flap.

The classical deltopectoral flap as described by Bakamjian is rectangular in shape. It can, however, be constructed in the shape of a trapezium with the sternal end wider than the deltoid end. The tumbling method of flap migration means that the sternal portion of the flap will be used to repair the defect. Its width here can therefore be planned in advance according to the expected size of the defect.

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**FIG. 1.** Case 1, Recurrent squamous cell carcinoma of parieto-occipital scalp and skull. Evidence of previous flap surgery is visible.

**FIG. 2.** Case 1, The tubed deltopectoral flap is set into a postauricular trapdoor flap. The width of the sternal end of the flap is much wider than the deltoid end.

**FIG. 3.** Case 1, The flap is in its final position, repairing the large defect with the bridge segment still intact.

**FIG. 4.** Case 2, The signs of orbital invasion of tumour and evidence of previous flap surgery are visible. A tubed deltopectoral flap is inserted into a subauricular trapdoor flap.

**FIG. 5.** Case 2, The flap is set into the orbital defect.

**FIG. 6.** Case 2, Final result after excision of the bridge segment of the flap.
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Summary

A method of indirect transfer of the deltopectoral flap is described to repair craniofacial defects out of reach of the conventional direct flap.

REFERENCES


