

THE USE OF PERICHONDRIAL FLAPS IN THE RECONSTRUCTION OF PARTIAL LOSS OF THE AURICLE

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The external ear is a structure that is easily traumatised by accident or by deliberate intent and patients with partial loss of the ear are frequently seen in the outpatient clinic.

As a general rule, since these acquired auricular defects are unpredictable in size and shape, the choice of method used in their reconstruction will depend on the surgeon's imagination, experience and recollection of the recent surgical literature (Brent, 1977; Converse, 1977). In their first publication Skoog *et al.* (1972) demonstrated that perichondrium could be used to produce new cartilage and in later papers from that unit, Skoog and Ohlsen (1975, 1976, 1978) described further experimental and clinical work. It therefore seemed reasonable to use local perichondrial flaps to produce the "missing" cartilage when attempting to reconstruct partial loss of the ear. We report our experience with 2 typical cases.

Case 1. A boy aged 15 lost the full thickness of skin and cartilage at the upper pole of his right ear in a motorcycle accident.



FIG. 1. Preoperative view of the right ear showing the compound skin and cartilage defect at the superior pole.

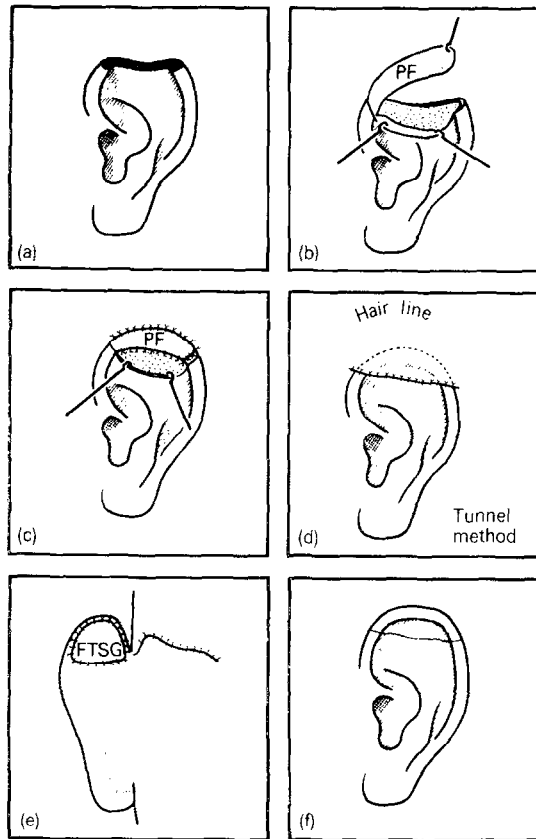


FIG. 2. A. Scheme for the reconstruction of the defect. B. Anterior and posterior perichondrial flaps are raised equal to the size and shape of the defect. C. Both perichondrial flaps are sutured to each other and to the edge of the auricular cartilage. D. The perichondrial flaps are embedded in a subcutaneous pocket. E. The upper pole of the new ear is detached and a full thickness skin graft applied to the posterior defect. F. Final result.

Under local anaesthesia, a minimal excision of the wound edges was carried out. Through the wound itself the auricular cartilage was widely exposed and 2 perichondrial flaps, one anterior, the other posterior, equal in size to the cartilaginous defect were raised, sutured to each other, and then to the end of the cartilage defect with 6/0 monofilament white Nylon. An incision was then made just below the hair line in the post-auricular region to provide a pocket into which the perichondrial flaps were placed. Three months later the skin flap and underlying cartilage formed by the perichondrium were separated from the mastoid area. The defect behind the ear was covered by a full thickness skin graft.

Case 2. A man aged 34 lost the middle third of the external ear following a traffic accident.

A post-auricular skin flap based inferiorly was raised carefully to expose the cartilaginous structure of the ear and avoid damage to the perichondrium. Two perichondrial flaps anterior and posterior were raised and sutured together using the same technique as that used in the first patient. The post-auricular skin flap was then advanced and rotated to provide the skin cover. The secondary defect over the mastoid area was closed after suitable undermining of the skin edges.

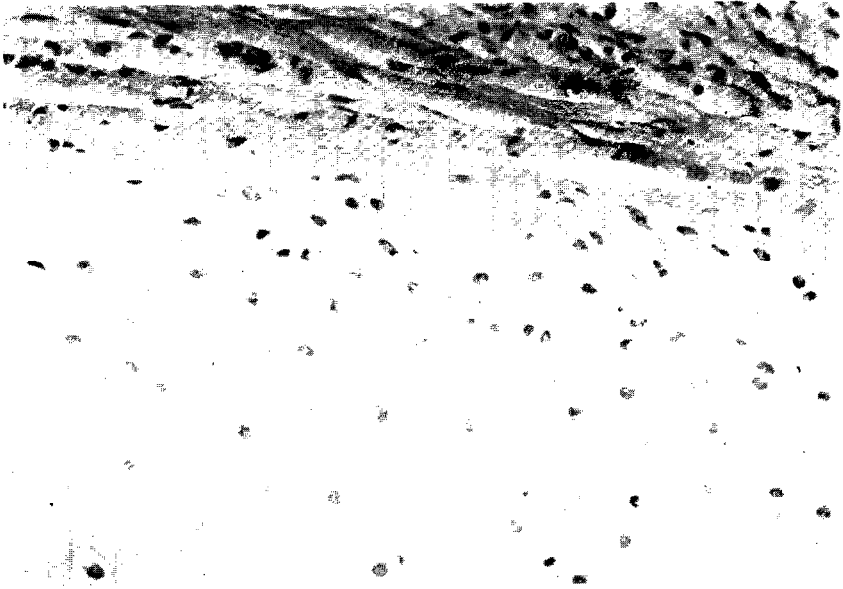


FIG. 3. A biopsy taken at the second stage of the operation, shows proliferation of cartilage under the perichondrium.



FIG. 4. Post-operative view of the reconstructed right ear.

FIG. 5. Preoperative view of the right ear showing a full thickness defect of the middle third of the auricle.

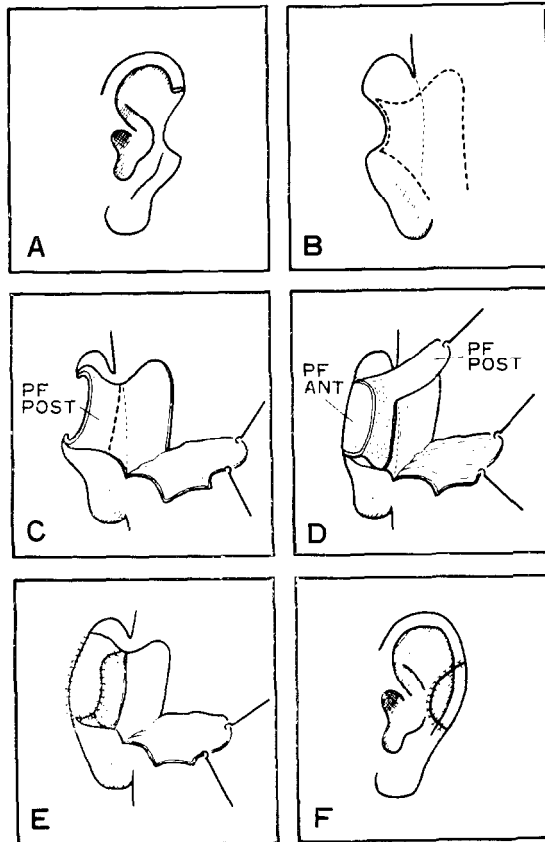


FIG. 6. A. Schematic representation of the defect. B. Incision behind the ear showing the design of the inferiorly based skin flap. C. Design of the perichondrial flaps. D. The defect is covered by anterior and posterior perichondrial flaps. E. The perichondrial flaps are sutured together. F. Closure by rotation-advancement of the post-auricular skin flap.



FIG. 7. Postoperative result six months later.

In these 2 cases it was possible to fashion local perichondrial flaps and use their regenerative potential to produce cartilage in the reconstruction of post-traumatic defects of the external ear. The new cartilage that developed between the perichondrial flaps in both cases provided an excellent cartilaginous structure with which both the patients and the surgeons were pleased.

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