

The "Zulu" tissue expansion in construction of the helix and ear lobe

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Summary—A traditional custom has been employed in a design of a new technique to expand a rudimentary auricle. The technique involves a full thickness incision of the blob of tissue and positioning of a spacer which is gradually expanded by means of a conical obturator. The technique provides a large amount of local tissue that can be used in helix and ear lobe reconstruction. An illustrative case is reported.

In the light of the current popularity of tissue expansion in auricular reconstruction (Brent, 1978; O'Neal *et al.*, 1984) it might be of interest to report an early use of the same principle in reconstruction of microtia. The technique involves expansion of the rudimentary auricle to produce a long skin tube for use on the helix. The idea was conceived after observations of a custom employed by the Zulu tribe of Southern Africa to stretch the ear lobe to accommodate a very large ear insert (Fig. 1).

Technique

Under local or general anaesthesia, the rudimentary blob of auricular soft tissue is penetrated by a transfixing stab incision, the resulting raw surfaces being sutured to form a slit. After 2 weeks, without anaesthesia, the expander is introduced into the slit. The expansion is conducted in the following way:

Initially a small spacer is introduced into the slit-like opening. This is later replaced by a larger one which is expandable by means of various sizes of central obturators (Fig. 2). The insert consists basically of an expandable disc of Teflon varying from 2-4 cm in diameter and approximately 1 cm thick. The outer circumference of the disc is grooved like a pulley to prevent the skin tube from slipping off the expander. In the centre it has a hole about 1.5 cm in diameter from which radiate a number of slits, only one of which traverses the entire thickness of the disc. Radial expansion of the disc is produced by forcing obturators of increasing size into the central hole. Complete removal of the obturator allows the disc to recoil to its original size thus permitting removal for clean-



Fig. 1

Figure 1—A Zulu man with a traditional wooden spacer *in situ*.

ing. After adequate expansion has been achieved, the bilobed flap of native auricular tissue is available for reconstruction of the helix. If necessary, one of

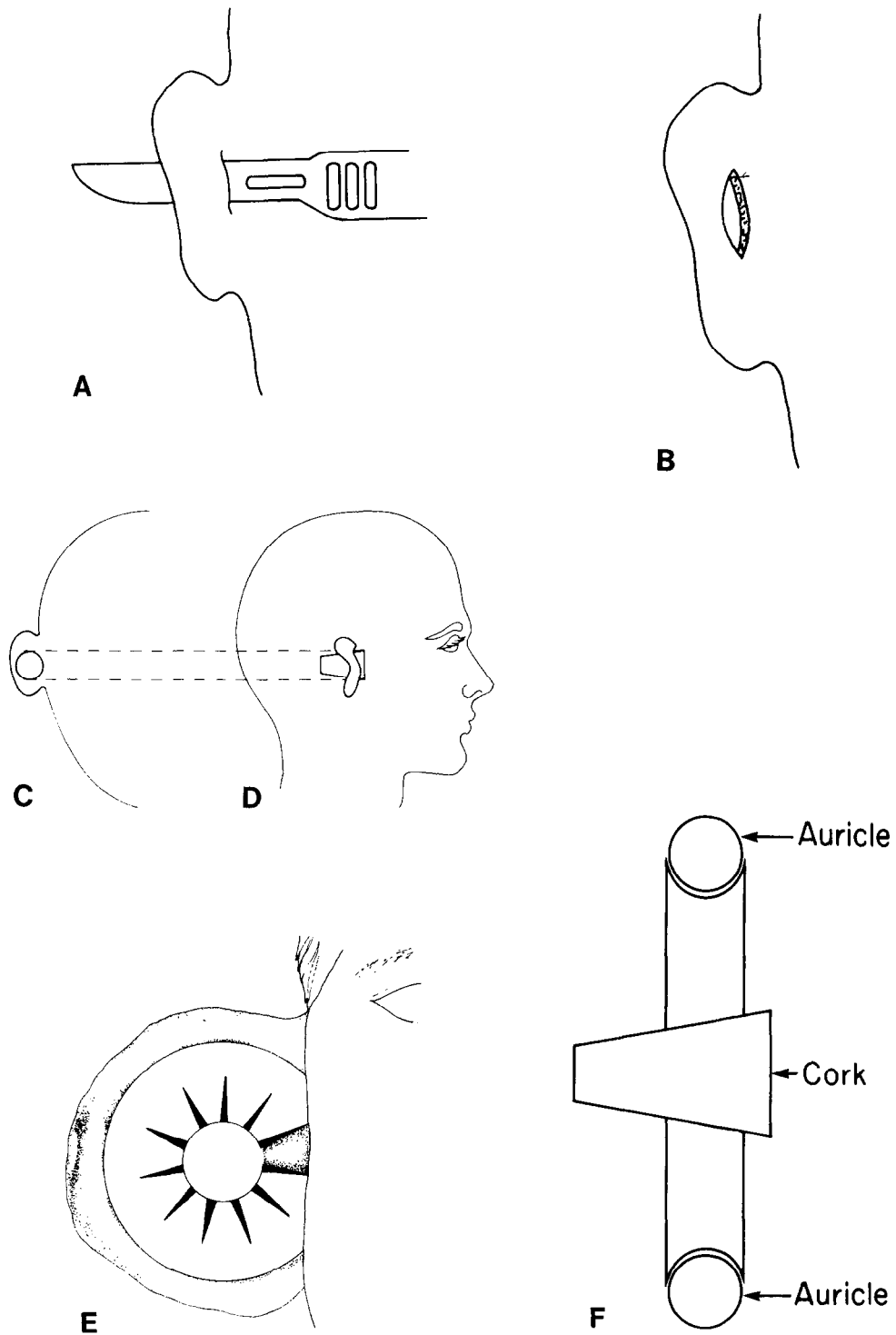


Fig. 2

Figure 2—Schematic illustration of the proposed auricular expander. (A) Full thickness incision through rudimentary auricle. (B) The wound is sutured to form a slit. (C and D) A conical spacer *in situ*. (E and F) A larger expandable spacer *in situ*.



Fig. 3



Fig. 4

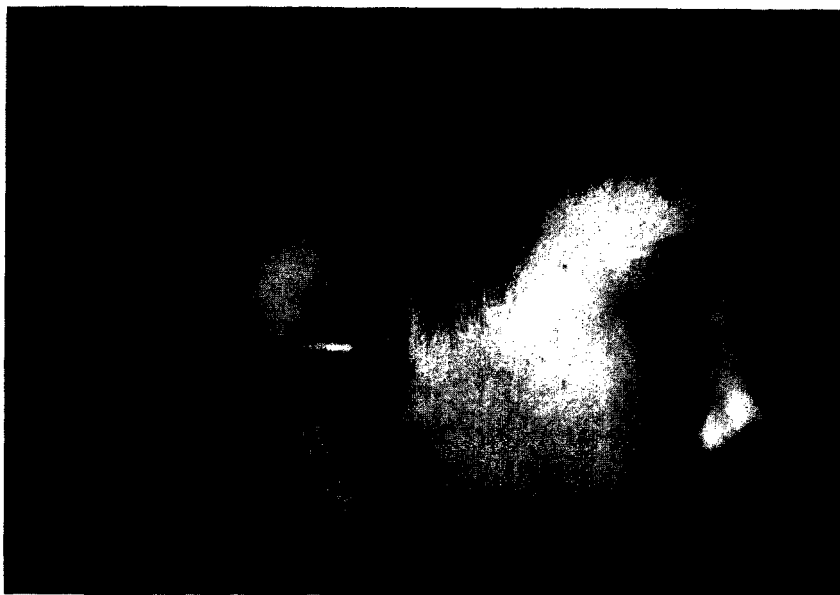


Fig. 5

Figure 3—A 9-year-old male patient with microtia of the right ear during expansion with the proposed method. Anterior view. Figure 4—The same patient—posterior view. Fig. 5—The same patient—lateral view.

the two pedicles can be divided to allow accurate positioning of the tube. The tube is used to augment the helical rim of the reconstructed ear as was formerly done using a cervical pedicled tube.

Illustrative case

A 9-year-old male presented for reconstruction of a right microtic auricle. He underwent nephrectomy 2 years previously for congenital hydronephrosis. There was no evidence of any other congenital anomaly and the child was otherwise well.

On examination, the external auditory meatus was absent. A blob of soft tissue with a rudimentary cartilage vertically orientated was present. A normal ear was present on the contra-lateral side and there was no evidence of any other congenital anomalies.

Operation. Construction of the right auricle was performed by the above-mentioned technique. Costal cartilage graft was used under the mastoid skin after helix expansion had been completed. No cartilage graft was used within the helix. The last operation included Z-plasty of the scars, division and repositioning of the inferior pedicle in an attempt to achieve a better lobule (Figs 3-6).

Discussion

To illustrate the increase of volume of tissue produced by stretching the ear lobe, it may be mentioned that restoration has been requested by, and performed in, Zulu patients with expanded lobes and that the bulk of tissue available has then been in excess of that required to reconstruct a normal lobe. The advantages of this technique are:

(i) It is versatile and simple and can be used in both congenital and acquired conditions, and is an alternative to various tube pedicles around the ear, cervical or arm tube flaps and various other techniques of reconstruction of the helix (Brent, 1980a and b; Sarig *et al.*, 1982), making use of local tissue only.

(ii) The patient is able to perform on his own the entire operation of removal, cleaning, re-insertion and insertion of obturator to the required size.

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Fig. 6

Figure 6—The result 4 years after completion of reconstruction, showing adequate definition of the (A) helix and (B) ear lobe.

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