THE OUTSTANDING AURICLE

By M. SPENCER HARRISON (Lincoln)

THE surgery of the outstanding auricle is now so complex and its literature so voluminous that it is obvious that the surgical results do not always produce an ear acceptable to patient or surgeon. It is interesting that the patient is often the more easily satisfied.

The auricle is in a regressive stage of evolution and hereditary abnormalities are not uncommon. The external ear is functionally of small value in the perception of sound or the protection of the tympanic membrane and it is only for the purpose of improving the appearance that surgery is contemplated. The psychological effect of protruding ears on the patient may be profound. The ear reaches its maximum rate of growth at the age of 7 years and it is unusual to find the operation necessary before this time, though happily surgery does not affect the growth of the auricle. Up to 7 years of age the ear grows less rapidly than the rest of the body and an ear never grows double itself. It is possible for an outstanding ear to improve as development progresses.

Anatomy (Figs. 1, 2 and 3). The helix is the prominent rim around the upper and posterior surfaces of the auricle, a second ridge in front of the posterior part of the helix is known as the anti-helix; it divides into two crura between which lies the fossa triangularis or from behind (medially) the eminentia triangularis. The depression between the helix and anti-helix is the scapha or scaphoid fossa. The cartilage of the auricle is a single piece. The helix is prolonged downwards as a narrow process, the tail of the helix or cauda helicis, separated from the anti-helix by the fissura antitrago-helicina. The inferior crus is seen on the medial surface as a transverse furrow, the sulcus anti-helicis transversus.

The normal auricle is difficult to define and external ears are almost as characteristic as fingerprints, so that types of deformity of the ear are remarkably numerous. They have been studied by Lodge (1957) and admirably classified by Fomon *et al.* (1960). It is important therefore to examine the auricle carefully before deciding the details of the procedure to be adopted. The protruding ear usually results from a faulty anti-helix, for if the angle between concha and scapha is not formed the auricle will protrude from the head. (This deformity may be present at or soon after birth or may not appear until the age of 7 or 8 years and in this latter type it is often familial.) Jayes and Dale (1951) have shown that in some ears reducing the size only may make the auricle look normal. It is not necessary to make the two auricles identical as comparison is difficult in everyday life, but care should be taken to make the ears reasonably alike.

The nutrition of the cartilage is poor and damage by trauma or infection should be carefully avoided and hæmostasis rigidly secured. If two or more

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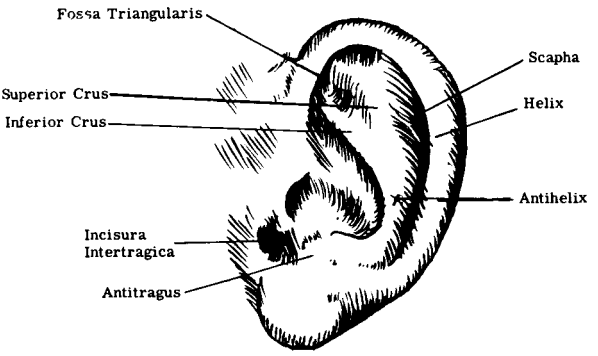


FIG. 1.



FIG. 2.

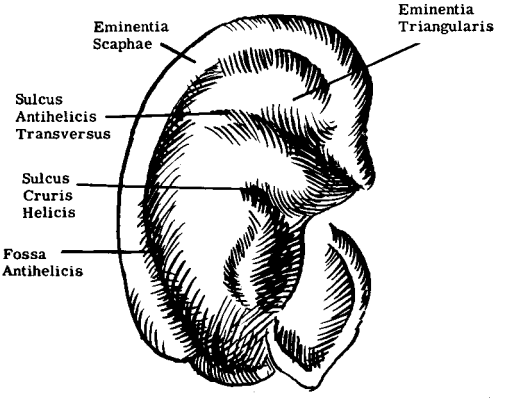


FIG. 3.

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deformities co-exist it may be advisable to do the operation in two stages to reduce the risk from trauma. Thus, if the outstanding pinna is very large the first stage might be re-positioning, and the reduction in size left until a later date.

Posterior and lateral photographs of the auricles are useful for pre-operative planning of the procedure, the surgeon may then examine them at his leisure the evening before operation and decide on the plan of the operation.

A method of operation based on the techniques of Becker, Fomon and Converse has been found satisfactory and suitable for most cases. The basic plan of operation is to break the spring of the cartilage so that the anti-helix will reform and the auricle lie back in normal position without tension. Becker's (1949) original operation produced these requirements basically by incision along the natural folds, but at times a sharp ridge resulted. This was overcome by incising incompletely through the cartilage. Converse *et al.*(1955) thinned down the cartilage to produce a similar effect.

The ear is prepared as for post-auricular mastoidectomy. Only one ear at a time is exposed, since it is not necessary to compare the ears during operation; usually the auricles are fairly symmetrical and it is enough to do a similar operation on the two sides. The anti-helix is outlined by pressing the ear as close as possible to the head and a tracing of the cartilaginous incision is mapped out on the lateral surface with Bonney's blue or gentian violet 2 per cent. in spirit. As will be seen in Fig. 4, the outline passes underneath the rim of the helix from the lower end of the cauda helicis and round along the inferior crus and follows the line of the anti-helix to join the lower end of the incision under the helix. It is also necessary to press the auricle back on to the head to outline the excess skin on the postero-medial surface, which is marked with a scratch before injection of a hæmostatic solution of saline and adrenaline around and on the back of the auricle. The skin to be excised is usually in the form of an ellipse, 2 cm. in maximum diameter, commencing 3 mm. or so below the top of the helix and finishing at the lobule. Fifteen to 20 minutes after the hæmostatic injection the section of outlined skin is removed from the back of the auricle. Undermining of the skin is continued a little beyond the scaphoid eminence, but should be the minimum possible to expose the cauda helicis, the fissure antitrago-helicina, the eminentia triangularis and the eminentia scapha down to the inferior crus.

No skin incision is made on the lateral surface of the auricle and to transfer the outline marked on the anterior surface of the auricle to the exposed posterior surface of the cartilage straight needles are pushed through the auricle at several places along the coloured mark and touched with the solution of dye before being withdrawn. An incision now follows the puncture marks (Fig. 5), cutting carefully through the cartilage as far as the anterior perichondrium (Fig. 6) and the outlined cartilage is undermined for 4 mm. around its edge. The lower pole will thus be freed for 1 cm. When the undermining is complete the island of cartilage shows a tendency to curl and to increase this curling a sharp scalpel is used to remove the posterior perichondrium from the centre of the cartilage. The margins of the lower freed 1 cm. are now sutured with fine catgut (Fig. 7).

Becker (1960) recommends that if there is still spring in the auricle a further incision should be made through the eminentia triangularis, cutting through

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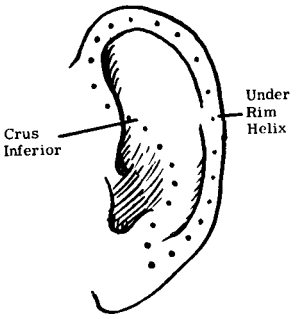


FIG. 4.
Outline of incision.

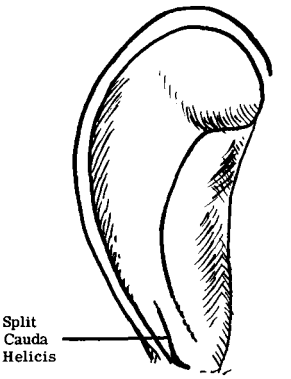


FIG. 5.
Incision following puncture marks.

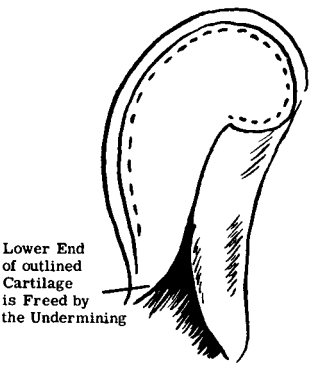


FIG. 6.
The cartilage is undermined 4 mm. around the edge of the incision.



FIG. 7.
The lower external meatus which has been freed 1 cm. is now sutured.

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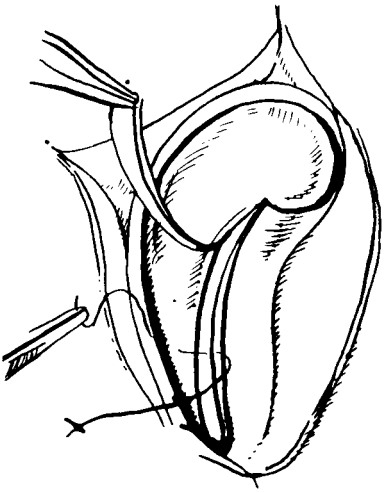


FIG. 8.
Strip removed from post edge of plaque of cartilage.

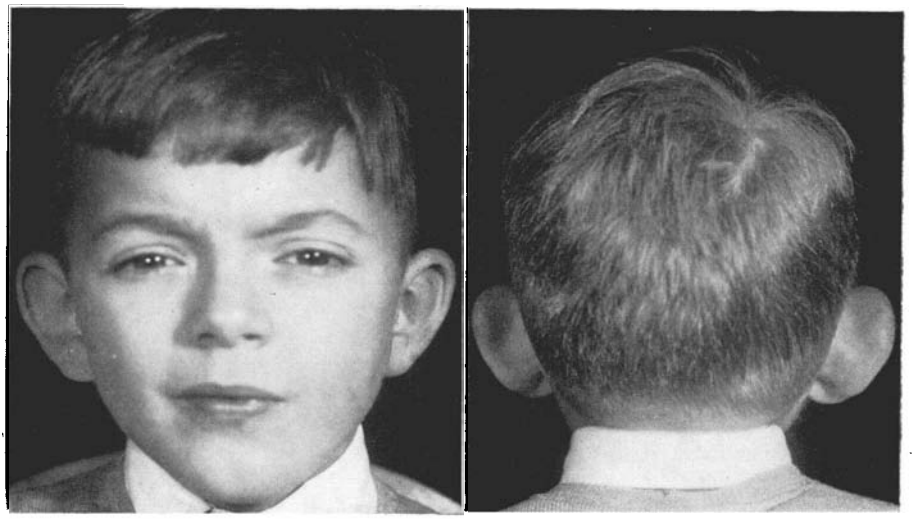


FIG. 9.
Case 1. Before operation.

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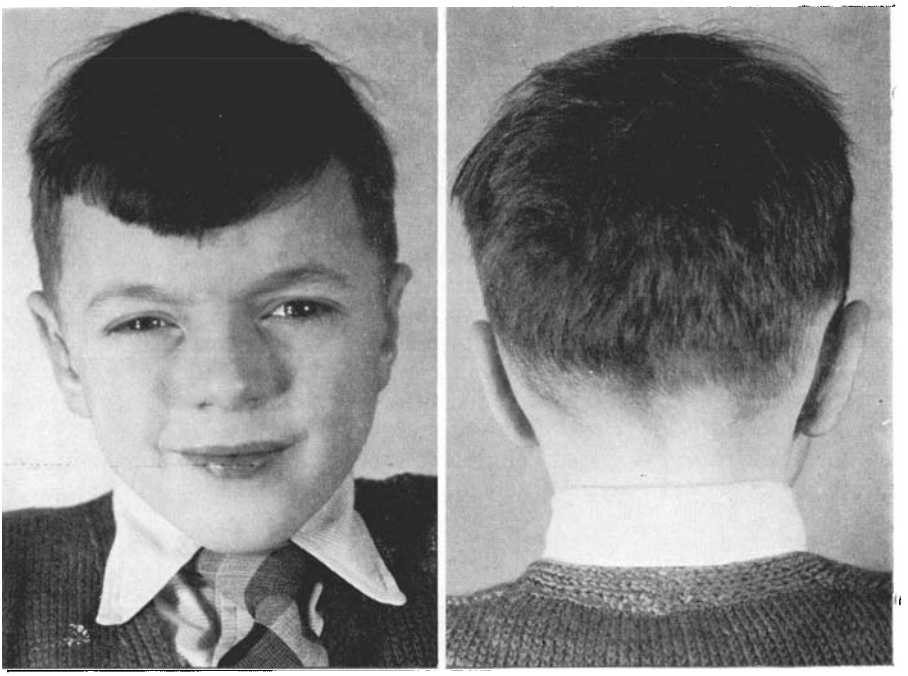


FIG. 10.
Case 1. After operation.

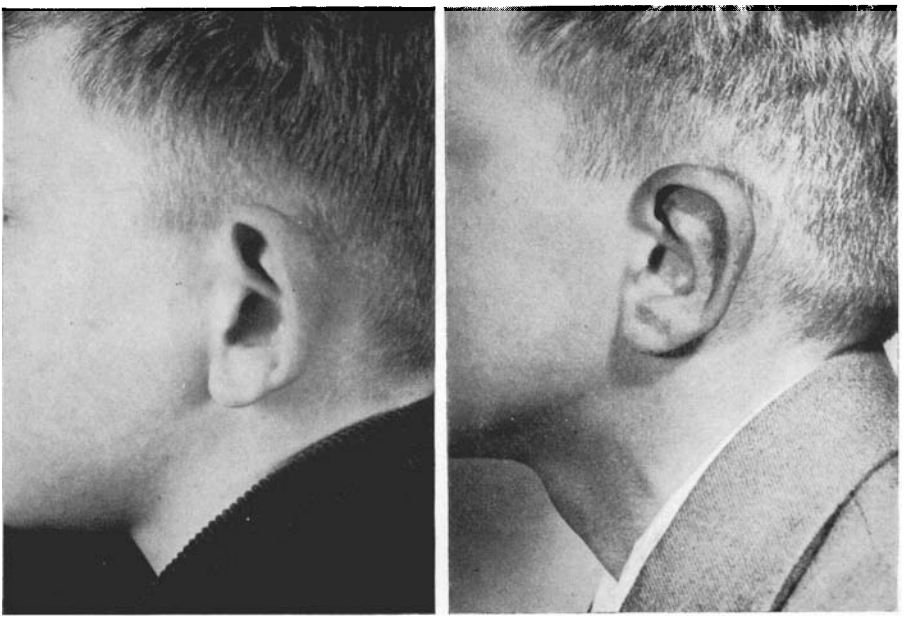


FIG. 11.
Before operation. After operation.

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cartilage in the upper part, but not completely through it at the lower end to avoid sharp ridging at the junction of the fossa triangularis and the anti-helix. If the spring is still present or the anti-helix is too prominent, a narrow strip of cartilage is removed from the centre of the posterior edge of the outlined plaque of cartilage and the catgut suturing continued up along this area (Fig. 8). It may be necessary to remove some of the anti-tragus if the lower pinna is very prominent or a section of concha if this is too large.

The shape of the anti-helix is maintained by two mattress sutures passed through its fold from the anterior surface of the auricle and tied over fine rubber tubes. The posterior wound is sutured with black silk or fine tantalum, and wool wrung out in flavine paraffin emulsion is moulded into the shape of the anterior surface of the pinna. The posterior surface may be drained for 2 days through a small stab in the lower part of the operation area.

Management of associated deformities such as those of the lobule are described in detail by Fomon *et al.* (1960).

Summary

The essential features of the operative treatment of the outstanding auricle are to break the spring of the cartilage and to construct an anti-helix to form a brace for the pinna. An over-sharp anti-helix will spoil the appearance of the lateral surface of the organ. Excision of too large an area of post-auricular skin obliterates the post-auricular sulcus.

Acknowledgment

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