



## Ear reduction

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**SUMMARY.** Four cases of ear reduction for congenital macrotia and ear asymmetry are presented. To minimize the visible scarring the technique of helical advancement was used. The indications for this uncommon procedure are discussed with a review of the literature. This simple technique has been effective in achieving the desired reduction, leaving the scar hidden in the eaves of the helix, and we endorse its wider use.

Operations to reduce ear size as a primary aim are uncommon. We have performed the operation on four patients in the past 2 years, reducing the size of six ears. The technique used is to excise a crescent from the scaphal hollow and then advance the helix anteriorly as described by Davis and Argamaso.<sup>1,2</sup> This is a modification of the use of helical advancement flaps to fill ear defects, previously described by Antia and Buch.<sup>3</sup>

The procedure is useful in dealing with congenitally large ears and is also helpful in restoring ear symmetry following procedures to the contralateral ear. The idea of surgical attack on the "normal" ear may seem ill advised but the smaller reconstructed ear often

appears the more attractive to the patient and hence there are requests for reduction of the "normal" ear.

### Technique

The size of reduction is marked as a crescent of skin and cartilage to be excised from the scaphal hollow (Fig. 1). This crescent is excised leaving the posterior skin intact (Fig. 2). The posterior skin is then mobilised to facilitate advancement of the helical rim. The excess helical rim which now lies anteriorly in the concha is excised. The scar is hidden in the eaves of the helix with a small preauricular extension (Fig. 3).

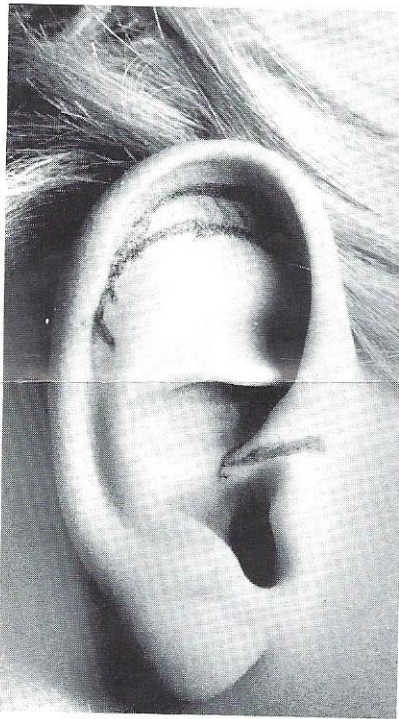


Fig. 1

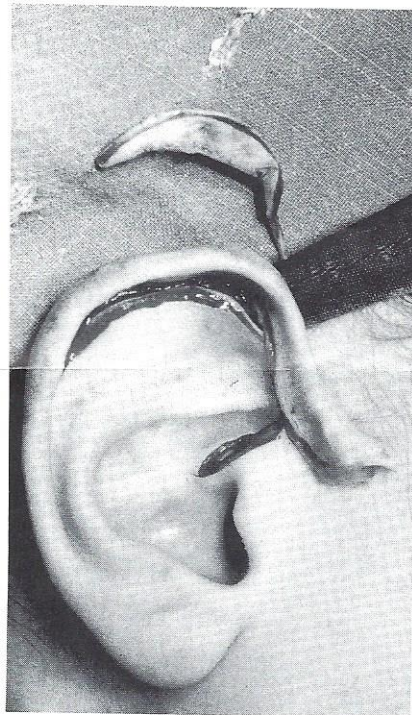


Fig. 2

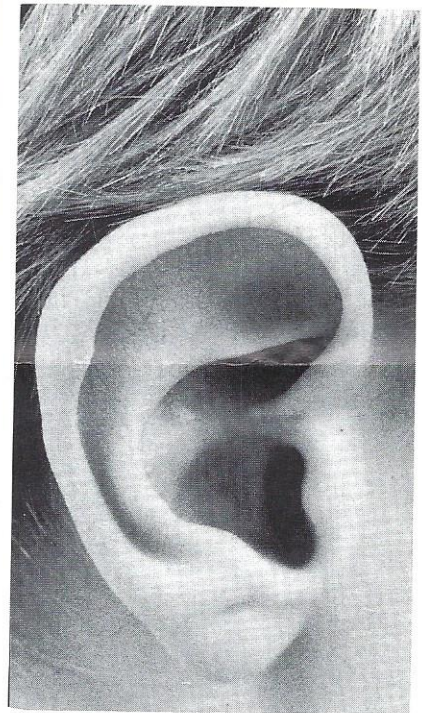


Fig. 3

**Figure 1**—The size of reduction is marked in the scaphal hollow. *Case 2.* **Figure 2**—Crescent of anterior skin and cartilage is excised, leaving the posterior skin intact. *Case 2.* **Figure 3**—The scar is hidden in the eaves of the helix. *Case 2.*

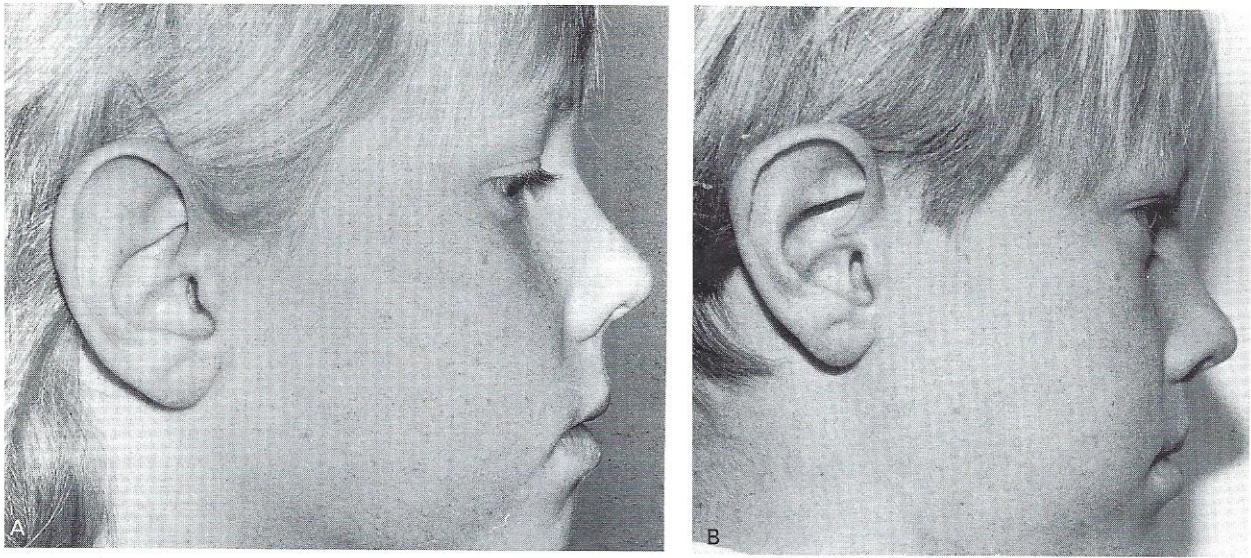


Fig. 4



Fig. 5

Figure 4—Case 2. (A) Before surgery. (B) After surgery. Figure 5—Case 2. (A) Before surgery. (B) After surgery.

## Case Reports

### Case 1

A 20-year-old male was referred with prominent ears. He had been teased since childhood about his ears. His ear height was 7.5 cm and 7.7 cm on the right and left sides respectively, with no excess protrusion. He underwent reduction to 6.5 cm and 6.9 cm on the right and left respectively. Following this reduction he had the self-confidence to trim his hair and allow his ears to be exposed whilst swimming.

### Case 2

An 11-year-old boy was bitten by a dog, removing a

portion of his left ear. He was distressed by the distorted upper pole and this was reconstructed using an Antia and Buch technique, leaving him with a smaller left ear (4.8 cm). He liked the result but felt that the opposite normal right ear was too large at 6.4 cm tall. The very large scaphal hollow of the right ear was reduced to make him more symmetrical (Figs 1–5). Following this surgery there was a marked improvement in his confidence and school performance.

### Case 3

A 27-year-old female had felt for many years that her

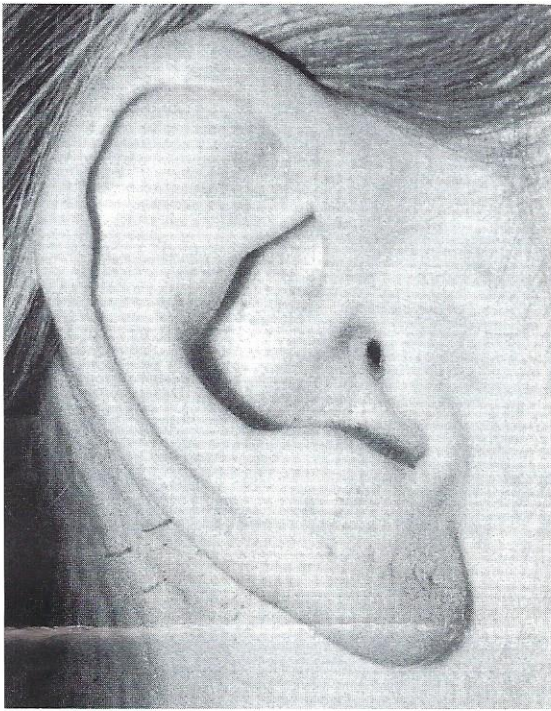


Fig. 6

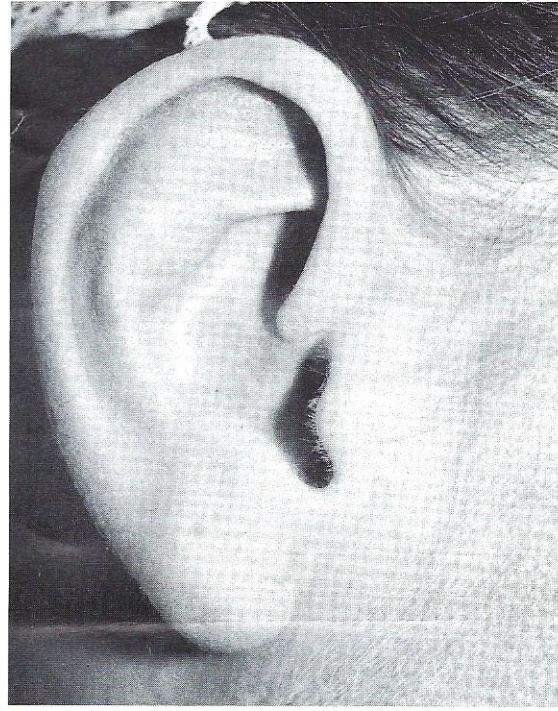


Fig. 7

Figure 6—Case 3. Before surgery. Figure 7—Case 3. After surgery. 1 cm reduction.

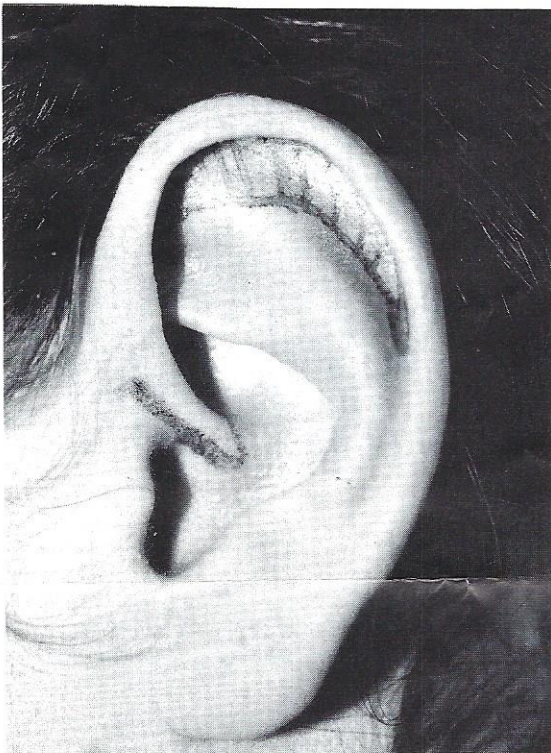


Fig. 8

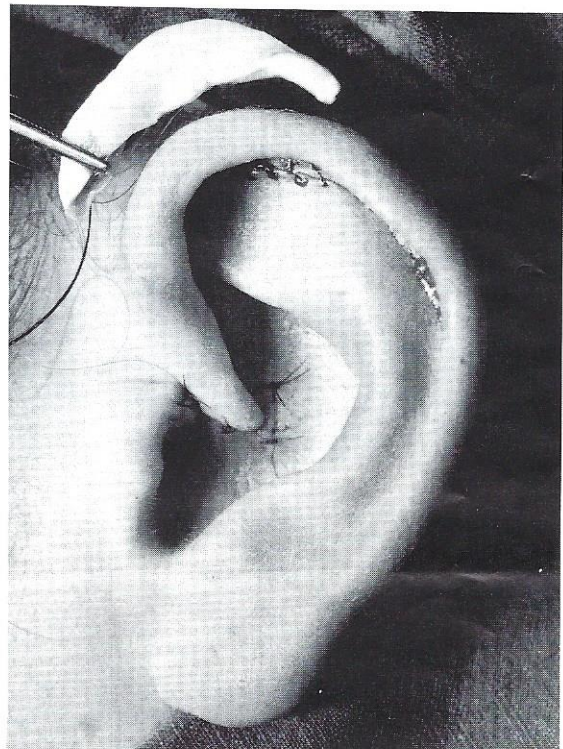


Fig. 9

Figure 8—Case 4. Before surgery. Figure 9—Case 4. After surgery. 0.8 cm reduction.

ears were too large and would avoid any activity which would display them. Measurements of her ears were 7.2 cm on the left and 7.4 cm on the right respectively

(Fig. 6). She requested ear reduction, and her ears were reduced to 6.4 cm bilaterally (Fig. 7).

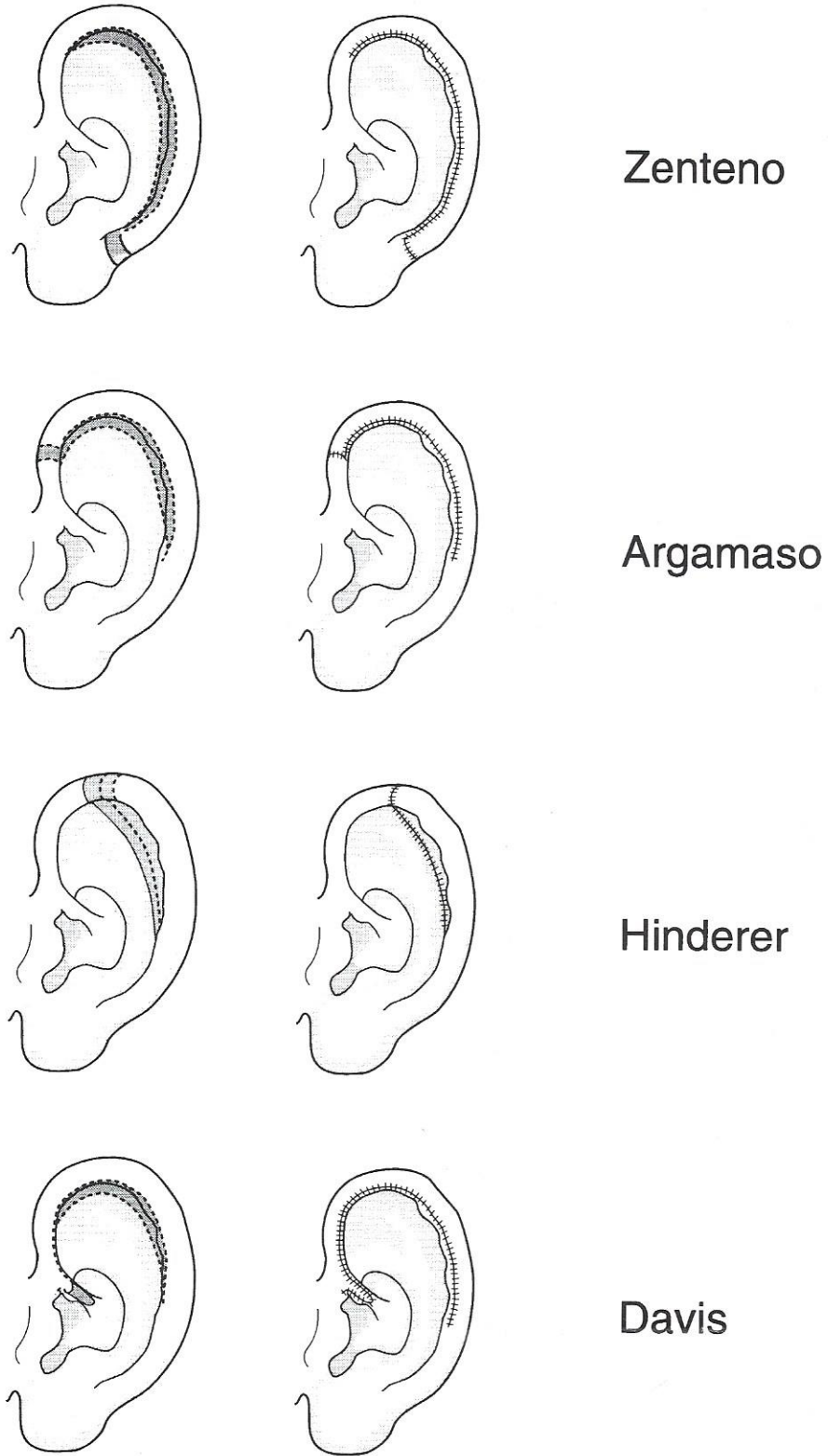


Fig. 10

Figure 10—Four methods of reducing ear size.

*Case 4*

A 27-year-old male with a congenital heminose defect had a nostril reconstructed with a large composite graft from the rim of his right ear. The donor ear was reconstructed by helical rim advancement and a preauricular flap. Following surgery he preferred the

size of the reconstructed right ear (6.3 cm) and insisted that the normal, intact, ear on the left appeared too large at 7.0 cm tall. At first, his request to have his normal ear operated on was thought ill advised. He persisted in this matter, seeing a clinical psychologist who firmly supported this rationale of reducing his normal ear. The normal ear was therefore reduced from 7.0 cm (Fig. 8) to 6.2 cm (Fig. 9).

**Table 1** Ear size of 60 adults (length of the auricle) (with figures collected by Farkas<sup>7</sup> in brackets)

	30 Females		30 Males	
	Mean	Standard deviation	Mean	Standard deviation
Left	59.3 (58.5)	3.3 (3.4)	62.3 (62.4)	5.8 (3.7)
Right	59.2 (58.3)	3.3 (3.2)	61.9 (62.2)	5.9 (3.5)

Figures in millimetres. Age range 18–42 years. Figures in brackets are those collected by Farkas<sup>7</sup> in 50 American caucasians all aged 18 years.

## Discussion

The size, position and shape of an ear are important in overall facial harmony.<sup>4–6</sup> An “abnormal” ear has a profound effect on a patient’s self-esteem. This can be greatly helped by procedures designed to restore normality, such as ear reconstruction and the correction of prominent ears. All four patients in this study had developed hairstyles and mannerisms to distract attention from either the size or the asymmetry of their ears and all the patients were satisfied with the final appearance.

Ear reduction is useful for two groups. Firstly, to reduce the size of congenitally large ears and, secondly, to achieve symmetry when surgery for trauma or tumours has left a patient with one small ear. To give some indication of the normal range of ear height, we have measured ear size in 60 caucasian European adults (from Italy and the United Kingdom), 30 males and 30 females. These figures are very similar to those produced by Farkas<sup>7,8</sup> (Table 1). There are several methods of ear reduction described in the literature (Fig. 10).<sup>1,2,9,10</sup> Some of these have a scar crossing the helical rim and thus risk helical notching.

The technique of helical advancement was first described by Antia and Buch for reconstruction of upper pole defects.<sup>3</sup> A natural development of Argamaso’s technique for closure of auricular composite graft donor sites<sup>11</sup> is to use the helical advancement flaps in elective ear reduction.<sup>1</sup> This technique was also described by Davis<sup>2</sup> to treat scaphoid ears which have a diminished helical roll at the upper pole. This simple technique has been shown to give very good results when used by surgeons other than the originators.

The reduction focuses on the excess tissue present in the scaphal hollow but, by extending the excised crescent posteriorly, it is possible to reduce both the width and height of the ear. The ear reduction thus alters the balance between the conchal cup and the periphery of the ear.<sup>12</sup>

In one of the cases reported here, it was noted during the surgery that the helical rim became crenated or buckled during assembly of the component flaps. When undone and reassembled this resolved. No other difficulties were encountered and this technique has proved useful and effective in reducing ear size. The secondary effect of the patient’s self-confidence is most rewarding.

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