

## Otoplasty: the problem of the deep conchal bowl

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### Abstract

The correction of prominent ears requires a logical approach to address each of the anatomical defects present while bearing in mind the overall shape of the ear. The two most common problems encountered are the lack of an antihelix and a deep conchal bowl.

We describe a method of reducing the depth of the conchal bowl which avoids some of the problems previously encountered such as occlusion of the external auditory meatus and visible irregularity on the external surface of the pinna. Resection of the inferomedial part of the conchal bowl and thinning of the ponticulus allow realignment of the ear and prevent prominence of the antitragus. The ear is then secured with concha-mastoid sutures and the scapha-conchal angle can then be corrected to form an antihelix if necessary.

**Key words:** Ear cartilages, surgery

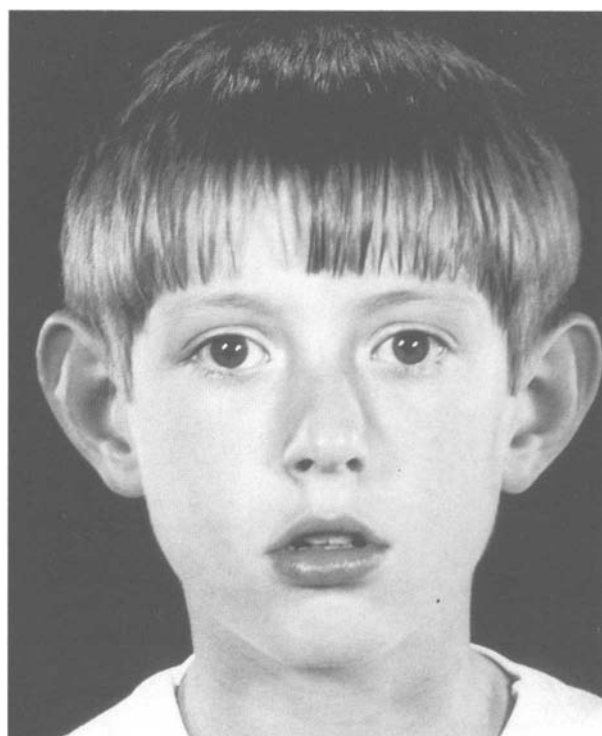
### Introduction

The aim of otoplasty is to give the patient natural-looking ears with the minimum of morbidity. Most prominent ears have a number of abnormalities which contribute to the

overall shape of the ear and it is important to address each of these when planning surgery. The two most common are the lack of an antihelix found in about two thirds of patients requesting otoplasty and a deep conchal bowl



(a)



(b)

FIG. 1

Bilateral deep conchal bowls. (a) Patient A; (b) Patient B

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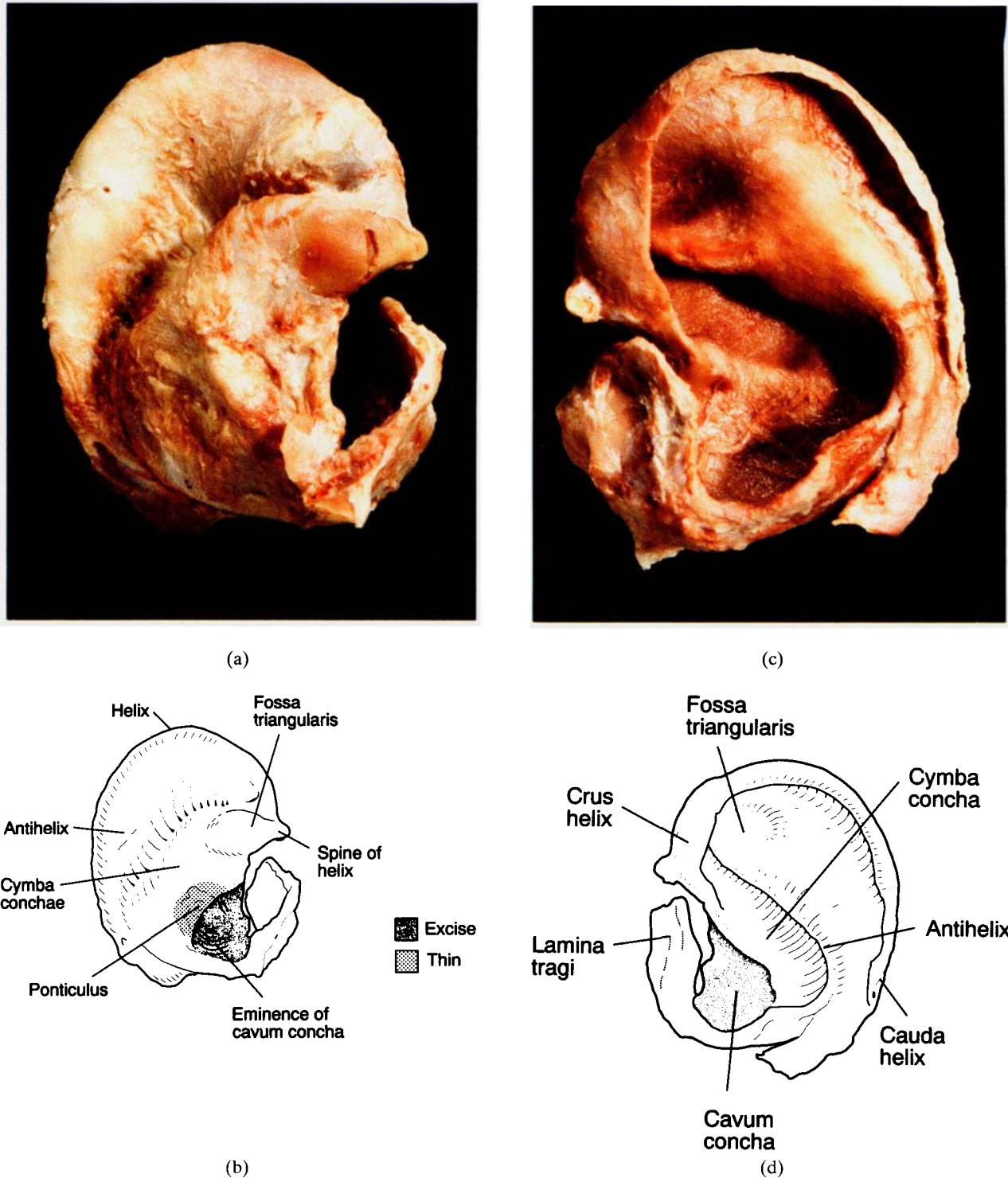


FIG. 2

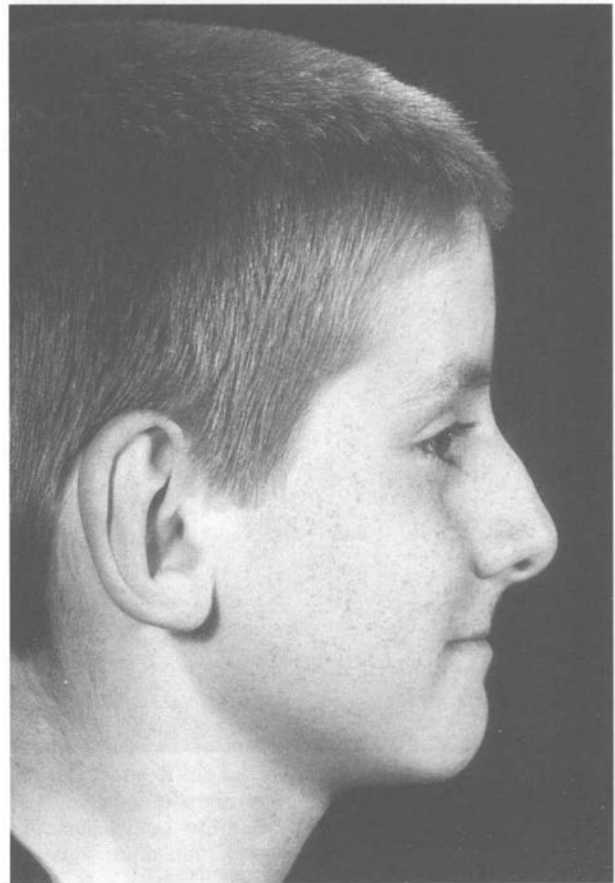
- (a) Medial aspect of dissected conchal cartilage.
- (b) Line diagram of the medial aspect of the conchal cartilage indicating the area to be excised.
- (c) Lateral aspect of dissected conchal cartilage.
- (d) Lateral aspect of dissected conchal cartilage indicating the area to be excised and thinned.

found in about one third (Figures 1a and 1b); some have a combination of the two (Adamson *et al.*, 1991). While much emphasis is placed on reduction of the scapha-conchal angle and formation of an antihelix the problem of the deep conchal bowl may not be adequately addressed. Attention to the conchal bowl can help correction of the scapha-conchal angle making it easier to position the helical rim correctly.

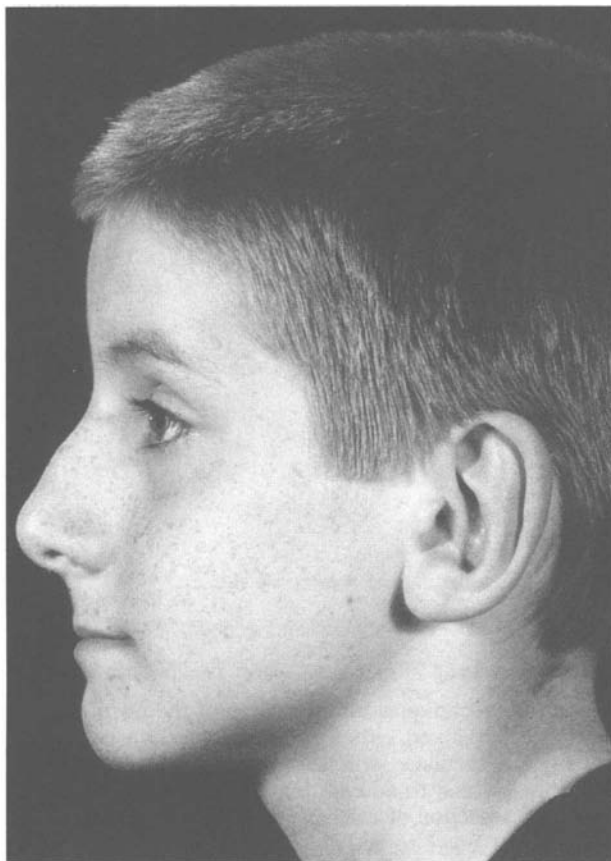
Historically techniques for correction of the deep conchal bowl have involved either cartilage resection or repositioning the cartilage with sutures. Morestin (1903) was probably the first to address this problem specifically. He described resection of cartilage from the medial aspect of the conchal bowl to reduce its size noting that it was important to break the spring of the cartilage. Lockett (1910) advocated excision of cartilage from the lateral



(a)



(b)

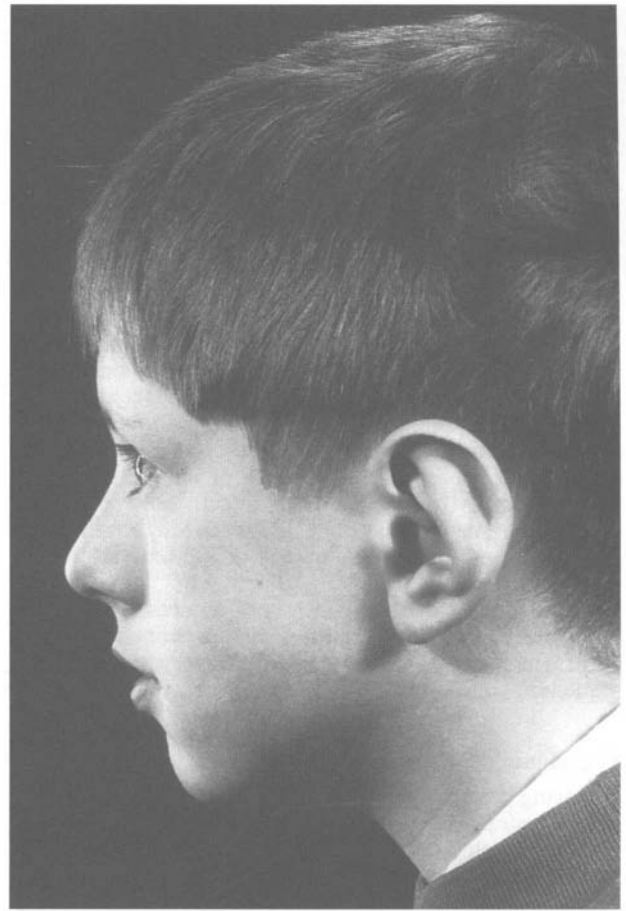


(c)

**FIG. 3**  
Post-operative results at one year. (a), (b) and (c): Patient A.



(d)



(e)



(f)

FIG. 3  
Post-operative results at one year. (d), (e) and (f): Patient B.

edge of the conchal bowl to both reduce the depth of the conchal bowl and define an antihelix. However, this tended to leave a sharp and rather unnatural looking antihelix.

In 1995, Converse *et al.* described excision and tubing of cartilage from the region of the antihelix to both reduce the depth of the conchal bowl and reduce the scapha-conchal angle. This left a thick and rather unnatural looking antihelix with irregularities of the external aspect of the pinna in some cases. Mustarde (1963) described the use of scapha-conchal sutures to form an antihelix and by resection of the soft tissue from the back of the conchal cartilage the antihelix could also be repositioned more anteriorly to reduce the depth of the conchal bowl. This was often effective but tended to leave a prominence of the lower pinna. Furnas (1968) described a technique to medialize the pinna with firm and carefully placed concha-mastoid sutures. In some cases excision of tissue overlying the mastoid and shaving of adjacent cartilage was necessary. This again is often effective but sometimes causes the remaining cartilage of the conchal bowl to slide anteriorly and partially obstruct the external auditory meatus.

We describe a method which both reduces the depth of the conchal bowl and reduces the prominence of the antitragus using a well defined cartilage resection technique and concha-mastoid sutures to secure the ear.

### Technique

Having prepared and draped the patient, the antihelix is defined using methylene blue dye on a needle, or when the Mustarde technique is used the position for the mattress sutures marked. An hourglass post-aural incision is made and the medial aspect of the conchal bowl is dissected posteriorly with excision of an area of cartilage from the prominence of the cavum concha as shown (Figures 2a, b, c and d). Particular care should be taken to avoid piercing the skin of the conchal bowl. The amount excised depends upon the depth of the conchal bowl but resection of the lower segment is particularly important if there is a prominent antitragus as it breaks the often sturdy strut of cartilage which supports its lateral projection. The thick area of cartilage into which the postauricular muscle is inserted, the ponticulus, is thinned.

When the concha can be held in the correct position with little resistance, methylene blue on a needle can be placed through the bowl onto the mastoid to help define the position of the concha-mastoid sutures. The sutures pass through the whole thickness of the remaining conchal cartilage and the mastoid periosteum. Two ivory silk mattress sutures are placed but not tightened until the scapha-conchal sutures have been positioned. The operator's technique of choice can be used to form an antihelix.

The postauricular wound is then closed using subcuticular vicryl. Proflavine wool is used to cover the pinna and a gauze swab folded behind the ear. A firm head bandage is applied. This is removed after 10 days and the patient is advised to wear an elasticated head bandage at night for six weeks. The patient is reassessed at one year when the results of surgery can be evaluated (Figures 3a, b, c, d, e and f).

### Conclusion

For optimum correction of bat ears it is important not to overlook a deep conchal bowl and we propose that this simple technique addresses this problem. The advantages of the technique described above include maintaining the patency of the external auditory meatus and hiding any minor skin irregularities in the remaining conchal bowl.

Potential complications include infection or rejection of the non-absorbable sutures but the risk of developing a subperichondrial haematoma is avoided using this method. We have experienced no complications using this technique in over forty patients.

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