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Case report

Anteverted concha: A new ear deformational anomaly

Fabrizio Schönauer^{a,*}, Annalena Di Martino^a, David T. Gault^b

^a Unit of Plastic Surgery, Department of Public Health, University "Federico II", Via Pansini 5, Naples, Italy ^b The Portland Hospital, 8 Wellington Road, London, UK

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ABSTRACT

Most auricular deformities involve the helix and the antihelix (Stahl's bar, lop and prominent ear); an isolated conchal deformity is uncommon in an otherwise normal ear. When a convexity rather than a concavity of the concha is present, it can be defined as "anteverted concha". The anteverted concha causes not only aesthetic but also functional problems. It may be so severe as to occlude the external auditory meatus. In a newborn ear amenable to moulding, anteverted concha can be treated non-surgically by splinting. If this time window has passed, then surgical excision of the conchal bulge can give good results in the adult. We present two such cases and their treatment.

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Introduction

Congenital auricular deformities can be classified as either malformations (microtia, cryptotia) or deformations.¹ Auricular deformation implies a normal chondrocutaneous component coupled with an abnormal architecture; that is, all the tissues are present but are folded abnormally.

Auricular deformities, if recognized in the early postnatal period, can be moulded to a normal shape by splinting.^{2–5} However, if treatment is required in adulthood, surgery is indicated.

* Corresponding author.

E-mail addresses: fschona@libero.it (F. Schönauer), annalena.dimartino@gmail.com (A. Di Martino), secretaries@DavidGault. co.uk (D.T. Gault).

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Figure. 1. Anteverted concha in a 3 month old child; note partial occlusion of external auditory meatus.

Most auricular deformities involve the helix and the antihelix (Stahl's bar, lop and prominent ear); an isolated conchal deformity is uncommon in an otherwise normal ear.⁶ We present two such cases and their treatment.

Case report 1

A 3 month old baby boy presented with a normal left ear and an anteverted concha of the right ear (Figure 1). His parents complained that the area of cartilage which was bowed forwards was becoming increasingly more noticeable as the child grew. The area could be reshaped by finger pressure.



Figure. 2. Splint in situ; note improved aperture of external auditory meatus.

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Figure. 3. 32 year-old patient with right anteverted concha.

A splint was fitted to restore the shape of the conchal hollow and this was worn for 10 weeks (Figure 2). During this time, the tapes securing the splint were changed every 10 days.

At the end of this period, the bulge in the concha was corrected and the external auditory meatus more open.

Case report 2

A 32 year old patient presented with an anteverted concha on the right side which caused him considerable embarrassment (Figure 3).



Figure. 4. After surgical correction.

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Under local anaesthetic, a posterior approach provided access to the cartilage. Dissection of the everted concha was performed in a sub-perichondrial plane. The deformed concha was removed, as if for a conchal graft, and the possibility of its replacement upside-down evaluated. The result on the table was unsatisfactory because the new concha still lacked depth, and the tissue was discarded. Careful bipolar haemostasis was achieved and the posterior skin incision was sutured. Bolster sutures were used to appose the loose anterior conchal skin to the new conchal concavity.

A loose head bandage was applied for 48 hours. At 8 days, sutures were removed and a compressive dressing of Vaseline gauze was replaced.

Follow-up at 6 months was satisfactory, and the patient was happy with the result (Figure 4).

Discussion

Anteversion of the concha causes a convexity rather than a concavity. It can be unilateral or bilateral. The anteverted concha causes not only aesthetic but also functional problems, for example with the retention of intra-aural headphones. It may be so severe as to occlude the external auditory meatus. It



Figure. 5. Diagram of the ear anomaly: surgical and non-surgical treatment.

is distinct from a cartilage bar across the conchal fossa, which may result from failure of apoptosis of the mesenchymal cells between the fifth and the ninth weeks of gestation, although the remainder of the foetal auricular cartilage framework develops fully.

More severe problems of development in this period will cause malformational auricular anomalies,⁷ which generally require surgical correction, usually in childhood or adolescence.⁶

From the ninth gestational week, the definitive cartilage framework may be subjected to external forces in utero and/or ex utero leading to deformational auricular anomalies^{1,8} which can be corrected by applying an opposite force to the auricle.⁶

A recent theory is that an abnormal insertion of minor muscles within the ear is linked to deformity.⁹

The most common deformation involves the helix, resulting in crinkled, Stahl's or prominent ears. The more rigid central components of the ear, namely the concha, helical root and tragus are less susceptible to deformational forces. Tan et al previously described "conchal bowl eversion",¹ and Ulmann et al conchal cartilage excess.¹⁰

In a newborn ear, possibly because of the influence of maternal hormones, the cartilage is soft and malleable, and a splint can be used to correct a variety of deformational problems. Splinting of ear deformities in the early neonatal period has been shown to be a safe and effective non-surgical treatment for many conditions,^{2–5} and indeed is the best treatment for some.^{1,10} The anteverted concha would certainly fall into the latter group.

After the first post-partum weeks, the ear becomes stiffer and less amenable to moulding, which makes splinting more difficult, although success can still be achieved with persistence.^{2,3,5}

In the adult, surgical removal of the cartilage excess from the concha through a posterior approach can be an effective solution for this unusual ear deformation (Figure 5).

Conclusions

Early recognition of the anteverted concha as a congenital auricular deformity amenable to splinting should increase correction rates in the postnatal period. If the optimum period for this simple, non-surgical treatment has passed, then surgical excision of the conchal bulge can give good results in the adult.

Conflicts of interest

Mr Gault has a financial interest in the splinting device mentioned in this manuscript.

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