The Importance of Conchal Resection in Correcting the Prominent Ear

The authors believe that conchal hypertrophy plays a more significant role in ear prominence than has been indicated in the literature. Instead of focusing on the antihelical fold, this otoplasty technique emphasizes chondrocutaneous resection. With even limited resection and resuturing of the cut concha, the antihelix yields to posterior suture placement with a soft, smooth, rounded shape unmarred by any sharp, irregular surfaces. (Aesthetic Surg J 2005;25:72-79.)

Surgery to correct a prominent ear can profoundly improve self-image, provided that the otoplasty technique is appropriate for the specific deformity and yields a normal-appearing ear that is proportionate to other facial features. Minor ear deformities, before or after otoplasty, can significantly impact the quality of results and patient satisfaction. Failure to correctly analyze the complex deformity that comprises the prominent ear is the most common cause of an undesirable otoplasty result.

The technique I describe here has evolved over the past 24 years of practice and factors in the great variation in ear deformities that we classify as “prominent.” Underpinning this technique is the realization that too much emphasis has been placed on creation of the antihelical fold and not enough on appreciating the role of conchal hypertrophy in creating ear prominence.

The ideal surgical procedure for correction of prominent ears should accomplish the following: (1) correct the protrusion, (2) correct the prominently visible helix and antihelix, (3) create a smooth antihelical fold, (4) leave the postauricular sulcus intact, (5) avoid a “plastered back” postoperative appearance, and (6) avoid creation of a sharp antihelical fold.

Unfortunately, most otoplasty techniques reported in the literature address correction of the antihelical effacement alone. The sheer number of different methods available is testament to the difficulty in achieving reproducible results and patient satisfaction.

Patients who are dissatisfied with the result of an otoplasty will typically present with an overemphasized, sharp, irregular, and unsightly antihelical fold with buried helical rims. The initial procedure in such patients has frequently ignored or ineffectively treated the conchal hyper trophy. Secondary correction is usually achieved with conchal reduction alone or combined with ancillary procedures.

An important test of any technique is that it is easily learned and that the results are reproducible in the hands of other surgeons. Equally important in an otoplasty technique is the ability to apply it to a wide variety of prominent ear deformities. (Deformities may frequently vary from side-to-side in the same patient.) The ability to obtain consistently good results with this technique has been universal. In the rare patient in whom the deformity is under-corrected, secondary correction is always easy, such as slight correction of superior pole or lobule prominence, compared with the difficulty of correcting an excessively sharpened and folded antihelix with excessively resected skin.

Preoperative Issues and Operative Planning

Even minor ear deformities can be the source of significant peer ridicule, shaping the way a child relates to classmates and performs in class. The psychological impact of this deformity may last well into adulthood if the ears are not corrected. Otoplasty should be timed to minimize this trauma but it should not be performed before the child is old enough to cooperate with the postoperative regimen or before the child is old enough to understand the reason for the surgery. My preference is to wait until the child is 5, but in a particularly sensitive child already suffering from同学ate teasing, I may choose to perform the procedure a little earlier. However, such cases are typically associated with an inordinate number of early postoperative visits to replace bandages,
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Operative Strategies

Surgical Technique

Sterile preparation of the face and ears is done using a green soap solution and a standard head drape secured with staples. Secure stray hairs with clear adhesive tape. Infiltrate 0.5% lidocaine with 1:200,000 epinephrine solution into the anterior and posterior surfaces of both ears. For postoperative analgesia, block the bilateral great auricular nerves with 0.25% bupivacaine.

Typically, I begin the procedure on the side with the more prominent ear, starting with an incision on the anterior surface of the concha. Place the incision at the junction of the posterior conchal wall and “floor” of the concha, beginning in the cymba concha and continuing to a point below the antitragus, but not as far as the external auditory meatus (Figure 1A). This is deeper in the concha than the incision described by Elliott.6 Placing the incision too high in the concha will decrease control of the antihelical fold, allowing the cut edge adjacent to the antihelix to spring forward.

Carry the incision through both the anterior skin and conchal cartilage, stopping shy of the posterior conchal skin. Sharp dissection in the loose areolar plane behind the concha (not in the subperichondrial plane) frees soft tissue and skin from the posterior surface of the conchal bowl. Gently set back the antihelix with finger pressure to accurately estimate the severity of conchal hypertrophy and the amount of cartilage and skin resection needed to create an aesthetically pleasing ear position (Figure 1B).

Next, excise a crescent moon-shaped chondrocutaneous portion (Figure 1 inset). Typically, more cartilage than skin is resected to assure a tension-free closure. Be cautious not to excise too much cartilage deep to the antitragus because excessive resection in this area will pull the antitragus upward and increase the prominence of the lower pole of the ear and lobe. Then approximate the edges of the conchal cartilage with 4 or 5 interrupted 5-0 clear nylon sutures (Figure 1C). Close the anterior skin incision with 3 or 4 interrupted 5-0 chromic gut horizontal mattress sutures, followed by a running 6-0 fast-absorbing chromic gut (Figure 1D).

To reconstruct the effaced antihelix and correct the lobule prominence, begin with a retroauricular squid-shaped skin excision and carry it down to the perichondrium. This “dumbbell”-shaped ellipse (with diamond-shaped inferior end) is designed to allow access to the posterior surface of the scapha and helical sulcus for further suture placement (Figure 2A). It also assists in correcting the lower pole prominence. Design the maximal width of the diamond-shaped inferior “squid” extension to rest at the point of maximal lobule prominence. Dissect the posterior surface of the conchal bowl and scapha in the supraperichondral plane. Preserving perichondrium is particularly important because it decreases the possibility of sutures pulling through the cartilage.

After exposing the posterior surface of the cartilage, identify and dissect free the helical tail. In essence, the helical tail is a duplication of cartilage extending down from the mid-to-lower third of the helical rim. The helical tail must not be freed from the skin overlying its anterior surface because this maneuver will diminish the effectiveness of correction of the lobule prominence. The last part of the dissection frees the soft tissues above the mastoid surface, exposing the white mastoid fascia for later suture placement. Use bipolar cautery throughout the procedure to assure hemostasis.

Before placing the sutures that will further correct the ear prominence, place pressure on the helical rim and antihelix to immediately demonstrate that the spring, or resistance of the cartilage to further shaping of the antihelix, has been decreased to what is required before anterior resection and that reshaping can be accomplished without any sharpening of the antihelix. This is a key point of the technique because even a limited amount of conchal resection will result in decreased spring and increased ease of antihelix shaping. In addition, the extension of the conchal incision to the cartilage below the antitragus softens the spring of cartilage in this area, allowing the lobule to be more easily recessed.

Place 2 or 3 sutures of 4-0 clear nylon from the scaphal cartilage and helical sulcus cartilage to the mastoid fascia to correct prominence of the upper- and mid-third of the ear. Determine the proper placement of these permanent sutures by applying pressure to the desired...
points on the anterior ear surface with a straight Keith needle, then passing the needlepoint through the selected spot so it can be visualized on the posterior surface of the cartilage (Figure 2B). Then place a suture at each specific point; it is not necessary to tattoo the cartilage. Withdraw the Keith needle as you place the suture. Then pass the sutures through the mastoid fascia and tie them at the proper tension to create a smooth antihelical fold (Figure 3). Before cutting the suture, grasp the knot with a forceps and slide it down against the mastoid surface (minimizing risk of later suture extrusion). As you tie these sutures, take care to observe the relationship of the

Figure 1. A, Carefully place the anterior incision at the interface of the lateral conchal floor and the posterior conchal wall. B, Gently depress the helix with your finger to reveal the exact amount of conchal hypertrophy to be excised. Usually a crescent-shaped chondrocutaneous segment is removed with more cartilage than skin excised (inset). C, D, Close the anterior incision by approximating the cartilage with 5-0 clear nylon and approximating the skin with 5-0 chromic gut in a horizontal mattress followed by a running 6-0 fast-absorbing gut.
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Figure 2. A, Design the squid-shaped excision (essentially the typical “dumbbell”-shaped ellipse with the inferior end widened to a diamond shape) to allow access for suture placement for correction of the upper- and mid-ear prominence and for fine adjustment of the lower pole projection. Position the diamond-shaped “squid” extension with its maximal width at the point of maximal lobule prominence. B, Initially place scaphal cartilage to mastoid fascia and subsequent helical sulcus cartilage sutures by marking the point with a straight Keith needle. After placing the nylon suture, withdraw the straight needle.

Figure 3. Place additional scaphal and helical sulcus to mastoid sutures using 4-0 clear nylon, effectively recreating a smooth antihelical fold. Generally, only 2–3 sutures are required. Place all sutures before tying the first.

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Reshaped antihelix and the helical rim to make sure that the helical rim remains visible from the frontal view.

Once you correct the upper- and mid-auricular prominence, address the lobule prominence by closing the posterior squid-shaped defect using 5-0 chromic gut. With the diamond-shaped inferior portion of the “squid” designed as I described, create the appropriate lobule contour, shape, and projection by varying the initial
Figure 4. After you tie all of the deep sutures, close the posterior “squid”-shaped defect with 5-0 chromic sutures (inset). Create the appropriate contour and shape of the lobule by varying the initial suture position with A×sutured to either A, B, or C (most frequently A×to A rather than A×to B). The remaining incision is then closed with running 5-0 chromic suture.

Figure 5. The inset is illustrated with the initial closing suture now placed between point A×and point B and the corrected shape and prominence of the lobule demonstrated after closure.
**Figure 6.** A, C, Preoperative views demonstrate bilateral ear prominence in a 6-year-old boy with asymmetric conchal hypertrophy with effacement of the superior antihelix. B, D, Postoperative views 1 year after otoplasty demonstrate correction of asymmetry and conchal hypertrophy. Frontal view shows the ear’s natural appearance with helical rim readily visible in appropriate relation to antihelix. E, F, Bilateral lateral views show natural curve to antihelix without sharpness or irregularity.
Figure 7. A, C, E, G, Preoperative views of a 15-year-old girl with bilateral ear prominence (greater on the right side than on the left) due to combined conchal hypertrophy and effacement of the antihelical folds (particularly on the right). B, D, F, H, Postoperative views 6 months after otoplasty. Lateral views demonstrate antihelical folds without sharpness or irregularity.
suture position with $A \propto$ (the point of the diamond at the point of maximal lobule prominence) sutured to either $A$, $B$, or $C$ (most frequently $A \propto$ to $A$ rather than $A \propto$ to $B$) (Figures 4 and 5). Once you place this initial suture, complete the closure with a running 5-0 chromic suture. Correcting the more prominent side first allows for a symmetrical “setback” by providing a guide for suture placement that will define the antihelix and lobule prominence.

**Dressing and Postoperative Care**

Dress the ears with Bacitracin ointment (Clay-Park Lab Inc, Bronx, NY); Xeroform gauze (Baxter Healthcare Corp, Deerfield, IL); and fluff dressings secured with a stretch net head wrap. Leave the dressing undisturbed for 6–7 days after surgery and then remove it. Following its removal, advise patients to use a stretch terry sport headband for an additional 2–3 weeks at night only.

I ask patients to minimize physical activity for a total of 3 weeks following surgery. After the dressing is removed, I instruct patients to wash their hair daily with mild shampoo and cleanse the ears gently. This is continued until the sutures have dissolved. I typically reevaluate patients at 6 and 12 months after surgery (Figures 6 and 7).

**Conclusion**

Despite many techniques that discuss accentuating the antihelical fold as the key component in correcting the prominent ear, my experience has taught me that the prominent ear has many and varied causes, but the common denominator is hypertrophy of the concha. The degree of conchal hypertrophy does not need to be great for a patient to reap the benefits of chondrocutaneous resection as the cornerstone of the otoplasty technique. Recognizing this fact is imperative but, to date, it is a fact that is under-appreciated. With even limited resection and resuturing of the cut concha, the antihelix yields to the posterior placement of sutures with a soft, smooth, rounded shape, unmarred by any sharp irregular surfaces. Despite concerns expressed by some authors, and criticism of the anterior approach to the concha as a potential source of keloid scarring, I have not seen unsightly scarring in any of these cases, nor in a much larger series of conchal donor sites for composite grafts used for ear reconstruction.

While no single otoplasty technique can be applied to all prominent ear deformities, the technique I describe—which, with experience, can be enhanced with added nuances—is as versatile as any I have ever seen or tried and provides a proven, reproducible, and effective method for correcting virtually all prominent ears.

**References**


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