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Craniofacial/Pediatric

# Correction of Prominent Ears with Novel Otoplasty Grid

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## INTRODUCTION

Although there are numerous otoplasty techniques that have been shown to correct prominent ears, the goal is to create antihelical definition, bring the entire auricle (including the lobule) backward, and reduce concha prominence.[1] This can be achieved through the most widely used Mustardé technique that involves placing mattress sutures at the cartilage of the scapha and concha posteriorly.[2] Typically, three sutures are placed and tightened until the desired antihelical fold is achieved.[3] However, tying the suture with too much laxity poses the risk of undercorrection, while making the knot too tight may give the impression of a raised helix and narrower ear due to a shallow auriculocephalic sulcus. Therefore, to optimally tie the mattress sutures, we present the use of a preformed otoplasty grid that facilitates and maintains symmetry while achieving the optimal height and angle of auricular projection.

## SURGICAL VIDEO

The narrated video demonstrates the use of our novel otoplasty grid during the correction of prominent ears. We highlight the operative steps of the otoplasty using a cartilage-excising four-point modified Mustardé technique. [**See Video 1 (online)**, which shows the surgical technique of otoplasty using the novel otoplasty grid for the correction of prominent ears.]

## SURGICAL TAKEAWAYS

In this article, the senior author modifies the Mustardé suture technique to include four horizontal mattress fixing sutures, rather than the conventional three sutures. The addition of the fourth suture helps bring the lobule backward and achieve symmetry. To execute the four-point method, we first mark all points where mattress sutures will be placed by drawing four lines extending radially from the tragus toward the scaphoid fossa, similar to the spokes of a wheel with the tragus being the center. It is also important to identify early in the procedures the area within the concha that 3–4 mm of cartilage will be excised. Although cartilage-sparing otoplasty techniques exist, the senior author uses a cartilage-excising technique at the crus helicis, as it is the strongest point of cartilaginous tissue. Excising this spicule of conchal cartilage weakens the projective force on the auricle, creating less resistance when the auricle is pinned back.

After the postauricular incision and dissection to expose cartilage, mattress sutures are placed, using our anterior surface markings as a guide with a 30-gauge needle. The key difference between our method and traditional otoplasty techniques is the use of the otoplasty grid that is made preoperatively and copied onto overhead projector sheet paper, used to determine and achieve the ideal auricular projection. In our demonstration, our goal projections were 20 mm in the upper portion, 20 mm in the middle portion, and 20 mm in the lower portion. Some patients may require further setback, with goal projections of 16–20 mm in the upper portion. The degree of desired projection is discussed with the patient and family at an initial preoperative visit, after evaluating the family's tendency for projection. In our method, sutures are held together with a hemostat until all sutures are placed, and excess cartilage is excised. Once desired placement is achieved, the grid is held in an upright position, spanning from the mastoid to the top of the helix. The use of the otoplasty grid helps achieve optimal tension of the sutures that prevent under or over-correction of the antihelical fold. More importantly, the otoplasty grid helps achieve symmetry in bilateral otoplasty to ensure both ears are corrected to the same dimensions irrespective of initial auricular projections. Rather than using a ruler, the transparency of the otoplasty grid provides a "map of projection," allowing for visualization of the curvature of the ear along with the points at which the sutures will be placed

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in relation to one another. Upon tying, the change in the shape of the ear is clearly discernible, and modifications can be made to achieve the most symmetric corrections if needed.

After grid-guided tying, the senior author places bolster sutures at the anterior surface of each of the suture points, in both the scapha and concha. Rolled gauze soaked with abundant bacitracin ointment and betadine is inserted before tying the sutures to reduce the space in which hematomas can potentially form. The senior author also inserts the rolled gauze postauricularly to provide support in the auriculocephalic sulcus, tying the bolster sutures gently to avoid choking the skin and causing pressure sores. The senior author uses double layer closures of the dermal and epidermal layers. A Glasscock dressing is used to cover the ear, and the surgical site should be kept dry for 12–13 days postoperative, when the bolster sutures are subsequently removed. Although keeping the bolster sutures at the surgical site for 2 weeks is not entirely comfortable for the patient, it keeps the risk of hematoma at a minimum and helps stabilize the shape of the ear. There is no pain nor inconvenience for the patient upon removal. The patient can begin applying Vaseline to the surgical site after suture removal.

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## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

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## REFERENCES

1. Janis JE, Rohrich RJ, Gutowski KA. Otoplasty. *Plast Reconstr Surg.* 2005;115:60e72e.
2. Mustarde JC. The correction of prominent ears using simple mattress sutures. *Br J Plast Surg.* 1963;16:170–178.
3. Mazeed AS, Bulstrode NW. Refinements in otoplasty surgery: experience of 200 consecutive cases using cartilage-sparing technique. *Plast Reconstr Surg.* 2019;144:72–80.