

Repair of Auricular Defects



Deborah Watson, MD^a, Avram Hecht, MD, MPH^{b,*}

KEYWORDS

• Auricle • Auricular • Reconstruction • Reconstructive • Defect

KEY POINTS

- Repairing defects of the auricle requires an understanding of the complex underlying framework, the structural properties of the cartilages, and typical healing tendencies of the surrounding tissues.
- The auricle is divided into various subunits: central (anterior auricle, posterior auricle) and peripheral (superior, mid, inferior).
- The optimal reconstructive approach for any given auricular defect will depend on its specific location and the quality of the surrounding available tissues.

The human auricle is an important component of facial aesthetics with functional, cultural, and physiologic significance. Not only is it a sound gathering structure but we rely on it practically for modes of cultural expression and support for eyewear. Asymmetry or deformity of the ear is obvious, even by the untrained eye. The auricle is composed of multiple subunits with numerous convexities, concavities, varying skin thickness and a complex underlying cartilaginous framework (**Fig. 1**). Accordingly, reconstructing a functional and aesthetically pleasing auricle is challenging. As a general principle, size, projection, tissue matching, and contour are all important considerations with the understanding that the goal is to create a likeness that incorporates as many of the features of a normal auricle as possible.

When considering any individual reconstruction, not limited to the auricle, it is vital to evaluate all possible options. The paradigm of the reconstructive ladder¹ involves considering reconstructive

methods starting with the simplest and progressing to the most complex. For any given site of reconstruction, the chosen method should represent an optimal balance of factors, such as aesthetic result, restoration of function, recovery time, operative time, and donor site morbidity. The simplest method for reconstruction at any site is to close the defect primarily. However, in many instances this can lead to an unfavorable aesthetic outcome and is not always possible given the size or location. Secondary intention is a very useful method; however, it can also have negative cosmetic or functional results. Both primary closure and secondary intention are great options for many small defects; however, the additional time allocation for healing and wound care must be taken into consideration if the wound is to heal by secondary intention. Skin grafts and local flaps are excellent options in certain settings and can be easily undertaken. Composite grafts and free distal flaps have significantly more

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^a Division of Otolaryngology–Head & Neck Surgery, Department of Surgery, University of California, San Diego, 3350 La Jolla Village Drive, 112-C, San Diego, CA 92161, USA; ^b Division of Otolaryngology–Head & Neck Surgery, Department of Surgery, University of California, San Diego, 200 West Arbor Drive, #8895, San Diego, CA 92103, USA

* Corresponding author.

E-mail address: ahecht@ucsd.edu

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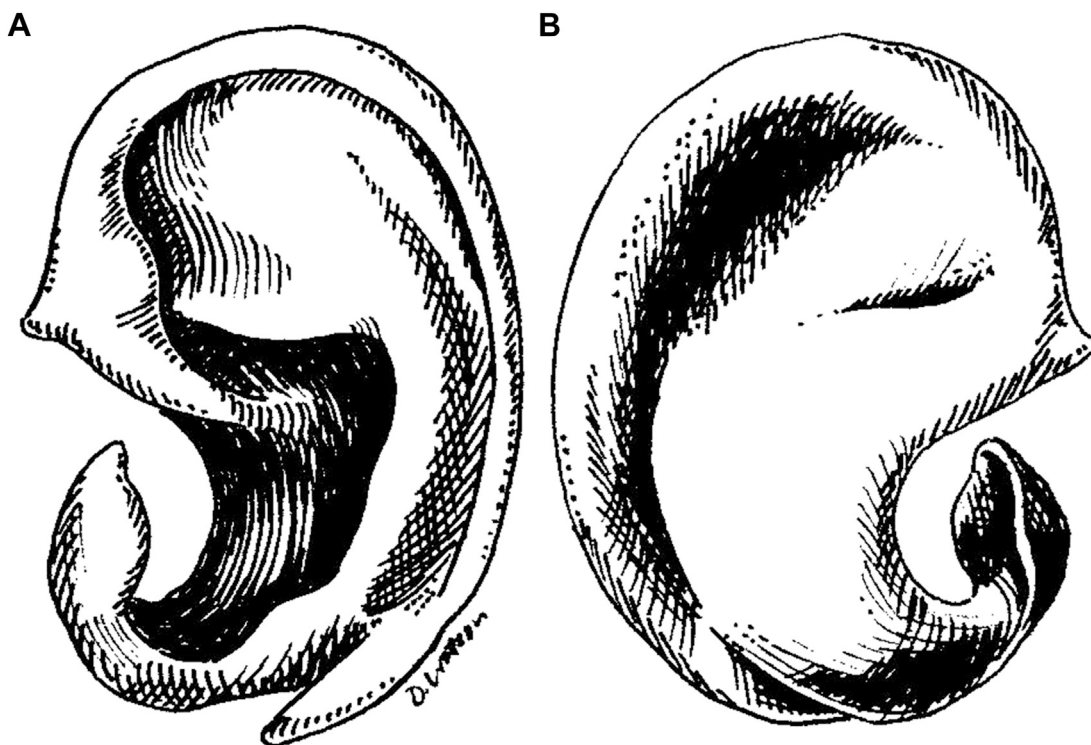


Fig. 1. The underlying cartilaginous framework of the auricle. (A) Anterior. (B) Posterior.

involvement and require more surgical expertise and comfort with these options; however, sometimes these latter choices are necessary.

With respect to repair of auricular defects, primary closure and secondary intention are the least complex options and work well for many small defects. Although secondary intention may initially be one of the simplest approaches, longer healing times and the ability of the patient to perform the necessary wound care should be considered, particularly if the patient is elderly or has difficulty lifting his or her hands to the affected area. If the cartilaginous framework is intact, free skin grafts may be used to cover larger defects. For anterior defects, full-thickness grafts are generally preferred, though split thickness grafts may suffice in patients with thin skin. Both the lateral neck and preauricular skin are convenient donor sites and typically offer good color match; however, the postauricular skin tends to be a good match as well and favorably hides the donor wound. If the vascular supply in the wound is not sufficient enough to support a free dermal graft, then local random flaps are preferred and tend to do well given the rich blood supply within the dermal plexus of skin surrounding the auricle. Large

defects with missing cartilaginous framework often require the use of local flaps and composite grafts to provide structural support and coverage with vascularized tissue. Although the focus of this article is the repair of postsurgical defects, it is important to know that microvascular surgery has been used successfully in the acute trauma setting for reimplantation.²⁻⁴

Preoperative planning is essential for the reconstruction of auricular defect. It is important to determine the specific anatomic subunits involved because each subunit has unique characteristics. The structural integrity, skin thickness, contour, and visibility of the subunit involved, and the availability of healthy surrounding tissues will determine which reconstructive option will give an optimal result.

For purposes of analysis, the auricle is divided into central and peripheral zones. The peripheral auricle is divided into 2 main subunits: the helix (which is further subdivided into thirds) and the lobule. The central zone of the auricle is divided into anterior and posterior regions. The anterior central zone is divided into subunits, including the concha, helical root, and antihelix. The posterior central zone does not have further subdivisions. **Table 1** summarizes

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