

Repair of a Large Full-Thickness Conchal Bowl Defect

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Large full-thickness conchal bowl defects pose a unique reconstructive challenge, particularly in patients who prioritize single-stage surgical solutions. While options such as wedge excisions, composite grafts, and interpolation flaps have been utilized, each has limitations for large defects in which structural integrity and cosmetic outcome are paramount. We present a case of a 77-year-old man with a 2.0×3.6-cm full-thickness defect of the right conchal bowl following Mohs micrographic surgery for cutaneous squamous cell carcinoma. Reconstruction was achieved using a single-stage, full-thickness hinge flap with a Burow graft. Our case highlights the utility of hinge flaps as a reliable and cosmetically favorable single-stage alternative for large conchal bowl defects.

Practice Gap

Large full-thickness conchal bowl defects often pose a reconstructive challenge. Maintaining the shape and structural integrity of the concha is fundamental for optimal cosmetic and functional outcomes. Prior reports have suggested wedge excisions, composite grafts, interpolation flaps with or without cartilage struts, and hinge flaps as possible options for reconstruction.¹⁻³ However, patients with large defects who prefer single-stage reconstruction procedures present a unique challenge. Herein, we describe a single-stage full-thickness hinge flap technique for a large conchal bowl defect.

The Technique

A 77-year-old man was referred to our dermatology clinic by an outside dermatologist for Mohs micrographic surgery of a biopsy-proven cutaneous squamous cell carcinoma on the right conchal bowl measuring 1.1×2.1 cm and extending to the edge of the external auditory canal (EAC). The excision was performed that same day and was completed in 2 stages, achieving negative margins and resulting in a full-thickness defect measuring 2.0×3.6 cm that included the posterior auricular sulcus, cavum, antitragus, and proximal EAC (Figure 1). The

patient requested a single-stage procedure but emphasized that his main priority was an optimal cosmetic outcome.

To repair this large defect, a full-thickness hinge flap with Burow graft was performed. The hinge-type flap was designed in a triangular fashion emanating at the posterior auricular sulcus adjacent to the posterior aspect of the defect and extending down the lateral neck (Figure 2). The flap was incised and the surrounding tissue was undermined, maintaining a robust pedicle in the center of its body on the superolateral neck. The flap was passed through the posterior aspect of the full-thickness defect and was secured in place with 4-0 polyglactin sutures in a buried interrupted fashion, thereby recreating the anterior portion of the defect. The superficial skin edges were reapproximated using 4-0 and 5-0 polypropylene sutures in a running interrupted fashion. The distal Burow triangle created from closure of the flap's secondary defect was aggressively thinned and was utilized as a full-thickness graft for the residual postauricular



FIGURE 1. A full-thickness Mohs micrographic surgery defect that included the postauricular sulcus, cavum, antitragus, and proximal external auditory canal.

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groove defect (Figure 3). At 2 weeks' follow-up, the patient was healing well with no postoperative issues and the sutures were removed (Figure 4).

Practice Implications

There are many different reconstructive options for conchal bowl defects, including primary repair, wedge excision, composite graft and interpolation flaps with or without cartilage struts, and hinge flaps. Structural support, EAC patency, auricle symmetry, overall auricle size, and re-creation of natural contours were considered when designing the reconstruction of the defect in our patient; however, his main priority was achieving the greatest cosmetic outcome in a single-stage procedure, therefore limiting our reconstruction options.

Wedge excision, in which the residual lobule and inferior helical rim are removed, could have been considered in our patient but would have drastically altered the symmetry of the size of the ears. A folded postauricular flap, as described in the otolaryngology literature, is an interpolation flap based on the posterior auricular artery that was designed for full-thickness



FIGURE 4. At the 2-week follow-up, the patient was healing well with no postoperative issues.

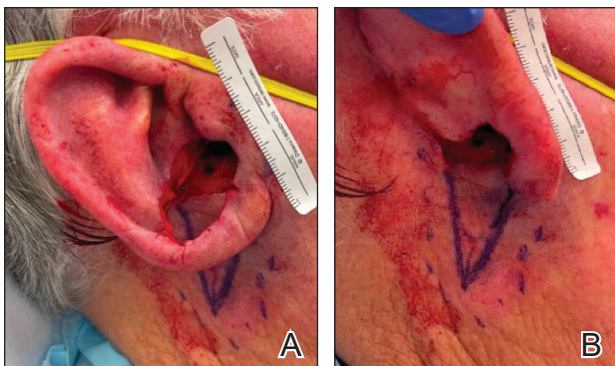


FIGURE 2. A and B, Hinge flap designed in a triangular fashion down the lateral neck, starting at the posterior auricular sulcus.

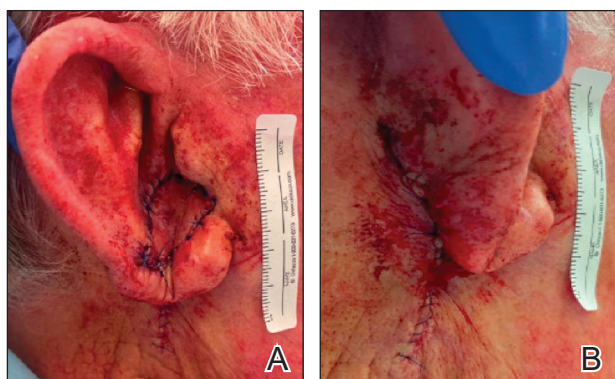


FIGURE 3. A and B, Reconstruction of the right auricle immediately postoperatively demonstrating how the flap was passed through the posterior aspect of the full-thickness defect and sutured in place to recreate the anterior portion of the defect and reapproximate the superficial skin edges.

defects of the auricle to prevent any posterior pinning.¹ This technique may have worked well in our case, but the patient preferred to avoid a multistage procedure. Additionally, the positional symmetry of the ears was maintained despite utilizing a hinge flap, which does not involve takedown of the pedicle. A composite graft from the contralateral ear could be considered for smaller conchal bowl defects but likely would have resulted in graft failure in our patient's large defect due to its need for rich blood supply to heal and dependence on lateral wound edges. Cartilage struts in conjunction with a flap could have been considered in this scenario for greater structural support, but in our patient's case, by maintaining the robust pedicle of our flap and having residual superior cartilage, further structural support was not necessary.

A prior case report described a partial and full-thickness defect in a similar location that was repaired with a retroauricular hinge flap, in which a portion of the flap was extensively de-epithelialized to address the varied thicknesses of the surgical defect.² In our patient, the defect abutted the skin reservoir on the superolateral neck, and therefore no de-epithelialization was required as the entire epithelialized portion was utilized to recreate the anterior aspect of the defect. Postauricular hinge-type flaps are a reliable, single-stage surgical alternative to the 2-stage folded postauricular interpolation flap when reconstructing large conchal bowl defects. For small full-thickness defects of the ear, a composite graft may be considered; however, blood supply and other nutritional requirements limit this option for large full-thickness defects.

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