

ARCHIVES OF DERMATOLOGY

Vol. 141 No. 8, August 2005

The Cutting Edge: Challenges in Medical and Surgical Therapeutics

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Use of a Conchal Bowl Flap for Repair of the Earlobe

Nancy J. Samolitis, MD; Scott R. Florell, MD; Steven R. Mobley, MD;
Glen M. Bowen, MD

From the Departments of Dermatology and Otolaryngology, University of Utah, Salt Lake City.

Arch Dermatol. 2005;141:947-949.

REPORT OF A CASE

A 69-year-old man presented with loose, pendulous skin affecting his earlobe that had been treated 2 years earlier with a wedge excision for squamous cell carcinoma in situ. Histological examination of this tissue revealed no residual carcinoma but demonstrated fragmented elastic fibers indicating postoperative acquired cutis laxa. The affected tissue was excised with an incision extending down the angle of the jaw, and the re-earlobe was secured to the lateral cheek. Standing cones were repaired in the preauricular space with flaps. The patient was left with minimal residual earlobe tissue as a result of this procedure (Figure 1).

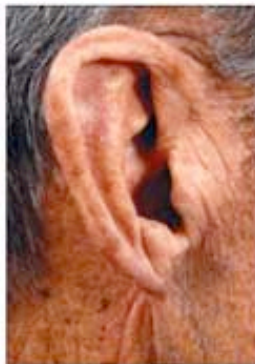


Figure 1. Tethered earlobe 4 months after the excision of elastolytic tissue.

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THERAPEUTIC CHALLENGE

Reconstruction of the earlobe is a challenging procedure that is frequently necessary following excisions, Mohs surgery, or traumatic injury. Producing a symmetric earlobe with natural bulk and softness is the goal. Flaps used for

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earlobe repair are often complicated by visible scarring, contracture, or unnatural appearance and texture.

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SOLUTION

The patient was monitored for 4 months prior to repair of the tethered earlobe to ensure that the slack skin deformity did not recur. To best repair the missing earlobe tissue with tissue that has a similar look and feel to the soft skin of the earlobe, a 2-stage reconstruction was believed to be most appropriate. The goal of the first stage was to reconstruct the bulk of the earlobe by bringing more ear lobule tissue into the area, and the second-stage procedure would detach the tethered ear lobule from the posterior cheek. It was believed that performing the rotational flap concurrent with the earlobe separation could have jeopardized the blood supply of the flap. Because reconstructive principles suggest that it is always better to reconstruct tissues of similar texture quality, it was determined that a large rotational advancement flap using the soft auricular skin conchal bowl and upper ear lobule would allow the placement of this characteristically smooth skin into the area. An exact 3-dimensional foil template was formed using the contralateral earlobe model, working under similar principles of nasal reconstruction as proposed by Burget and Menicoff. The foil template formed from the left ear was then folded flat, refolded, and transferred over to the right side. This allowed for a more accurate prediction of the eventual vertical height of the earlobe. A flap was then designed with extension into the conchal bowl ([Figure 2](#)). Wide undermining of the flap was performed in the supraperichondrial plane. Facial skin was then excised from the inferior edge of the originally reconstructed lobule to make room for rotation of this new ear lobule skin into the wound. The combination ear lobule and conchal bowl graft was then rotated into place and sewn into place with multiple nonabsorbable sutures ([Figure 3](#)). The resultant defect from the donor site in the conchal bowl was then repaired with a full-thickness skin graft using the small amount of skin that had been excised from the inferior edge of the lobule ([Figure 4](#)).

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Figure 2. Conchal bowl flap developed.

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Figure 3. Secondary defect in conchal bowl after placement of the flap into the primary defect.



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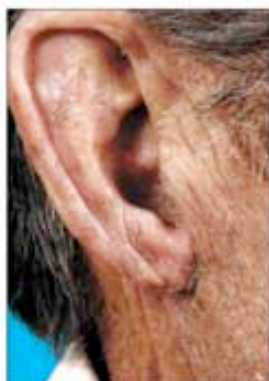


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Figure 4. The secondary defect is repaired with a full thickness skin graft.

The patient was then allowed to heal for the next 6 weeks. During this time, fibrosis in the newly reconstructed earlobe was treated with a series of 2 small doses of subcutaneous triamcinolone acetonide, 0.4 mL of a 10-mg/mL solution. During the second stage of reconstruction, the lobule detached from the tethered cheek skin to allow for more natural hanging of the earlobe in symmetry with the patient's contralateral side. A modified rhytidectomy incision was chosen that began in the superior aspects of the ear lobule (facial junction, continued inferiorly around the base of the neo-ear lobule, terminated posteriorly) superiorly in the postauricular sulcus. Wide undermining of the periauricular tissues was then performed to free up many of the connective scar tissue bands that formed between the originally reconstructed lobule and the facial cheek skin. The facial cheek skin was then pulled in a posterior-superior direction and was closed in a multilayered fashion, and then a one-half-centimeter portion of the most medial aspect of the ear lobule was left slightly open to heal by secondary intention to create a more natural and hanging earlobe on the patient's side. The patient's repair is shown in Figure 5, 1 month after the second stage of reconstruction. The earlobe feels very natural on palpation.

Figure 5. Status 4 weeks after repair.



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COMMENT

This patient had lost a significant amount of earlobe tissue after excision of the abnormally elastolytic skin. Repair of the earlobe with care to maintain symmetry with the opposite earlobe is an important cosmetic issue. Multiple techniques for repair of the earlobe have been reported.²⁻⁴ Skin is frequently rotated from the cheek or postauricular area. The appropriate bulk and texture of the ear lobule must be recreated and often is done so by superimposing 2 flaps and/or grafts, by doubling over the skin flap, or by the use of cartilage.³ Some of the complications of these described methods include unnatural contour of the lobule, firmness due to placement of cartilage, need for defatting if the lobule is too bulky, or retraction if the lobule is too thin.³⁻⁴ Flaps from the cheek may produce visible scars and bring abnormally hairy skin to the earlobe.

We used a unique reconstructive technique by rotating skin from the conchal bowl to recreate a symmetric earlobe. This procedure required 2 stages but resulted in natural earlobe contour, but texture. Other benefits of this procedure are that it produced a minimally visible scar with little contracture and that the flap contained hair follicles of similar density and texture to the normal

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Clinicians, local and regional societies, residents, and fellows are invited to submit cases of change in management and therapeutics to this section. Cases should follow the established pattern. Send double-spaced copies of the manuscript with right margins nonjustified and 4 sets of the illustrations (Photomicrographs and illustrations must be clear and submitted as positive color transparencies (35 mm slides) or black-and-white prints. Do not submit color prints unless accompanied by origin transparencies. Electronic submissions must have all figures in TIFF format. Material should be accompanied by the required copyright transfer statement, as noted in "Instructions for Author Material for this section should be submitted to George J. Hruza, MD, Laser and Dermatologic Surgery Center, 14377 Woodlake Dr, Suite 111, Town and Country, MO 63017 (cuttingedge@lasersurgeryusa.com).

AUTHOR INFORMATION

Correspondence: Nancy J. Samolitis, MD, Department of Dermatology, 4B454 School of Medicine, University of Utah, 30 N 1900 E, Salt Lake City, UT 84132-2409.

Accepted for Publication: December 24, 2004.

Financial Disclosure: None.

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