Prelaminated Supraclavicular Island Flap for Total Ear Reconstruction: A New Technique

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Summary: Major ear reconstruction has progressed over the past years with the emergence of new techniques directed mainly to patients without available or usable local skin. However, microsurgical transfer requires specific training and eligible patients. The authors report a successful ear reconstruction with a prelaminated supraclavicular island flap in 3 stages, which may be a valuable resource for selected patients or when microsurgery is not available. Advantages and disadvantages of this new technique are discussed, and a possible solution to achieve a more satisfactory result is suggested. (Plast Reconstr Surg Glob Open 2020;8:e2736; doi: 10.1097/GOX.0000000000002736; Published online 26 May 2020.)

CASE REPORT

In 2015, a 73-year-old man with epidermoid carcinoma underwent a total left ear resection associated with superficial parotidectomy and level II and III lymph node dissection. The superficial temporal artery was damaged during oncologic treatment, and only distant flaps were available for the reconstruction. The patient had diabetes mellitus, hypertension, and a history of smoking and alcoholism. After the resection, the defect was closed with a local cutaneous flap from the mastoid region. During the same procedure, a SCIF was elevated up to its middle portion, and an ear-shaped, autologous, costal cartilage framework was placed in a plane created above the deltoid muscle in the middle of the subcutaneous tissue to allow a better shape definition (Fig. 1).

Six months later, the composite SCIF was transferred to the mastoid region, considering the cartilaginous scaffold. A retroauricular sulcus reconstruction was performed with a full-thickness skin graft and earlobe reconstruction 1 year later (Fig. 2).

The patient underwent 3 surgical debridements in the anterior border of the flap due to exposure of the cartilaginous framework, which was addressed with a nasolabial island flap (Fig. 3).

After the cartilaginous exposure was treated, the patient refused further revisions for aesthetic improvements.

DISCUSSION

Total ear reconstruction requires a thin covering that adapts to the cartilaginous framework. Most of the total ear reconstruction cases reported in the literature are performed for congenital abnormalities and have sufficient skin cover, whereas acquired abnormalities require expanded, temporal fascia, or omentum free flaps for...
best aesthetic results. The emergence of microsurgical and prelaminated flaps has brought important resources to reconstructive surgeons, including the possibility to search for thinner tissues, manipulate distant regions of the face, and decrease the local complication rate with transfer of vascularized grafts.

In oncologic resections, it is important to evaluate the degree of vascularization of local tissues after prior radiotherapy or tumor/lymph node dissection because the viability of local flaps may be impaired in these cases. In addition, oncologic patients are usually older and may have associated comorbidities; therefore, a quicker and simpler reconstruction technique is preferred to avoid perioperative morbidity.14

In the case described here, no sufficient skin to cover the cartilage framework or local flaps to reconstruct the ear were available. In addition, the patient’s age and comorbidities led the authors to consider the SCIF as a viable option for total ear reconstruction while taking into account the possibility of reconstruction without microsurgery, as well as the color, texture, glabrous skin, and thickness of the flap.31 Despite its benefits, this technique has disadvantages, including multiple-stage surgery, long reconstruction period, and possible donor site morbidity.

The authors considered that the revision procedures performed were necessary, due to inadequate graft vascularization, possibly related to the position of the framework in the subcutaneous tissue near the dermis. A deep pocket in the subcutaneous plane could have prevented this complication. Supercharging the flap15 was considered to improve vascularity,16 but the temporal superficial artery as a donor pedicle was not viable after the oncologic resection.

In this case, a good definition of the helix and antihelix was not obtained, but the main goal of this surgery was to offer a support for glasses as we see in Figure 4. An expanded SCIF27 possibly would provide a better

Fig. 1. Intraoperative view after costal cartilage framework placement under the SCIF.

Fig. 2. Oblique view 6 months after composite SCIF transposition to the mastoid region.

Fig. 3. Intraoperative view of the nasolabial flap transposition.
definition of the auricular convolutions with a stable coverage, due to an augmented vascularity and thinner soft tissue covering. However, an additional surgery and the expansion procedure could generate distress, especially in an oncologic patient, because it can delay the oncologic treatment.

**PATIENT CONSENT STATEMENT**

The patient provided written consent for the use of his image.

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