

Split-Thickness Skin Graft in Nonhelical Ear Reconstruction

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Defects of the nonhelical ear after skin cancer extirpation can be challenging. When other reconstructive options are not optimal, split-thickness grafting is an easy and effective technique for successful aesthetic and functional restoration of the ear.

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Possible locations of skin cancers of the external ear include the antihelix, crura of antihelix, scaphoid fossa, triangular fossa, antitragus, and the posterior surface of the ear, collectively referred to in this paper as the “nonhelical ear.” Defects on the helix are often repaired with full-thickness skin grafts or advancement flaps. Reconstruction of nonhelical defects can be challenging. Full-thickness skin grafts can be too thick for the thin skin of the nonhelical ear. Two-stage flaps are time-consuming and associated with patient inconvenience. Second-intention healing may not be optimal because of the risk of cartilage desiccation and webbing of the contoured surface of the ear. Split-thickness skin graft repair is often an ideal option to treat nonhelical defects of the external ear.

Split-thickness skin grafts are generally used to repair cutaneous surgical defects that are large or not amenable to local reconstruction with flaps or full-thickness skin grafts. Split-thickness skin grafts are generally not the first choice for many reconstructions because they do not provide optimal cosmetic results in most areas. Their utility is well known, however, and in some situations a split-thickness skin graft may be the preferable approach to reconstruction. These defects affect locations where the appearance of a split-thickness skin graft may be desirable, such as the anterior and posterior surface of the ear where the skin is naturally thin and has little subcutaneous tissue.

Methods

To begin harvesting and using split-thickness skin grafts to repair

nonhelical ear defects (Figure 1), the donor site (the skin in the mastoid area of the patient shown) is marked and then anesthetized using lidocaine with epinephrine. These injections are best placed peripheral to the donor site below the dermal-subcutaneous junction to avoid formation of wheals. A template of the defect is made using suture pack foil or nonstick gauze. After sterile preparation of the defect and donor site, the template is placed on the donor site over the mastoid bone. With the scalpel perpendicular to the skin, the donor site is outlined with a superficial incision. The angle of the blade is then adjusted to be nearly parallel to the skin surface. The graft is harvested with gentle back-and-forth motions of the blade. The thickness of the graft can be adjusted, depending on the contours of the defect. Because

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Figure 1. Defect on the antihelix after Mohs excision of a basal cell carcinoma.



Figure 2. Split-thickness skin graft harvested from the mastoid area and sutured in place.

the graft is harvested above the subcutaneous layer, there is no need to defat it.¹⁻⁴

Use of a Weck blade to obtain a split-thickness skin graft that is larger than the defect eliminates the need to harvest the graft free-hand with a scalpel. With this technique, however, the graft must be trimmed after it is harvested. Depending on the blade

guard used, the thickness of the graft can be between 0.008 and 0.018 inches.

After the donor material is sized to fit the defect, the graft is placed on the wound bed with the glistening dermal side of the graft in contact with the wound bed and the textured epidermal side facing up. The graft is tacked into place at four or more points with an

interrupted absorbable suture such as fast-absorbing gut or chromic gut and trimmed as necessary. Running absorbable suture can then be used to secure the perimeter of the graft to the wound edge (Figure 2). The suture needle should always traverse the graft first and then the wound bed edge. Care should be taken to ensure that the edge of the graft is closely approximated to the epidermal edge of the wound so the graft edge does not curl down into the wound or overlap onto the surrounding skin.

A pressure bandage is then applied using antibiotic ointment (Polysporin, Pfizer, New York, NY), nonstick gauze, and fluffed gauze as a bolster. This bolster dressing can be sutured or taped into place to ensure that the graft is in contact with the wound bed. The dressing should be kept dry and removed after 1 week. Another occlusive bandage with nonstick gauze over antibiotic ointment is applied and kept dry and in place for an additional week. The patient is then instructed to keep the newly healed graft site well moisturized with petroleum-based ointment for an additional 2 weeks after the bandage is removed.

The donor site also is dressed with antibiotic ointment, nonstick gauze, and paper tape. The wound is cleansed, and a new dressing is applied daily until the wound has completely healed (Figure 3).



Figure 3. Three-month follow-up photo shows well-healed donor and recipient sites.

Discussion

Following the described methods ensures easy harvest and application of the split-thickness skin graft. These grafts have low metabolic requirements, which increases the likelihood of survival

compared with full-thickness or composite grafts. The cosmetic and functional results on the nonhelical ear are excellent.

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