JDDG
Journal of the German Society of Dermatology
Dermatosurgery – Tricks of the Trade
DOI: 10.1111/ddg.13073

Retroauricular pedicled flap for reconstruction of large helix and antihelix defects

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Introduction

The helix of the ear is a predilection site for both epithelial skin cancer (nonmelanoma skin cancer [NMSC]) and primary cutaneous melanoma. Surgical resection usually includes histological confirmation of tumor-free margins on either frozen sections (classic Mohs micrographic surgery) or formalin-fixed tissue (muffin technique) [1, 2]. Various reconstructive techniques are available depending on the size, shape, and depth of the excision defect (exclusive skin defect versus combined skin and cartilage defect).

Narrow excision defects can be closed parallel to the helix (by merely stretching the skin). More extensive but solely cutaneous defects may be covered with a full-thickness skin graft, which is usually also able to supply the helix. Short chondrocutaneous defects can be managed with a helical advancement flap [3], and larger, three-layer chondrocutaneous defects may be reconstructed using the very well vascularized helical rim advancement flap of Antia and Buch [4].

Not uncommonly, however, micrographic surgery of the helix and antihelix results in relatively large two-layer chondrocutaneous defects for which the aforementioned standard techniques are inadequate. In this setting, the retroauricular pedicled (interpolation) flap is a versatile method for reconstruction [4–6]. One advantage of this technique not to be underestimated is the preservation of the auricular shape and size. Thus, patients are able to continue wearing their glasses and hearing aids, and do not require any adjustments thereof post surgery (Figure 1d).

Technique

Following histological confirmation of tumor-free surgical margins, an incision line – of identical length as the defect – is planned along the retroauricular skin crease. The flap is incised in a slightly conical fashion and dissected to yield a flap base (pedicle) that is 30–40 % longer than the part of the flap that is sutured into the recipient site. Already during suturing, the anterior aspect of the helix can be (pre)molded at the cranial and caudal pole of the defect using interrupted sutures. In other words, the defective auricle is pushed underneath a retroauricular scalp flap and sutured into place (Figures 1a, b, 2a, b). The exposed underside of the interpolated pedicled flap is padded with greasy gauze, and the entire surgical field is subsequently covered with a sterile dressing for five days. After this time, the pedicle may be left without a dressing and come into contact with water when showering. In patients on anticoagulant therapy, we pack the space under the skin bridge with additional gauze, as minor bleeding (which usually stops spontaneously) can be expected once the local anesthetic wears off.

After ten days, the greasy gauze is changed, followed by wound care and disinfection of the surgical field. Interpolated flaps usually develop autonomous vascularization within