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CASE REPORT

Reconstruction of the external auditory canal using a super-thin superficial circumflex iliac perforator flap after tumour resection

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KEYWORDS

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Summary Reconstruction of the external auditory canal (EAC) after resection of carcinoma has become widely performed in combination with tympanoplasty to retain hearing ability, thus improving quality of life. Although skin grafting has been commonly performed, stenosis, infection and delayed wound healing often occur postoperatively. Local flaps can cause less stenosis, but the size and mobility are limited. For preventing stenosis and osteoradionecrosis after postoperative radiation, super-thin as well as durable resurfacing is required.

We present two cases of reconstruction of the EAC using a super-thin free superficial circumflex iliac perforator (SCIP) flap. The flap was elevated as a super-thin flap primarily and inset into the defect as a tube. The flap survived completely without stenosis, infection or osteoradionecrosis even after postoperative radiation therapy. As this flap can securely cover the important structures, causes less stenosis and can endure postoperative radiation therapy, we believe that this method could be an option for reconstruction after resection of EAC cancers.

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Early-stage carcinoma of the external auditory canal (EAC) has recently been treated with partial temporal bone resection, sparing the inner ear and stapes. Thus, reconstruction of the EAC in combination with tympanoplasty

after resection of early-stage carcinoma of the EAC has become widely performed as a means to retain conductive hearing ability. To restore the patency of the EAC, several methods have been reported. Skin grafting has been most

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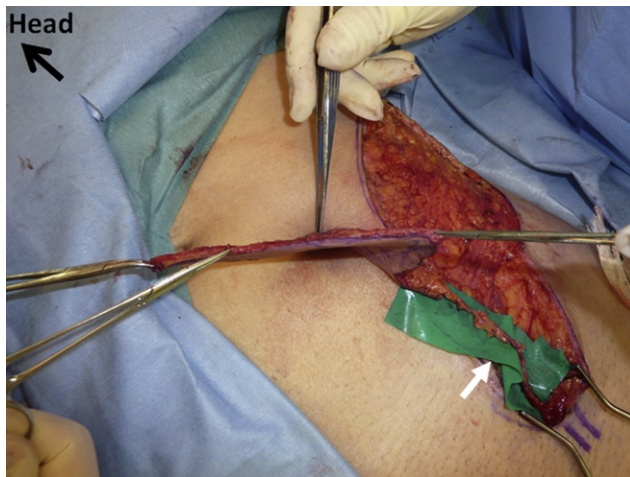


Figure 1 Super-thin superficial circumflex iliac perforator (SCIP) flap (arrow) the vascular pedicle.

commonly performed because of technical simplicity. However, it has many shortcomings such as contracture, stenosis, delayed wound healing and bone exposure, especially after postoperative radiation therapy.¹ Local flaps such as cervical and scalp flaps have also been reported. However, as these flaps have limitation in size and mobility, it is difficult to reconstruct the entire EAC.

Free flaps can offer durable lining with less limitations in size and mobility. However, conventional free flaps including the radial forearm flap are too thick for lining the

defect. The superficial circumflex iliac artery perforator (SCIP) flap, first reported in 2004 by Koshima et al., can be elevated as a super-thin flap to line the cavity, as well as a bulky flap to fill the defect (Figure 1).² We present cases of EAC reconstruction using the super-thin SCIP flap after oncologic resection.

Case reports

Since 2009, four patients underwent reconstruction using the SCIP flap following resection of carcinoma in the EAC. In two of four cases, the SCIP flap was elevated as a super-thin flap for reconstruction of the EAC in combination with tympanoplasty for hearing recovery. In the other two cases, as the defect was extensive and the inner ear could not be preserved, the SCIP flap was elevated as a thick flap to fill the defect to cover the exposed internal carotid artery and the facial nerve.

A 67-year-old man presented with squamous cell carcinoma in the EAC (T2N0M0). Magnetic resonance imaging (MRI) showed an obliteration of the EAC by the tumour, but no invasion to the middle ear or surrounding bony structures was observed. Partial temporal bone resection with preservation of stapes and the inner ear was performed. After tympanoplasty was performed by otolaryngologists, an 8 × 4-cm, super-thin, free SCIP flap with 6 cm of vascular pedicle was elevated from the right iliac region. Microdissection was performed to make the flap super thin. The flap was then rolled up as a tube using a 5-cc syringe as a guide and inset to the defect (Figure 2). Microvascular anastomosis was

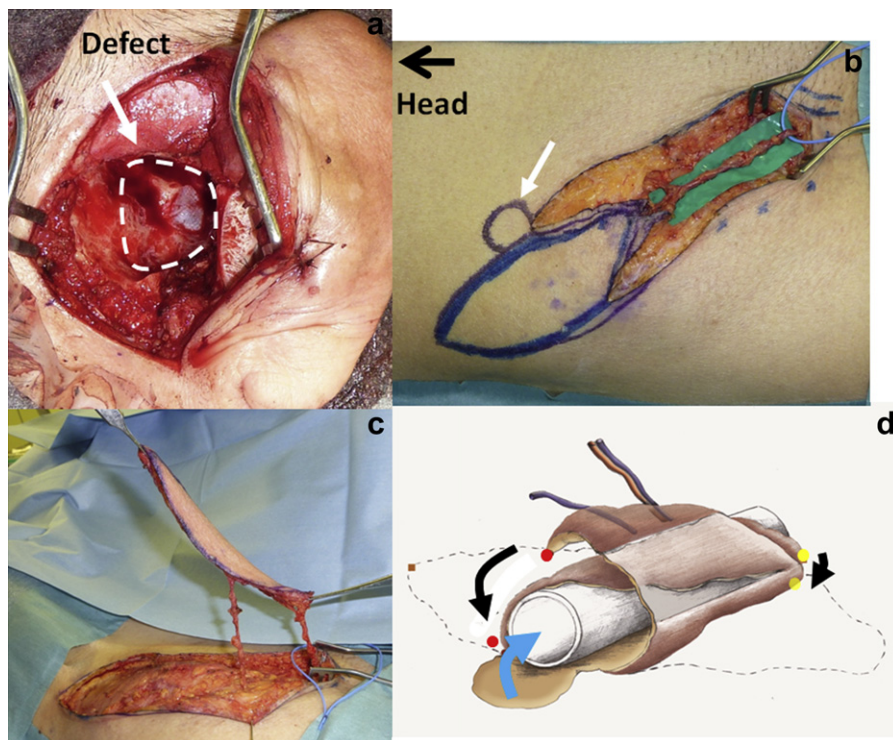


Figure 2 Case 1 (a) Small defect after cancer resection. Temporal bone was exposed. (b) Super-thin SCIP flap was elevated in a proximal to distal fashion. (arrow) The round area is for reconstruction of the eardrum. (c) The elevated super-thin flap. (d) The flap was rolled up shaping a tube using a 5-cc syringe as a guide. The bottom of the cylinder was used for eardrum.

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